Diagrams and algebraic expressions at order 3 in BMBPT

The ADG Dev Team

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Valid diagrams: 396
2N valid diagrams: 59
2N canonical diagrams for the energy: 10
2N canonical diagrams for a generic operator only: 6
2N non-canonical diagrams: 43
3N valid diagrams: 337
3N canonical diagrams for the energy: 167
3N canonical diagrams for a generic operator only: 40
3N non-canonical diagrams: 130

Contents

1 Time-structure diagrams

1.1 Tree diagrams

Time-structure diagram T1:

$$\mathrm{T1} = \frac{1}{a_1 a_2 a_3} \tag{1}$$

Resummation power: 6
Number of related Feynman diagrams: 1.
Related Feynman diagrams: 124.

Time-structure diagram T2:

$$\mathrm{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{2}$$

Resummation power: 3

Number of related Feynman diagrams: 22.

Related Feynman diagrams: 127, 126, 34, 32, 166, 165, 4, 1, 167, 125, 115, 114, 67, 66, 65, 64, 33, 31, 6, 5, 3, 2.

Time-structure diagram T3:

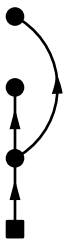
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{3}$$

Resummation power: 1

Number of related Feynman diagrams: 267.

Related Feynman diagrams: 270, 267, 153, 146, 141, 36, 358, 349, 343, 230, 225, 214, 361, 352, 339, 334, 331, 328, 326, 325, 280, 275, 271, 265, 234, 223, 215, 207, 203, 135, 132, 129, 56, 50, 43, 387, 385, 384, 380, 379, 377, 304, 303, 302, 300, 299, 298, 296, 295, 294, 293, 291, 290, 289, 288, 287, 285, 284, 282, 279, 276, 272, 269, 268, 266, 252, 251, 248, 247, 246, 245, 196, 195, 194, 193, 190, 189, 187, 186, 178, 177, 176, 175, 174, 173, 171, 168, 154, 152, 151, 150, 149, 148, 147, 145, 144, 143, 142, 140, 139, 138, 137, 133, 128, 121, 120, 119, 118, 117, 116, 99, 98, 97, 96, 95, 94, 93, 92, 91, 90, 89, 88, 87, 86, 85, 84, 83, 82, 80, 76, 75, 74, 71, 70, 69, 68, 55, 54, 53, 52, 51, 48, 47, 46, 45, 44, 42, 41, 37, 35, 23, 21, 19, 18, 16, 13, 10, 9, 8, 7, 360, 359, 357, 356, 355, 354, 353, 350, 348, 347, 346, 345, 344, 342, 341, 340, 338, 337, 327, 232, 231, 229, 228, 227, 226, 224, 221, 220, 219, 216, 213, 212, 211, 209, 206, 204, 388, 386, 383, 382, 381, 378, 362, 351, 336, 335, 333, 332, 330, 329, 324, 305, 301, 297, 292, 286, 283, 281, 278, 277, 274, 273, 264, 253, 250, 249, 244, 235, 233, 222, 218, 217, 210, 208, 205, 202, 197, 192, 191, 188, 185, 172, 170, 169, 136, 134, 131, 130, 81, 79, 78, 77, 73, 72, 57, 49, 40, 39, 38, 24, 22, 20, 17, 15, 14, 12, 11.

Time-structure diagram T4:



$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{4}$$

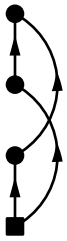
Resummation power: 2

Number of related Feynman diagrams: 53.

Related Feynman diagrams: 322, 63, 375, 374, 371, 320, 316, 241, 163, 161, 396, 394, 323, 321, 317, 263, 262, 260, 201, 184, 164, 123, 113, 112, 111, 110, 62, 30, 29, 376, 242, 395, 393, 373, 372, 370, 319, 318, 315, 261, 259, 243, 240, 200, 183, 182, 162, 160, 109, 108, 107, 61, 28.

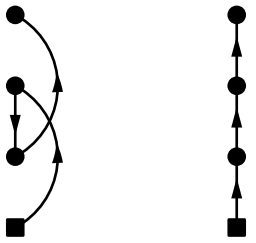
1.2 Non-tree diagrams

Time-structure diagram T5:



$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{5}$$

Equivalent tree diagrams: T3, T3.



Number of related Feynman diagrams: 53.

Related Feynman diagrams: 25, 58, 101, 102, 106, 157, 158, 180, 181, 198, 236, 237, 255, 256, 306, 309, 310, 363, 365, 366, 389, 391, 239, 369, 26, 27, 59, 100, 103, 104, 105, 122, 155, 179, 199, 254, 257, 258, 307, 312, 314, 390, 392, 156, 159, 238, 308, 311, 364, 367, 368, 60, 313.

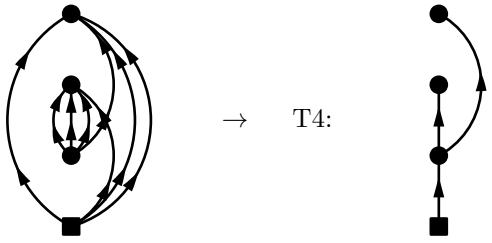
2 Two-body diagrams

2.1 Two-body energy canonical diagrams

Diagram 1:

$$\mathrm{PO3.1} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{04}_{k_5k_6k_7k_1} \Omega^{04}_{k_8k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1 \epsilon^{k_5k_6k_7k_8}} e^{-\tau_2 \epsilon_{k_1k_5k_6k_7}} e^{-}$$

$$= \frac{-(-1)^3}{(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{04}_{k_5k_6k_7k_1} \Omega^{04}_{k_8k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_5k_6k_7}\ \epsilon_{k_2k_3k_4k_8}} \tag{6}$$



$\rightarrow$ T4:

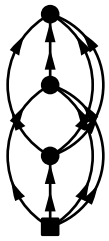
$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{7}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}$$
$$a_2 = \epsilon_{k_1k_5k_6k_7}$$
$$a_3 = \epsilon_{k_2k_3k_4k_8}$$

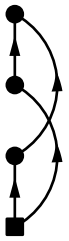
Diagram 2:

$$\mathrm{PO3.2} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{31}_{k_5k_6k_7k_1}\Omega^{13}_{k_8k_2k_3k_4}\Omega^{04}_{k_8k_5k_6k_7} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1}}e^{-\tau_2\epsilon^{k_8}_{k_2k_3k_4}}e^{-\tau_3\epsilon_{k}}$$

$$= \frac{-(-1)^3}{(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{31}_{k_5k_6k_7k_1}\Omega^{13}_{k_8k_2k_3k_4}\Omega^{04}_{k_8k_5k_6k_7} \left[\frac{1}{\epsilon_{k_1k_8}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_8}} + \frac{1}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_5k_6k_7}\ \epsilon_{k_5k_6k_7k_8}}\right] \tag{8}$$



$\rightarrow$ T5:



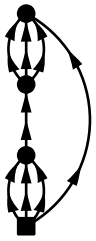
$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{9}$$

$$a_1 = \epsilon^{k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8}_{k_2k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6k_7k_8}$$

Diagram 3:

$$\mathrm{PO3.3} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{13}_{k_5k_1k_2k_3}\Omega^{31}_{k_6k_7k_8k_5}\Omega^{04}_{k_6k_7k_8k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5}_{k_1k_2k_3}}e^{-\tau_2\epsilon^{k_6k_7k_8}_{k_5}}e^{-\tau_3\epsilon_{k_4k}}$$

$$= \frac{(-1)^3}{(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4}\Omega^{13}_{k_5k_1k_2k_3}\Omega^{31}_{k_6k_7k_8k_5}\Omega^{04}_{k_6k_7k_8k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_4}\ \epsilon_{k_4k_6k_7k_8}} \tag{10}$$



$\rightarrow$ T3:

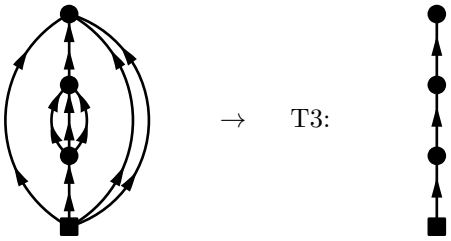
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{11}$$

$$a_1 = \epsilon^{k_5}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_6k_7k_8}_{k_5}$$
$$a_3 = \epsilon_{k_4k_6k_7k_8}$$

Diagram 4:

$$\mathrm{PO3.4} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{31}_{k_5k_6k_7k_1}\Omega^{13}_{k_8k_5k_6k_7}\Omega^{04}_{k_8k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1}}e^{-\tau_2\epsilon^{k_8}_{k_5k_6k_7}}e^{-\tau_3\epsilon_{k_2k}}$$

$$= \frac{(-1)^3}{(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4}\Omega^{31}_{k_5k_6k_7k_1}\Omega^{13}_{k_8k_5k_6k_7}\Omega^{04}_{k_8k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_8}} \tag{12}$$



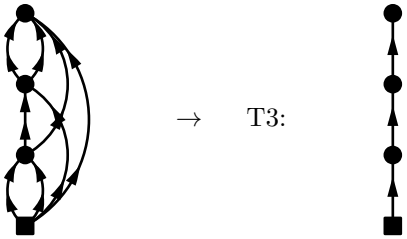
$\rightarrow$ T3:

$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{13}$$

$$a_1 = \epsilon^{k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8}_{k_5k_6k_7}$$
$$a_3 = \epsilon_{k_2k_3k_4k_8}$$

Diagram 5:

$$\text{PO3.5} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{22}_{k_7k_8k_5k_3} \Omega^{04}_{k_7k_8k_6k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}_{k_1k_2}} e^{-\tau_2\epsilon^{k_7k_8}_{k_3k_5}}$$
$$= \frac{-(-1)^3}{(2!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{22}_{k_7k_8k_5k_3} \Omega^{04}_{k_7k_8k_6k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_5k_4k_6}\ \epsilon_{k_4k_6k_7k_8}} \tag{14}$$



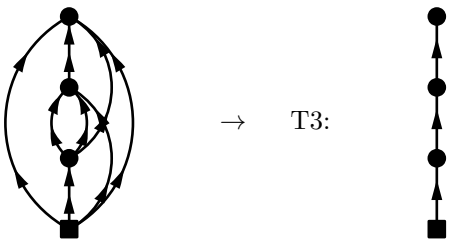
$\rightarrow$ T3:

$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{15}$$

$$a_1 = \epsilon^{k_5k_6}_{k_1k_2}$$
$$a_2 = \epsilon^{k_7k_8}_{k_3k_5}$$
$$a_3 = \epsilon_{k_4k_6k_7k_8}$$

Diagram 6:

$$\text{PO3.6} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{13}_{k_8k_5k_6k_2} \Omega^{04}_{k_8k_7k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1}} e^{-\tau_2\epsilon^{k_8}_{k_2}}$$
$$= \frac{-(-1)^3}{(2!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{13}_{k_8k_5k_6k_2} \Omega^{04}_{k_8k_7k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_5k_6k_3k_4k_7}\ \epsilon_{k_3k_4k_7k_8}} \tag{16}$$



$\rightarrow$ T3:

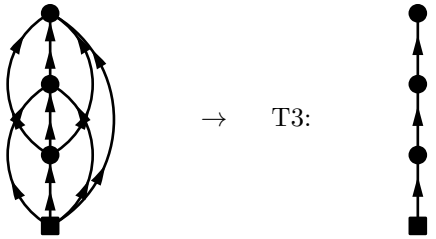
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{17}$$

$$a_1 = \epsilon^{k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8}_{k_2k_5k_6}$$
$$a_3 = \epsilon_{k_3k_4k_7k_8}$$

Diagram 7:

$$\mathrm{PO3.7} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{13}_{k_8k_5k_2k_3} \Omega^{04}_{k_8k_6k_7k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1}} e^{-\tau_2\epsilon^{k_8}_{k_2k_3}}$$

$$= \frac{(-1)^3}{(2!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{13}_{k_8k_5k_2k_3} \Omega^{04}_{k_8k_6k_7k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_5k_4k_6k_7}\ \epsilon_{k_4k_6k_7k_8}} \tag{18}$$



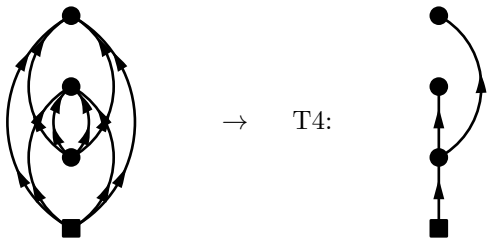
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{19}$$

$$a_1 = \epsilon^{k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8}_{k_2k_3k_5}$$
$$a_3 = \epsilon_{k_4k_6k_7k_8}$$

Diagram 8:

$$\mathrm{PO3.8} = \lim_{\tau\to\infty} \frac{(-1)^3}{2(2!)^4} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{04}_{k_5k_6k_1k_2} \Omega^{04}_{k_7k_8k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1\epsilon^{k_5k_6k_7k_8}} e^{-\tau_2\epsilon_{k_1k_2k_5k_6}} e^{-\tau_3}$$

$$= \frac{(-1)^3}{2(2!)^4} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{04}_{k_5k_6k_1k_2} \Omega^{04}_{k_7k_8k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_5k_6}\ \epsilon_{k_3k_4k_7k_8}} \tag{20}$$



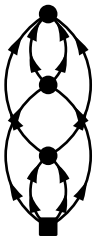
$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{21}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}$$
$$a_2 = \epsilon_{k_1k_2k_5k_6}$$
$$a_3 = \epsilon_{k_3k_4k_7k_8}$$

Diagram 9:

$$\mathrm{PO3.9} = \lim_{\tau\to\infty} \frac{(-1)^3}{2(2!)^4} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{22}_{k_7k_8k_3k_4} \Omega^{04}_{k_7k_8k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}_{k_1k_2}} e^{-\tau_2\epsilon^{k_7k_8}_{k_3k_4}} e^{-\tau_3\epsilon_{k_5k_6k_7k}}$$

$$= \frac{(-1)^3}{2(2!)^4} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{22}_{k_7k_8k_3k_4} \Omega^{04}_{k_7k_8k_5k_6} \left[\frac{1}{\epsilon_{k_1k_2k_7k_8}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_8}} + \frac{1}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_5k_6k_7k_8}} \right] \tag{22}$$



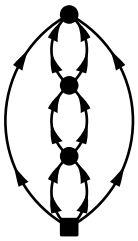
$\rightarrow$ T5:

$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{23}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6}_{k_1k_2} \\ a_2 &= \epsilon^{k_7k_8}_{k_3k_4} \\ a_3 &= \epsilon_{k_5k_6k_7k_8} \end{aligned}$$

Diagram 10:

$$\begin{aligned} \mathrm{PO3.10} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^4} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{22}_{k_7k_8k_5k_6} \Omega^{04}_{k_7k_8k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}_{k_1k_2}} e^{-\tau_2\epsilon^{k_7k_8}_{k_5k_6}} e^{-\tau_3\epsilon_{k_3k_4k_7} \\ &= \frac{(-1)^3}{(2!)^4} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{22}_{k_7k_8k_5k_6} \Omega^{04}_{k_7k_8k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_3k_4}\ \epsilon_{k_3k_4k_7k_8}} \end{aligned} \tag{24}$$



$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{25}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6}_{k_1k_2} \\ a_2 &= \epsilon^{k_7k_8}_{k_5k_6} \\ a_3 &= \epsilon_{k_3k_4k_7k_8} \end{aligned}$$

2.2 Two-body canonical diagrams for a generic operator only

Diagram 11:

$$\begin{aligned} \mathrm{PO3.11} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{31}_{k_3k_4k_5k_1} \Omega^{22}_{k_6k_7k_3k_4} \Omega^{04}_{k_6k_7k_5k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_3k_4k_5}_{k_1}} e^{-\tau_2\epsilon^{k_6k_7}_{k_3k_4}} e^{- \\ &= \frac{(-1)^3}{(2!)^2} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{31}_{k_3k_4k_5k_1} \Omega^{22}_{k_6k_7k_3k_4} \Omega^{04}_{k_6k_7k_5k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_2k_5}\ \epsilon_{k_2k_5k_6k_7}} \end{aligned} \tag{26}$$

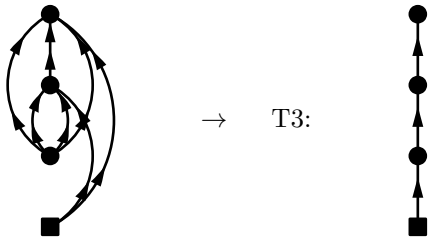
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{27}$$

$$a_1 = \epsilon^{k_3 k_4 k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6 k_7}_{k_3 k_4}$$
$$a_3 = \epsilon_{k_2 k_5 k_6 k_7}$$

Diagram 12:

$$\mathrm{PO3.12} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2} \sum_{k_i} O^{20}_{k_1 k_2} \Omega^{40}_{k_3 k_4 k_5 k_6} \Omega^{13}_{k_7 k_3 k_4 k_1} \Omega^{04}_{k_7 k_5 k_6 k_2} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7}_{k_1 k_3 k}}$$
$$= \frac{(-1)^3}{(2!)^2} \sum_{k_i} \frac{O^{20}_{k_1 k_2} \Omega^{40}_{k_3 k_4 k_5 k_6} \Omega^{13}_{k_7 k_3 k_4 k_1} \Omega^{04}_{k_7 k_5 k_6 k_2}}{\epsilon_{k_1 k_2}\ \epsilon_{k_1 k_3 k_4 k_2 k_5 k_6}\ \epsilon_{k_2 k_5 k_6 k_7}} \tag{28}$$



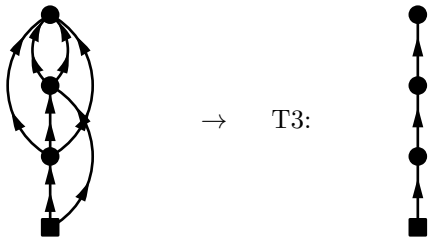
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{29}$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$
$$a_2 = \epsilon^{k_7}_{k_1 k_3 k_4}$$
$$a_3 = \epsilon_{k_2 k_5 k_6 k_7}$$

Diagram 13:

$$\mathrm{PO3.13} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2} \sum_{k_i} O^{20}_{k_1 k_2} \Omega^{31}_{k_3 k_4 k_5 k_1} \Omega^{22}_{k_6 k_7 k_3 k_2} \Omega^{04}_{k_6 k_7 k_4 k_5} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5}_{k_1}} e^{-\tau_2 \epsilon^{k_6 k_7}_{k_2 k_3}} e^{-}$$
$$= \frac{(-1)^3}{(2!)^2} \sum_{k_i} \frac{O^{20}_{k_1 k_2} \Omega^{31}_{k_3 k_4 k_5 k_1} \Omega^{22}_{k_6 k_7 k_3 k_2} \Omega^{04}_{k_6 k_7 k_4 k_5}}{\epsilon_{k_1 k_2}\ \epsilon_{k_2 k_3 k_4 k_5}\ \epsilon_{k_4 k_5 k_6 k_7}} \tag{30}$$



$\rightarrow$ T3:

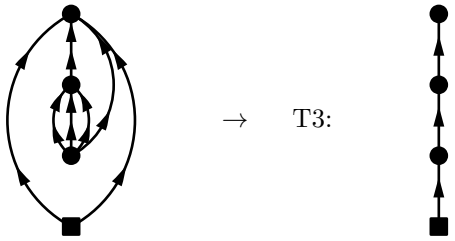
$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{31}$$

$$a_1 = \epsilon^{k_3 k_4 k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6 k_7}_{k_2 k_3}$$
$$a_3 = \epsilon_{k_4 k_5 k_6 k_7}$$

Diagram 14:

$$\text{PO3.14} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(3!)}\sum_{k_i} O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{13}_{k_7k_3k_4k_5}\Omega^{04}_{k_7k_6k_1k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5k_6}}e^{-\tau_2\epsilon^{k_7}_{k_3k}}$$

$$= \frac{(-1)^3}{(2!)(3!)}\sum_{k_i}\frac{O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{13}_{k_7k_3k_4k_5}\Omega^{04}_{k_7k_6k_1k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_1k_2k_6}\ \epsilon_{k_1k_2k_6k_7}} \tag{32}$$



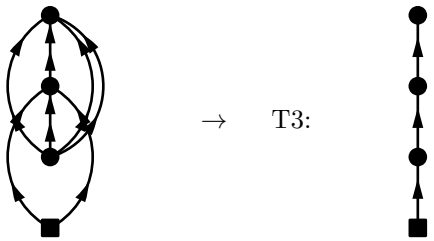
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{33}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}$$
$$a_2 = \epsilon^{k_7}_{k_3k_4k_5}$$
$$a_3 = \epsilon_{k_1k_2k_6k_7}$$

Diagram 15:

$$\text{PO3.15} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(3!)}\sum_{k_i} O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{13}_{k_7k_3k_1k_2}\Omega^{04}_{k_7k_4k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5k_6}}e^{-\tau_2\epsilon^{k_7}_{k_1k}}$$

$$= \frac{(-1)^3}{(2!)(3!)}\sum_{k_i}\frac{O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{13}_{k_7k_3k_1k_2}\Omega^{04}_{k_7k_4k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_7}} \tag{34}$$



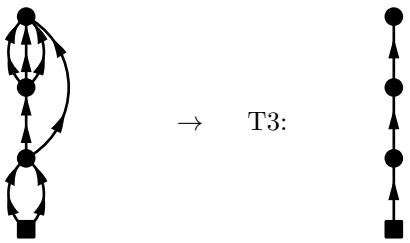
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{35}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}$$
$$a_2 = \epsilon^{k_7}_{k_1k_2k_3}$$
$$a_3 = \epsilon_{k_4k_5k_6k_7}$$

Diagram 16:

$$\text{PO3.16} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(3!)}\sum_{k_i} O^{20}_{k_1k_2}\Omega^{22}_{k_3k_4k_1k_2}\Omega^{31}_{k_5k_6k_7k_3}\Omega^{04}_{k_5k_6k_7k_4}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4}_{k_1k_2}}e^{-\tau_2\epsilon^{k_5k_6k_7}_{k_3}}\epsilon$$

$$= \frac{(-1)^3}{(2!)(3!)}\sum_{k_i}\frac{O^{20}_{k_1k_2}\Omega^{22}_{k_3k_4k_1k_2}\Omega^{31}_{k_5k_6k_7k_3}\Omega^{04}_{k_5k_6k_7k_4}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4}\ \epsilon_{k_4k_5k_6k_7}} \tag{36}$$



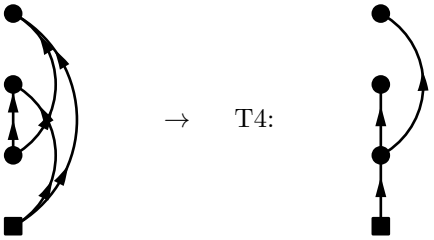
$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{37}$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4}_{k_1 k_2} \\ a_2 &= \epsilon^{k_5 k_6 k_7}_{k_3} \\ a_3 &= \epsilon_{k_4 k_5 k_6 k_7} \end{aligned}$$

2.3 Two-body non-canonical diagrams

Diagram 17:

$$\begin{aligned} \mathrm{PO3.17} &= \lim_{\tau\to\infty} \frac{-(-1)^3}{2} \sum_{k_i} O^{20}_{k_1 k_2} \Omega^{20}_{k_3 k_4} \Omega^{02}_{k_3 k_1} \Omega^{02}_{k_4 k_2} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1 k_3}} e^{-\tau_3 \epsilon_{k_2 k_4}} \\ &= \frac{-(-1)^3}{2} \sum_{k_i} \frac{O^{20}_{k_1 k_2} \Omega^{20}_{k_3 k_4} \Omega^{02}_{k_3 k_1} \Omega^{02}_{k_4 k_2}}{\epsilon_{k_1 k_2}\ \epsilon_{k_1 k_3}\ \epsilon_{k_2 k_4}} \end{aligned} \tag{38}$$

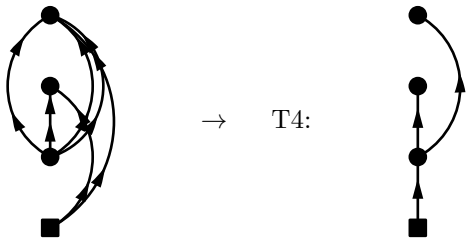


$$\mathrm{T4} = \frac{1}{(a_1 + a_2 + a_3)a_2 a_3} \tag{39}$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon_{k_1 k_3} \\ a_3 &= \epsilon_{k_2 k_4} \end{aligned}$$

Diagram 18:

$$\begin{aligned} \mathrm{PO3.18} &= \lim_{\tau\to\infty} \frac{-(-1)^3}{(3!)} \sum_{k_i} O^{20}_{k_1 k_2} \Omega^{40}_{k_3 k_4 k_5 k_6} \Omega^{02}_{k_3 k_1} \Omega^{04}_{k_4 k_5 k_6 k_2} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_3}} e^{-\tau_3 \epsilon_{k_2 k_4 k_5 k_6}} \\ &= \frac{-(-1)^3}{(3!)} \sum_{k_i} \frac{O^{20}_{k_1 k_2} \Omega^{40}_{k_3 k_4 k_5 k_6} \Omega^{02}_{k_3 k_1} \Omega^{04}_{k_4 k_5 k_6 k_2}}{\epsilon_{k_1 k_2}\ \epsilon_{k_1 k_3}\ \epsilon_{k_2 k_4 k_5 k_6}} \end{aligned} \tag{40}$$



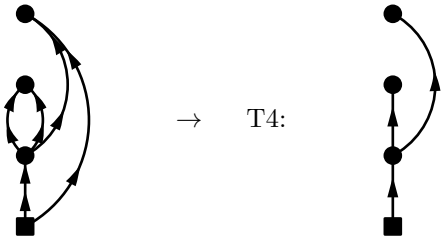
$$\mathrm{T4} = \frac{1}{(a_1 + a_2 + a_3)a_2 a_3} \tag{41}$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\ a_2 &= \epsilon_{k_1 k_3} \\ a_3 &= \epsilon_{k_2 k_4 k_5 k_6} \end{aligned}$$

Diagram 19:

$$\text{PO3.19} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{02}_{k_3k_4}\Omega^{02}_{k_5k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon^{k_3k_4k_5}_{k_1}} e^{-\tau_2\epsilon_{k_3k_4}} e^{-\tau_3\epsilon_{k_2k_5}}$$

$$= \frac{(-1)^3}{(2!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{02}_{k_3k_4}\Omega^{02}_{k_5k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4}\ \epsilon_{k_2k_5}} \tag{42}$$



$\rightarrow$ T4:

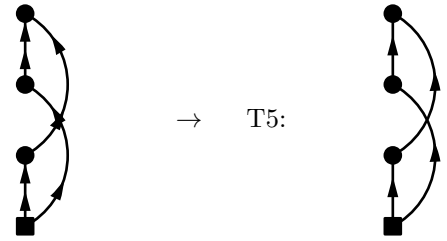
$$\text{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{43}$$

$$a_1 = \epsilon^{k_3k_4k_5}_{k_1}$$
$$a_2 = \epsilon_{k_3k_4}$$
$$a_3 = \epsilon_{k_2k_5}$$

Diagram 20:

$$\text{PO3.20} = \lim_{\tau\to\infty} \frac{-(-1)^3}{2} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{11}_{k_4k_2}\Omega^{02}_{k_4k_3} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3}_{k_1}} e^{-\tau_2\epsilon^{k_4}_{k_2}} e^{-\tau_3\epsilon_{k_3k_4}}$$

$$= \frac{-(-1)^3}{2} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{11}_{k_4k_2}\Omega^{02}_{k_4k_3} \left[\frac{1}{\epsilon_{k_1k_4}\ \epsilon_{k_1k_2}\ \epsilon_{k_3k_4}} + \frac{1}{\epsilon_{k_1k_2}\ \epsilon_{k_2k_3}\ \epsilon_{k_3k_4}}\right] \tag{44}$$



$\rightarrow$ T5:

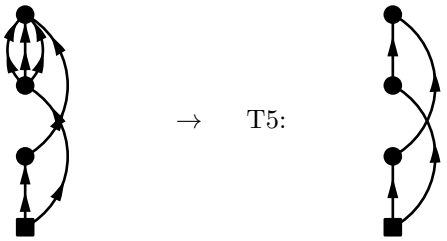
$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{45}$$

$$a_1 = \epsilon^{k_3}_{k_1}$$
$$a_2 = \epsilon^{k_4}_{k_2}$$
$$a_3 = \epsilon_{k_3k_4}$$

Diagram 21:

$$\text{PO3.21} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(3!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{31}_{k_4k_5k_6k_2}\Omega^{04}_{k_4k_5k_6k_3} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3}_{k_1}} e^{-\tau_2\epsilon^{k_4k_5k_6}_{k_2}} e^{-\tau_3\epsilon_{k_3k_4k_5k_6}}$$

$$= \frac{-(-1)^3}{(3!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{31}_{k_4k_5k_6k_2}\Omega^{04}_{k_4k_5k_6k_3} \left[\frac{1}{\epsilon_{k_1k_4k_5k_6}\ \epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}} + \frac{1}{\epsilon_{k_1k_2}\ \epsilon_{k_2k_3}\ \epsilon_{k_3k_4k_5k_6}}\right] \tag{46}$$



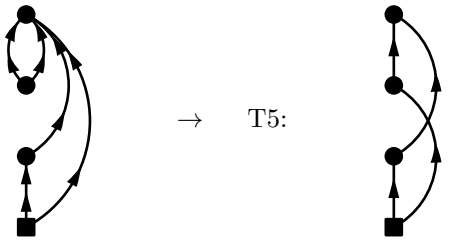
$\rightarrow$ T5:

$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{47}$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3} \\ a_2 &= \epsilon_{k_2}^{k_4 k_5 k_6} \\ a_3 &= \epsilon_{k_3 k_4 k_5 k_6} \end{aligned}$$

Diagram 22:

$$\begin{aligned} \mathrm{PO3.22} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{20}_{k_4k_5}\Omega^{04}_{k_4k_5k_3k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1}^{k_3}} e^{-\tau_2\epsilon^{k_4k_5}} e^{-\tau_3\epsilon_{k_2k_3k_4k_5}} \\ &= \frac{(-1)^3}{(2!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{20}_{k_4k_5}\Omega^{04}_{k_4k_5k_3k_2} \left[\frac{1}{\epsilon_{k_1k_2k_4k_5}\ \epsilon_{k_1k_2}\ \epsilon_{k_2k_3k_4k_5}} + \frac{1}{\epsilon_{k_1k_2}\ \epsilon_{k_2k_3}\ \epsilon_{k_2k_3k_4k_5}} \right] \end{aligned} \tag{48}$$



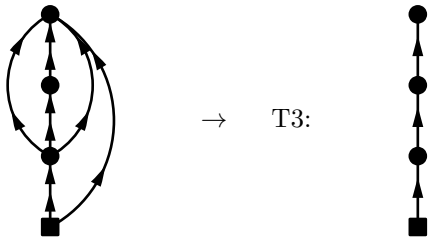
$\rightarrow$ T5:

$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{49}$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3} \\ a_2 &= \epsilon^{k_4k_5} \\ a_3 &= \epsilon_{k_2k_3k_4k_5} \end{aligned}$$

Diagram 23:

$$\begin{aligned} \mathrm{PO3.23} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{11}_{k_6k_3}\Omega^{04}_{k_6k_4k_5k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1}^{k_3k_4k_5}} e^{-\tau_2\epsilon_{k_3}^{k_6}} e^{-\tau_3\epsilon_{k_2k} \\ &= \frac{(-1)^3}{(2!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{11}_{k_6k_3}\Omega^{04}_{k_6k_4k_5k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_2k_4k_5}\ \epsilon_{k_2k_4k_5k_6}} \end{aligned} \tag{50}$$



$\rightarrow$ T3:

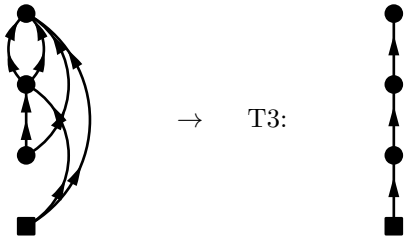
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{51}$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3k_4k_5} \\ a_2 &= \epsilon_{k_3}^{k_6} \\ a_3 &= \epsilon_{k_2k_4k_5k_6} \end{aligned}$$

Diagram 24:

$$\mathrm{PO3.24} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{22}_{k_5k_6k_3k_1}\Omega^{04}_{k_5k_6k_4k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4}}e^{-\tau_2\epsilon^{k_5k_6}_{k_1k_3}}e^{-\tau_3\epsilon_k}$$

$$= \frac{-(-1)^3}{(2!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{22}_{k_5k_6k_3k_1}\Omega^{04}_{k_5k_6k_4k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_3k_2k_4}\ \epsilon_{k_2k_4k_5k_6}} \tag{52}$$



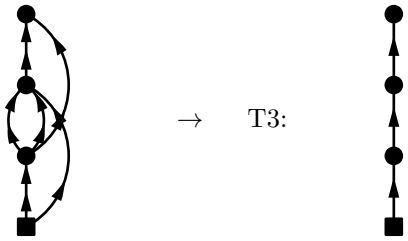
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{53}$$

$$a_1 = \epsilon^{k_3k_4}$$
$$a_2 = \epsilon^{k_5k_6}_{k_1k_3}$$
$$a_3 = \epsilon_{k_2k_4k_5k_6}$$

Diagram 25:

$$\mathrm{PO3.25} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{13}_{k_6k_3k_4k_2}\Omega^{02}_{k_6k_5} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5}_{k_1}}e^{-\tau_2\epsilon^{k_6}_{k_2k_3k_4}}e^{-}$$

$$= \frac{-(-1)^3}{(2!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{13}_{k_6k_3k_4k_2}\Omega^{02}_{k_6k_5}}{\epsilon_{k_1k_2}\ \epsilon_{k_2k_3k_4k_5}\ \epsilon_{k_5k_6}} \tag{54}$$



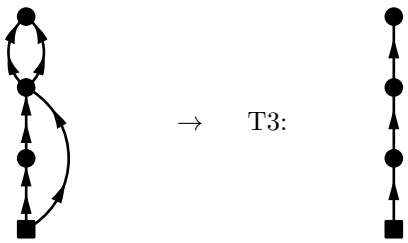
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{55}$$

$$a_1 = \epsilon^{k_3k_4k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6}_{k_2k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6}$$

Diagram 26:

$$\mathrm{PO3.26} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{22}_{k_4k_5k_3k_2}\Omega^{02}_{k_4k_5} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3}_{k_1}}e^{-\tau_2\epsilon^{k_4k_5}_{k_2k_3}}e^{-\tau_3\epsilon_{k_4k_5}}$$

$$= \frac{(-1)^3}{(2!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{22}_{k_4k_5k_3k_2}\Omega^{02}_{k_4k_5}}{\epsilon_{k_1k_2}\ \epsilon_{k_2k_3}\ \epsilon_{k_4k_5}} \tag{56}$$

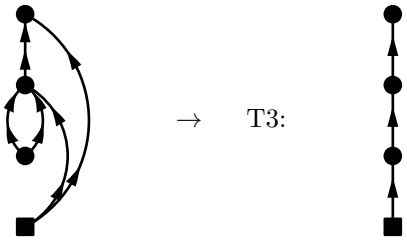


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{57}$$

$$\begin{aligned} a_1 &= \epsilon^{k_3}_{k_1} \\ a_2 &= \epsilon^{k_4k_5}_{k_2k_3} \\ a_3 &= \epsilon_{k_4k_5} \end{aligned}$$

Diagram 27:

$$\begin{aligned} \mathrm{PO3.27} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{13}_{k_5k_3k_4k_1}\Omega^{02}_{k_5k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4}}e^{-\tau_2\epsilon^{k_5}_{k_1k_3k_4}}e^{-\tau_3\epsilon_{k_2k_5}} \\ &= \frac{(-1)^3}{(2!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{13}_{k_5k_3k_4k_1}\Omega^{02}_{k_5k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_3k_4k_2}\ \epsilon_{k_2k_5}} \end{aligned} \tag{58}$$

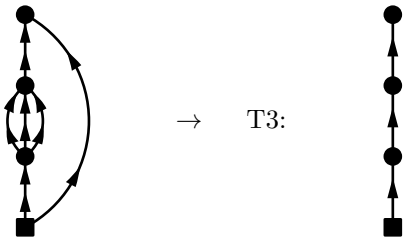


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{59}$$

$$\begin{aligned} a_1 &= \epsilon^{k_3k_4} \\ a_2 &= \epsilon^{k_5}_{k_1k_3k_4} \\ a_3 &= \epsilon_{k_2k_5} \end{aligned}$$

Diagram 28:

$$\begin{aligned} \mathrm{PO3.28} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{13}_{k_6k_3k_4k_5}\Omega^{02}_{k_6k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5}_{k_1}}e^{-\tau_2\epsilon^{k_6}_{k_3k_4k_5}}e^{-\tau_3\epsilon_{k_2k_6}} \\ &= \frac{(-1)^3}{(3!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{13}_{k_6k_3k_4k_5}\Omega^{02}_{k_6k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_2}\ \epsilon_{k_2k_6}} \end{aligned} \tag{60}$$



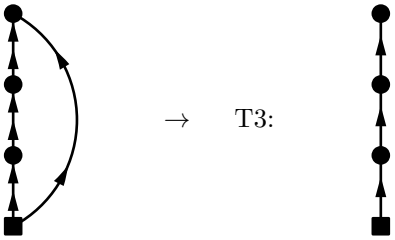
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{61}$$

$$\begin{aligned} a_1 &= \epsilon^{k_3k_4k_5}_{k_1} \\ a_2 &= \epsilon^{k_6}_{k_3k_4k_5} \\ a_3 &= \epsilon_{k_2k_6} \end{aligned}$$

Diagram 29:

$$\mathrm{PO3.29} = \lim_{\tau\to\infty}(-1)^3\sum_{k_i} O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{11}_{k_4k_3}\Omega^{02}_{k_4k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3}_{k_1}}e^{-\tau_2\epsilon^{k_4}_{k_3}}e^{-\tau_3\epsilon_{k_2k_4}}$$

$$= (-1)^3\sum_{k_i}\frac{O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{11}_{k_4k_3}\Omega^{02}_{k_4k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_2}\ \epsilon_{k_2k_4}} \tag{62}$$



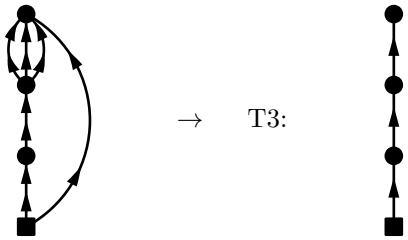
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{63}$$

$$a_1 = \epsilon^{k_3}_{k_1}$$
$$a_2 = \epsilon^{k_4}_{k_3}$$
$$a_3 = \epsilon_{k_2k_4}$$

Diagram 30:

$$\mathrm{PO3.30} = \lim_{\tau\to\infty}\frac{(-1)^3}{(3!)}\sum_{k_i} O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{31}_{k_4k_5k_6k_3}\Omega^{04}_{k_4k_5k_6k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3}_{k_1}}e^{-\tau_2\epsilon^{k_4k_5k_6}_{k_3}}e^{-\tau_3\epsilon_{k_2k_4k_5k_6}}$$

$$= \frac{(-1)^3}{(3!)}\sum_{k_i}\frac{O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{31}_{k_4k_5k_6k_3}\Omega^{04}_{k_4k_5k_6k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_2}\ \epsilon_{k_2k_4k_5k_6}} \tag{64}$$



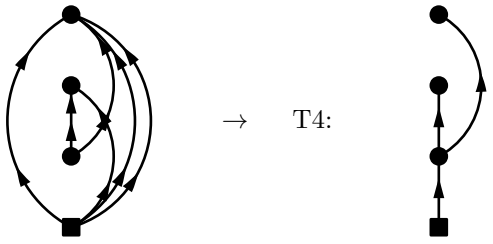
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{65}$$

$$a_1 = \epsilon^{k_3}_{k_1}$$
$$a_2 = \epsilon^{k_4k_5k_6}_{k_3}$$
$$a_3 = \epsilon_{k_2k_4k_5k_6}$$

Diagram 31:

$$\mathrm{PO3.31} = \lim_{\tau\to\infty}\frac{-(-1)^3}{(3!)}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{20}_{k_5k_6}\Omega^{02}_{k_5k_1}\Omega^{04}_{k_6k_2k_3k_4}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon^{k_5k_6}}e^{-\tau_2\epsilon_{k_1k_5}}e^{-\tau_3\epsilon_{k_2k_3k_4k_6}}$$

$$= \frac{-(-1)^3}{(3!)}\sum_{k_i}\frac{O^{40}_{k_1k_2k_3k_4}\Omega^{20}_{k_5k_6}\Omega^{02}_{k_5k_1}\Omega^{04}_{k_6k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_5}\ \epsilon_{k_2k_3k_4k_6}} \tag{66}$$

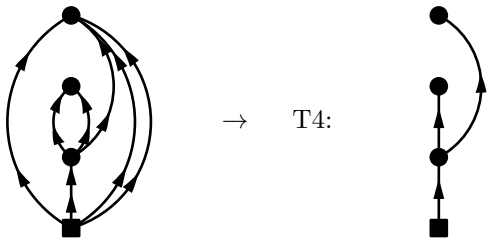


$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{67}$$

$$a_1 = \epsilon^{k_5k_6}$$
$$a_2 = \epsilon_{k_1k_5}$$
$$a_3 = \epsilon_{k_2k_3k_4k_6}$$

Diagram 32:

$$\mathrm{PO3.32} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{31}_{k_5k_6k_7k_1}\Omega^{02}_{k_5k_6}\Omega^{04}_{k_7k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1}} e^{-\tau_2\epsilon_{k_5k_6}} e^{-\tau_3\epsilon_{k_2k_3k_4}}$$
$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4}\Omega^{31}_{k_5k_6k_7k_1}\Omega^{02}_{k_5k_6}\Omega^{04}_{k_7k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}\ \epsilon_{k_2k_3k_4k_7}} \tag{68}$$

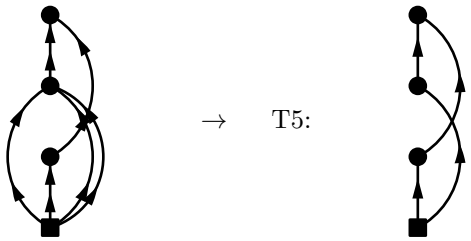


$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{69}$$

$$a_1 = \epsilon^{k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon_{k_5k_6}$$
$$a_3 = \epsilon_{k_2k_3k_4k_7}$$

Diagram 33:

$$\mathrm{PO3.33} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{11}_{k_5k_1}\Omega^{13}_{k_6k_2k_3k_4}\Omega^{02}_{k_6k_5} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5}_{k_1}} e^{-\tau_2\epsilon^{k_6}_{k_2k_3k_4}} e^{-\tau_3\epsilon_{k_5k_6}}$$
$$= \frac{-(-1)^3}{(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{11}_{k_5k_1}\Omega^{13}_{k_6k_2k_3k_4}\Omega^{02}_{k_6k_5} \left[\frac{1}{\epsilon_{k_1k_6}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}} + \frac{1}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_5}\ \epsilon_{k_5k_6}}\right] \tag{70}$$

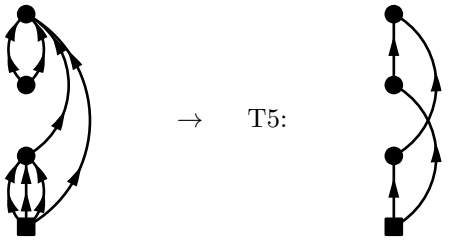


$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{71}$$

$$a_1 = \epsilon^{k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6}_{k_2k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6}$$

Diagram 34:

$$\begin{aligned}\mathrm{PO3.34} &= \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(3!)}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{13}_{k_5k_1k_2k_3}\Omega^{20}_{k_6k_7}\Omega^{04}_{k_6k_7k_5k_4}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5}_{k_1k_2k_3}}e^{-\tau_2\epsilon^{k_6k_7}}e^{-\tau_3\epsilon_{k_4k_5k_6}}\\ &= \frac{(-1)^3}{(2!)(3!)}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{13}_{k_5k_1k_2k_3}\Omega^{20}_{k_6k_7}\Omega^{04}_{k_6k_7k_5k_4}\left[\frac{1}{\epsilon_{k_1k_2k_3k_4k_6k_7}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5k_6k_7}}+\frac{1}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5}\ \epsilon_{k_4k_5k_6k_7}}\right]\end{aligned} \tag{72}$$

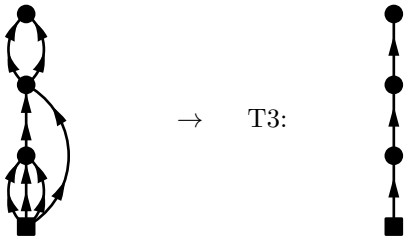


$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3}+\frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{73}$$

$$\begin{aligned}a_1 &= \epsilon^{k_5}_{k_1k_2k_3}\\ a_2 &= \epsilon^{k_6k_7}\\ a_3 &= \epsilon_{k_4k_5k_6k_7}\end{aligned}$$

Diagram 35:

$$\begin{aligned}\mathrm{PO3.35} &= \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(3!)}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{13}_{k_5k_1k_2k_3}\Omega^{22}_{k_6k_7k_5k_4}\Omega^{02}_{k_6k_7}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5}_{k_1k_2k_3}}e^{-\tau_2\epsilon^{k_6k_7}_{k_4k_5}}e^{-\tau_3\epsilon_{k_6k_7}}\\ &= \frac{(-1)^3}{(2!)(3!)}\sum_{k_i}\frac{O^{40}_{k_1k_2k_3k_4}\Omega^{13}_{k_5k_1k_2k_3}\Omega^{22}_{k_6k_7k_5k_4}\Omega^{02}_{k_6k_7}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5}\ \epsilon_{k_6k_7}}\end{aligned} \tag{74}$$

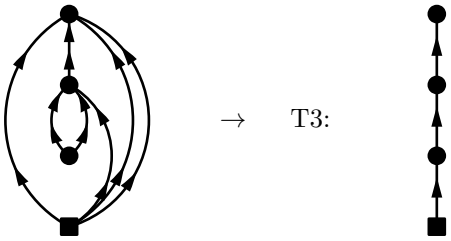


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{75}$$

$$\begin{aligned}a_1 &= \epsilon^{k_5}_{k_1k_2k_3}\\ a_2 &= \epsilon^{k_6k_7}_{k_4k_5}\\ a_3 &= \epsilon_{k_6k_7}\end{aligned}$$

Diagram 36:

$$\begin{aligned}\mathrm{PO3.36} &= \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(3!)}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{20}_{k_5k_6}\Omega^{13}_{k_7k_5k_6k_1}\Omega^{04}_{k_7k_2k_3k_4}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6}}e^{-\tau_2\epsilon^{k_7}_{k_1k_5k_6}}e^{-\tau_3\epsilon_{k_2k_3k_4}}\\ &= \frac{(-1)^3}{(2!)(3!)}\sum_{k_i}\frac{O^{40}_{k_1k_2k_3k_4}\Omega^{20}_{k_5k_6}\Omega^{13}_{k_7k_5k_6k_1}\Omega^{04}_{k_7k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_5k_6k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_7}}\end{aligned} \tag{76}$$

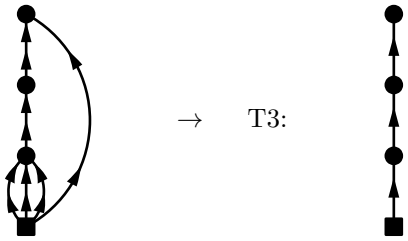


$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{77}$$

$$a_1 = \epsilon^{k_5 k_6}$$
$$a_2 = \epsilon^{k_7}_{k_1 k_5 k_6}$$
$$a_3 = \epsilon_{k_2 k_3 k_4 k_7}$$

Diagram 37:

$$\text{PO3.37} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{13}_{k_5 k_1 k_2 k_3} \Omega^{11}_{k_6 k_5} \Omega^{02}_{k_6 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5}_{k_1 k_2 k_3}} e^{-\tau_2 \epsilon^{k_6}_{k_5}} e^{-\tau_3 \epsilon_{k_4 k_6}}$$
$$= \frac{(-1)^3}{(3!)} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{13}_{k_5 k_1 k_2 k_3} \Omega^{11}_{k_6 k_5} \Omega^{02}_{k_6 k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_5 k_4}\ \epsilon_{k_4 k_6}} \tag{78}$$

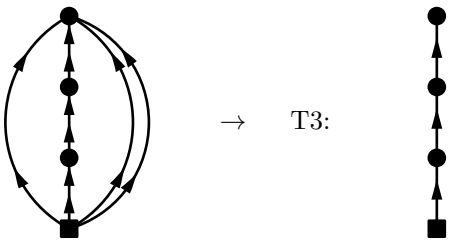


$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{79}$$

$$a_1 = \epsilon^{k_5}_{k_1 k_2 k_3}$$
$$a_2 = \epsilon^{k_6}_{k_5}$$
$$a_3 = \epsilon_{k_4 k_6}$$

Diagram 38:

$$\text{PO3.38} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{11}_{k_5 k_1} \Omega^{11}_{k_6 k_5} \Omega^{04}_{k_6 k_2 k_3 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5}_{k_1}} e^{-\tau_2 \epsilon^{k_6}_{k_5}} e^{-\tau_3 \epsilon_{k_2 k_3 k_4 k_6}}$$
$$= \frac{(-1)^3}{(3!)} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{11}_{k_5 k_1} \Omega^{11}_{k_6 k_5} \Omega^{04}_{k_6 k_2 k_3 k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_5 k_2 k_3 k_4}\ \epsilon_{k_2 k_3 k_4 k_6}} \tag{80}$$



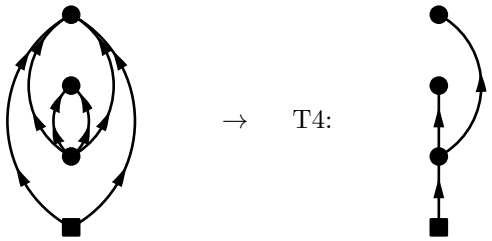
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{81}$$

$$a_1 = \epsilon^{k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6}_{k_5}$$
$$a_3 = \epsilon_{k_2 k_3 k_4 k_6}$$

Diagram 39:

$$\mathrm{PO3.39} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{02}_{k_3k_4}\Omega^{04}_{k_5k_6k_1k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon^{k_3k_4k_5k_6}}e^{-\tau_2\epsilon_{k_3k_4}}e^{-\tau_3\epsilon_{k_1k_2k_5k_6}}$$

$$= \frac{(-1)^3}{(2!)^3} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{02}_{k_3k_4}\Omega^{04}_{k_5k_6k_1k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4}\ \epsilon_{k_1k_2k_5k_6}} \tag{82}$$



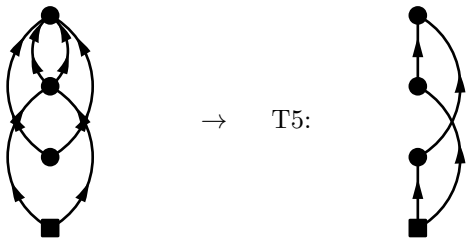
$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{83}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}$$
$$a_2 = \epsilon_{k_3k_4}$$
$$a_3 = \epsilon_{k_1k_2k_5k_6}$$

Diagram 40:

$$\mathrm{PO3.40} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{22}_{k_5k_6k_1k_2}\Omega^{04}_{k_5k_6k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4}}e^{-\tau_2\epsilon^{k_5k_6}_{k_1k_2}}e^{-\tau_3\epsilon_{k_3k_4k_5k_6}}$$

$$= \frac{(-1)^3}{(2!)^3} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{22}_{k_5k_6k_1k_2}\Omega^{04}_{k_5k_6k_3k_4} \left[\frac{1}{\epsilon_{k_5k_6}\ \epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}} + \frac{1}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6}}\right] \tag{84}$$



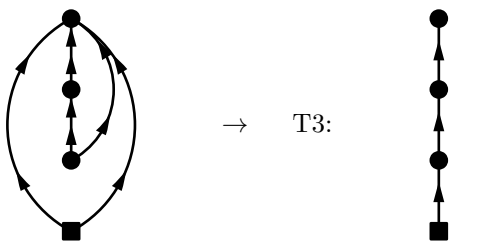
$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{85}$$

$$a_1 = \epsilon^{k_3k_4}$$
$$a_2 = \epsilon^{k_5k_6}_{k_1k_2}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6}$$

Diagram 41:

$$\mathrm{PO3.41} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{11}_{k_5k_3}\Omega^{04}_{k_5k_4k_1k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4}}e^{-\tau_2\epsilon^{k_5}_{k_3}}e^{-\tau_3\epsilon_{k_1k_2k_4k_5}}$$

$$= \frac{(-1)^3}{(2!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{11}_{k_5k_3}\Omega^{04}_{k_5k_4k_1k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_1k_2k_4}\ \epsilon_{k_1k_2k_4k_5}} \tag{86}$$

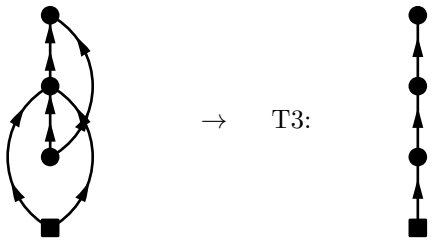


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{87}$$

$$\begin{aligned} a_1 &= \epsilon^{k_3k_4} \\ a_2 &= \epsilon^{k_5}_{k_3} \\ a_3 &= \epsilon_{k_1k_2k_4k_5} \end{aligned}$$

Diagram 42:

$$\begin{aligned} \mathrm{PO3.42} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{13}_{k_5k_3k_1k_2}\Omega^{02}_{k_5k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4}}e^{-\tau_2\epsilon^{k_5}_{k_1k_2k_3}}e^{-\tau_3\epsilon_{k_4k_5}} \\ &= \frac{(-1)^3}{(2!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{13}_{k_5k_3k_1k_2}\Omega^{02}_{k_5k_4}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5}} \end{aligned} \tag{88}$$

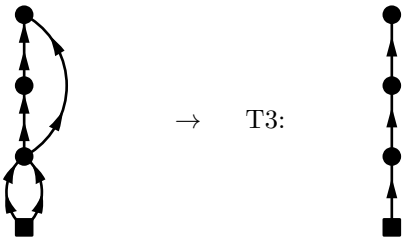


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{89}$$

$$\begin{aligned} a_1 &= \epsilon^{k_3k_4} \\ a_2 &= \epsilon^{k_5}_{k_1k_2k_3} \\ a_3 &= \epsilon_{k_4k_5} \end{aligned}$$

Diagram 43:

$$\begin{aligned} \mathrm{PO3.43} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{22}_{k_3k_4k_1k_2}\Omega^{11}_{k_5k_3}\Omega^{02}_{k_5k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4}_{k_1k_2}}e^{-\tau_2\epsilon^{k_5}_{k_3}}e^{-\tau_3\epsilon_{k_4k_5}} \\ &= \frac{(-1)^3}{(2!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{22}_{k_3k_4k_1k_2}\Omega^{11}_{k_5k_3}\Omega^{02}_{k_5k_4}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4}\ \epsilon_{k_4k_5}} \end{aligned} \tag{90}$$



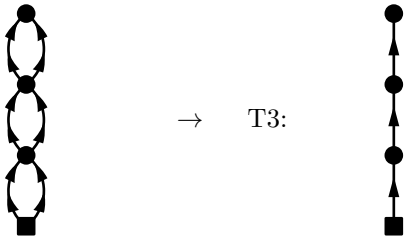
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{91}$$

$$\begin{aligned} a_1 &= \epsilon^{k_3k_4}_{k_1k_2} \\ a_2 &= \epsilon^{k_5}_{k_3} \\ a_3 &= \epsilon_{k_4k_5} \end{aligned}$$

Diagram 44:

$$\mathrm{PO3.44} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{22}_{k_3k_4k_1k_2} \Omega^{22}_{k_5k_6k_3k_4} \Omega^{02}_{k_5k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_3k_4}_{k_1k_2}} e^{-\tau_2 \epsilon^{k_5k_6}_{k_3k_4}} e^{-\tau_3 \epsilon_{k_5k_6}}$$

$$= \frac{(-1)^3}{(2!)^3} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{22}_{k_3k_4k_1k_2} \Omega^{22}_{k_5k_6k_3k_4} \Omega^{02}_{k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4}\ \epsilon_{k_5k_6}} \tag{92}$$



$\rightarrow$ T3:

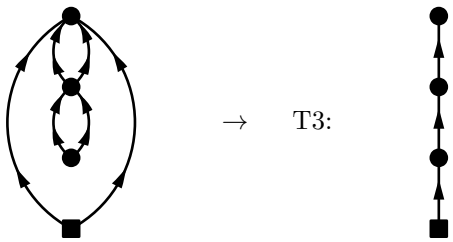
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{93}$$

$$a_1 = \epsilon^{k_3k_4}_{k_1k_2}$$
$$a_2 = \epsilon^{k_5k_6}_{k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6}$$

Diagram 45:

$$\mathrm{PO3.45} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{20}_{k_3k_4} \Omega^{22}_{k_5k_6k_3k_4} \Omega^{04}_{k_5k_6k_1k_2} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_3k_4}} e^{-\tau_2 \epsilon^{k_5k_6}_{k_3k_4}} e^{-\tau_3 \epsilon_{k_1k_2k_5k_6}}$$

$$= \frac{(-1)^3}{(2!)^3} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{20}_{k_3k_4} \Omega^{22}_{k_5k_6k_3k_4} \Omega^{04}_{k_5k_6k_1k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_1k_2}\ \epsilon_{k_1k_2k_5k_6}} \tag{94}$$



$\rightarrow$ T3:

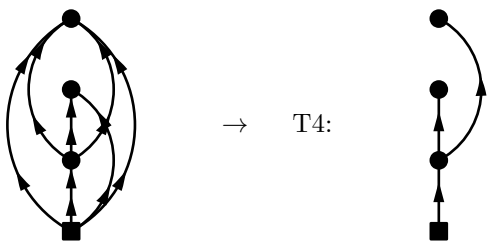
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{95}$$

$$a_1 = \epsilon^{k_3k_4}$$
$$a_2 = \epsilon^{k_5k_6}_{k_3k_4}$$
$$a_3 = \epsilon_{k_1k_2k_5k_6}$$

Diagram 46:

$$\mathrm{PO3.46} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{02}_{k_5k_2} \Omega^{04}_{k_6k_7k_3k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1 \epsilon^{k_5k_6k_7}_{k_1}} e^{-\tau_2 \epsilon_{k_2k_5}} e^{-\tau_3 \epsilon_{k_3k_4k_6k_7}}$$

$$= \frac{(-1)^3}{(2!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{02}_{k_5k_2} \Omega^{04}_{k_6k_7k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_5}\ \epsilon_{k_3k_4k_6k_7}} \tag{96}$$



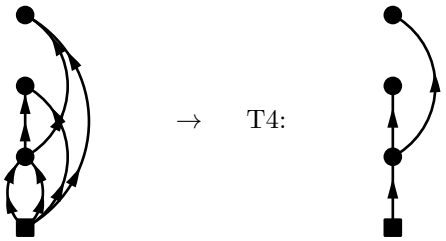
$\rightarrow$ T4:

$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{97}$$

$$a_1 = \epsilon_{k_1}^{k_5k_6k_7}$$
$$a_2 = \epsilon_{k_2k_5}$$
$$a_3 = \epsilon_{k_3k_4k_6k_7}$$

Diagram 47:

$$\mathrm{PO3.47} = \lim_{\tau\to\infty} \frac{-(-1)^3}{2(2!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{22}_{k_5k_6k_1k_2}\Omega^{02}_{k_5k_3}\Omega^{02}_{k_6k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon_{k_1k_2}^{k_5k_6}}e^{-\tau_2\epsilon_{k_3k_5}}e^{-\tau_3\epsilon_{k_4k_6}}$$
$$= \frac{-(-1)^3}{2(2!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4}\Omega^{22}_{k_5k_6k_1k_2}\Omega^{02}_{k_5k_3}\Omega^{02}_{k_6k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_5}\ \epsilon_{k_4k_6}} \tag{98}$$

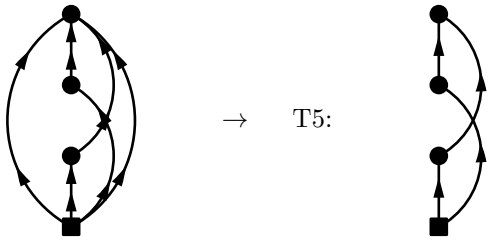


$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{99}$$

$$a_1 = \epsilon_{k_1k_2}^{k_5k_6}$$
$$a_2 = \epsilon_{k_3k_5}$$
$$a_3 = \epsilon_{k_4k_6}$$

Diagram 48:

$$\mathrm{PO3.48} = \lim_{\tau\to\infty} \frac{-(-1)^3}{2(2!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{11}_{k_5k_1}\Omega^{11}_{k_6k_2}\Omega^{04}_{k_6k_5k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon_{k_1}^{k_5}}e^{-\tau_2\epsilon_{k_2}^{k_6}}e^{-\tau_3\epsilon_{k_3k_4k_5k_6}}$$
$$= \frac{-(-1)^3}{2(2!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{11}_{k_5k_1}\Omega^{11}_{k_6k_2}\Omega^{04}_{k_6k_5k_3k_4} \left[\frac{1}{\epsilon_{k_1k_3k_4k_6}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6}} + \frac{1}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_5}\ \epsilon_{k_3k_4k_5k_6}}\right] \tag{100}$$

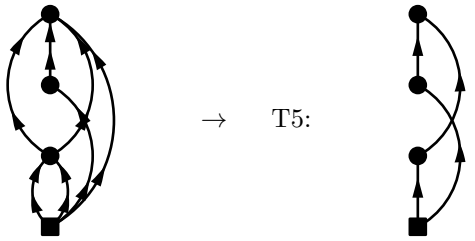


$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{101}$$

$$a_1 = \epsilon_{k_1}^{k_5}$$
$$a_2 = \epsilon_{k_2}^{k_6}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6}$$

Diagram 49:

$$\begin{aligned}\mathrm{PO3.49} &= \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)^2}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{22}_{k_5k_6k_1k_2}\Omega^{11}_{k_7k_3}\Omega^{04}_{k_7k_5k_6k_4}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6}_{k_1k_2}}e^{-\tau_2\epsilon^{k_7}_{k_3}}e^{-\tau_3\epsilon_{k_4k_5k_6k_7}}\\ &= \frac{(-1)^3}{(2!)^2}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{22}_{k_5k_6k_1k_2}\Omega^{11}_{k_7k_3}\Omega^{04}_{k_7k_5k_6k_4}\left[\frac{1}{\epsilon_{k_1k_2k_4k_7}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5k_6k_7}}+\frac{1}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_7}}\right]\end{aligned} \tag{102}$$

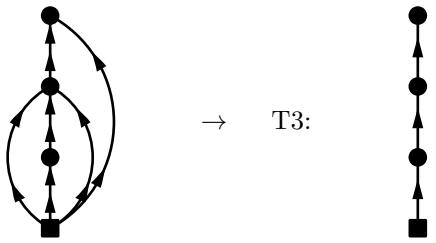


$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3}+\frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{103}$$

$$\begin{aligned}a_1 &= \epsilon^{k_5k_6}_{k_1k_2}\\ a_2 &= \epsilon^{k_7}_{k_3}\\ a_3 &= \epsilon_{k_4k_5k_6k_7}\end{aligned}$$

Diagram 50:

$$\begin{aligned}\mathrm{PO3.50} &= \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{11}_{k_5k_1}\Omega^{13}_{k_6k_5k_2k_3}\Omega^{02}_{k_6k_4}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5}_{k_1}}e^{-\tau_2\epsilon^{k_6}_{k_2k_3k_5}}e^{-\tau_3\epsilon_{k_4k_6}}\\ &= \frac{(-1)^3}{(2!)}\sum_{k_i}\frac{O^{40}_{k_1k_2k_3k_4}\Omega^{11}_{k_5k_1}\Omega^{13}_{k_6k_5k_2k_3}\Omega^{02}_{k_6k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_5k_4}\ \epsilon_{k_4k_6}}\end{aligned} \tag{104}$$

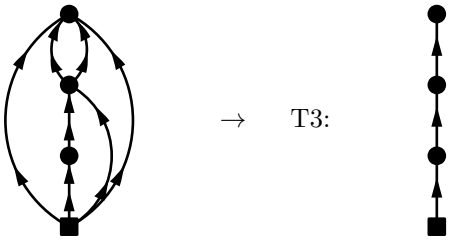


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{105}$$

$$\begin{aligned}a_1 &= \epsilon^{k_5}_{k_1}\\ a_2 &= \epsilon^{k_6}_{k_2k_3k_5}\\ a_3 &= \epsilon_{k_4k_6}\end{aligned}$$

Diagram 51:

$$\begin{aligned}\mathrm{PO3.51} &= \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)^2}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{11}_{k_5k_1}\Omega^{22}_{k_6k_7k_5k_2}\Omega^{04}_{k_6k_7k_3k_4}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5}_{k_1}}e^{-\tau_2\epsilon^{k_6k_7}_{k_2k_5}}e^{-\tau_3\epsilon_{k_3k_4k_6k_7}}\\ &= \frac{(-1)^3}{(2!)^2}\sum_{k_i}\frac{O^{40}_{k_1k_2k_3k_4}\Omega^{11}_{k_5k_1}\Omega^{22}_{k_6k_7k_5k_2}\Omega^{04}_{k_6k_7k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_5k_3k_4}\ \epsilon_{k_3k_4k_6k_7}}\end{aligned} \tag{106}$$

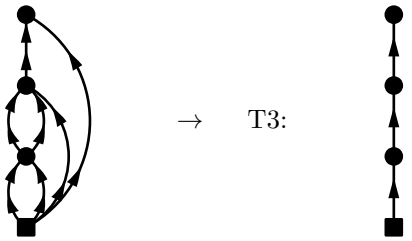


$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{107}$$

$$a_1 = \epsilon^{k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6k_7}_{k_2k_5}$$
$$a_3 = \epsilon_{k_3k_4k_6k_7}$$

Diagram 52:

$$\text{PO3.52} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{13}_{k_7k_5k_6k_3} \Omega^{02}_{k_7k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5k_6}_{k_1k_2}} e^{-\tau_2 \epsilon^{k_7}_{k_3k_5k_6}} e^{-\tau_3 \epsilon_{k_4k_7}}$$
$$= \frac{(-1)^3}{(2!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{13}_{k_7k_5k_6k_3} \Omega^{02}_{k_7k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_5k_6k_4}\ \epsilon_{k_4k_7}} \tag{108}$$

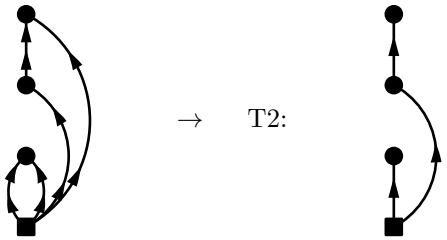


$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{109}$$

$$a_1 = \epsilon^{k_5k_6}_{k_1k_2}$$
$$a_2 = \epsilon^{k_7}_{k_3k_5k_6}$$
$$a_3 = \epsilon_{k_4k_7}$$

Diagram 53:

$$\text{PO3.53} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{02}_{k_1k_2} \Omega^{11}_{k_5k_3} \Omega^{02}_{k_5k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon_{k_1k_2}} e^{-\tau_2 \epsilon^{k_5}_{k_3}} e^{-\tau_3 \epsilon_{k_4k_5}}$$
$$= \frac{(-1)^3}{(2!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{02}_{k_1k_2} \Omega^{11}_{k_5k_3} \Omega^{02}_{k_5k_4}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4}\ \epsilon_{k_4k_5}} \tag{110}$$



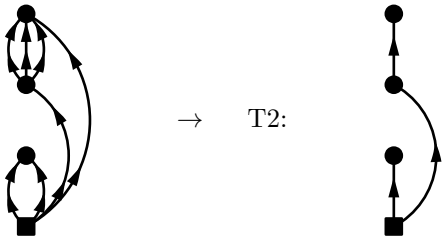
$$\text{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{111}$$

$$a_1 = \epsilon_{k_1k_2}$$
$$a_2 = \epsilon^{k_5}_{k_3}$$
$$a_3 = \epsilon_{k_4k_5}$$

Diagram 54:

$$\mathrm{PO3.54} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{02}_{k_1k_2} \Omega^{31}_{k_5k_6k_7k_3} \Omega^{04}_{k_5k_6k_7k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1k_2}} e^{-\tau_2\epsilon^{k_5k_6k_7}_{k_3}} e^{-\tau_3\epsilon_{k_4k_5k_6k_7}}$$

$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{02}_{k_1k_2} \Omega^{31}_{k_5k_6k_7k_3} \Omega^{04}_{k_5k_6k_7k_4}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4}\ \epsilon_{k_4k_5k_6k_7}} \tag{112}$$



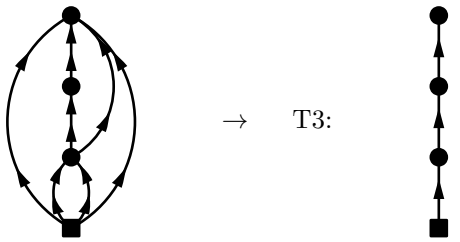
$$\mathrm{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{113}$$

$$a_1 = \epsilon_{k_1k_2}$$
$$a_2 = \epsilon^{k_5k_6k_7}_{k_3}$$
$$a_3 = \epsilon_{k_4k_5k_6k_7}$$

Diagram 55:

$$\mathrm{PO3.55} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{11}_{k_7k_5} \Omega^{04}_{k_7k_6k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}_{k_1k_2}} e^{-\tau_2\epsilon^{k_7}_{k_5}} e^{-\tau_3\epsilon_{k_1}}$$

$$= \frac{(-1)^3}{(2!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{11}_{k_7k_5} \Omega^{04}_{k_7k_6k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_3k_4k_6}\ \epsilon_{k_3k_4k_6k_7}} \tag{114}$$



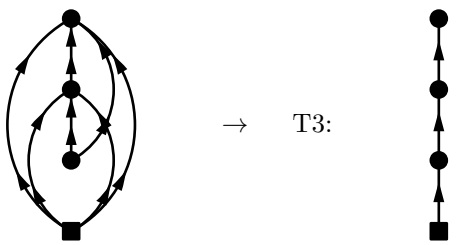
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{115}$$

$$a_1 = \epsilon^{k_5k_6}_{k_1k_2}$$
$$a_2 = \epsilon^{k_7}_{k_5}$$
$$a_3 = \epsilon_{k_3k_4k_6k_7}$$

Diagram 56:

$$\mathrm{PO3.56} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{20}_{k_5k_6} \Omega^{13}_{k_7k_5k_1k_2} \Omega^{04}_{k_7k_6k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}} e^{-\tau_2\epsilon^{k_7}_{k_1k_2k_5}} e^{-}$$

$$= \frac{(-1)^3}{(2!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{20}_{k_5k_6} \Omega^{13}_{k_7k_5k_1k_2} \Omega^{04}_{k_7k_6k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_5k_3k_4k_6}\ \epsilon_{k_3k_4k_6k_7}} \tag{116}$$

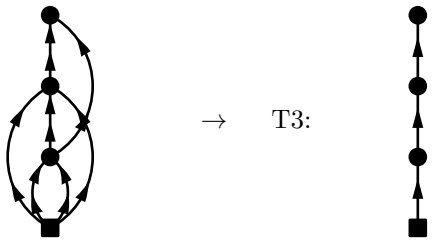


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{117}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6} \\ a_2 &= \epsilon^{k_7}_{k_1k_2k_5} \\ a_3 &= \epsilon_{k_3k_4k_6k_7} \end{aligned}$$

Diagram 57:

$$\begin{aligned} \mathrm{PO3.57} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{13}_{k_7k_5k_3k_4} \Omega^{02}_{k_7k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}_{k_1k_2}} e^{-\tau_2\epsilon^{k_7}_{k_3k_4k_5}} e^{-} \\ &= \frac{(-1)^3}{(2!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{13}_{k_7k_5k_3k_4} \Omega^{02}_{k_7k_6}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_6k_7}} \end{aligned} \tag{118}$$

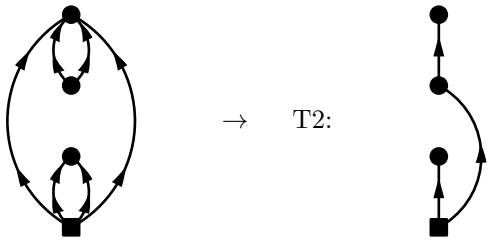


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{119}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6}_{k_1k_2} \\ a_2 &= \epsilon^{k_7}_{k_3k_4k_5} \\ a_3 &= \epsilon_{k_6k_7} \end{aligned}$$

Diagram 58:

$$\begin{aligned} \mathrm{PO3.58} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{02}_{k_1k_2} \Omega^{20}_{k_5k_6} \Omega^{04}_{k_5k_6k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1k_2}} e^{-\tau_2\epsilon^{k_5k_6}} e^{-\tau_3\epsilon_{k_3k_4k_5k_6}} \\ &= \frac{(-1)^3}{(2!)^3} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{02}_{k_1k_2} \Omega^{20}_{k_5k_6} \Omega^{04}_{k_5k_6k_3k_4}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4}\ \epsilon_{k_3k_4k_5k_6}} \end{aligned} \tag{120}$$

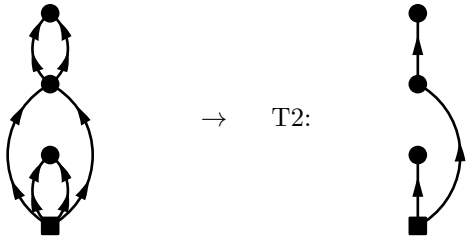


$$\mathrm{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{121}$$

$$\begin{aligned} a_1 &= \epsilon_{k_1k_2} \\ a_2 &= \epsilon^{k_5k_6} \\ a_3 &= \epsilon_{k_3k_4k_5k_6} \end{aligned}$$

Diagram 59:

$$\begin{aligned}\mathrm{PO3.59} &= \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)^3}\sum_{k_i}O^{40}_{k_1k_2k_3k_4}\Omega^{02}_{k_1k_2}\Omega^{22}_{k_5k_6k_3k_4}\Omega^{02}_{k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon_{k_1k_2}}e^{-\tau_2\epsilon^{k_5k_6}_{k_3k_4}}e^{-\tau_3\epsilon_{k_5k_6}}\\ &= \frac{(-1)^3}{(2!)^3}\sum_{k_i}\frac{O^{40}_{k_1k_2k_3k_4}\Omega^{02}_{k_1k_2}\Omega^{22}_{k_5k_6k_3k_4}\Omega^{02}_{k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4}\ \epsilon_{k_5k_6}}\end{aligned} \tag{122}$$



$$\mathrm{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{123}$$

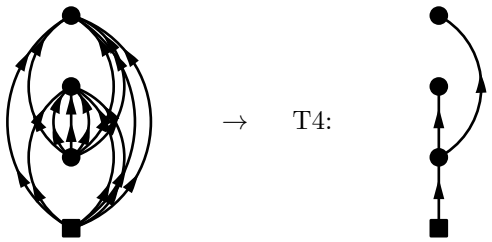
$$\begin{aligned}a_1 &= \epsilon_{k_1k_2}\\ a_2 &= \epsilon^{k_5k_6}_{k_3k_4}\\ a_3 &= \epsilon_{k_5k_6}\end{aligned}$$

3 Three-body diagrams

3.1 Three-body energy canonical diagrams

Diagram 60:

$$\begin{aligned}\mathrm{PO3.60} &= \lim_{\tau\to\infty}\frac{-(-1)^3}{2(3!)^4}\sum_{k_i}O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{60}_{k_7k_8k_9k_{10}k_{11}k_{12}}\Omega^{06}_{k_7k_8k_9k_1k_2k_3}\Omega^{06}_{k_{10}k_{11}k_{12}k_4k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon^k}\\ &= \frac{-(-1)^3}{2(3!)^4}\sum_{k_i}\frac{O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{60}_{k_7k_8k_9k_{10}k_{11}k_{12}}\Omega^{06}_{k_7k_8k_9k_1k_2k_3}\Omega^{06}_{k_{10}k_{11}k_{12}k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_2k_3k_7k_8k_9}\ \epsilon_{k_4k_5k_6k_{10}k_{11}k_{12}}}\end{aligned} \tag{124}$$

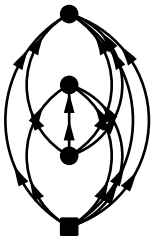


$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{125}$$

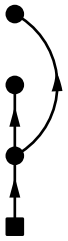
$$\begin{aligned}a_1 &= \epsilon^{k_7k_8k_9k_{10}k_{11}k_{12}}\\ a_2 &= \epsilon_{k_1k_2k_3k_7k_8k_9}\\ a_3 &= \epsilon_{k_4k_5k_6k_{10}k_{11}k_{12}}\end{aligned}$$

Diagram 61:

$$\begin{aligned}\mathrm{PO3.61} &= \lim_{\tau\to\infty}\frac{-(-1)^3}{(3!)^3}\sum_{k_i}O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{40}_{k_7k_8k_9k_{10}}\Omega^{04}_{k_7k_1k_2k_3}\Omega^{06}_{k_8k_9k_{10}k_4k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon^{k_7k_8k_9k_{10}}}e^{-\tau}\\ &= \frac{-(-1)^3}{(3!)^3}\sum_{k_i}\frac{O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{40}_{k_7k_8k_9k_{10}}\Omega^{04}_{k_7k_1k_2k_3}\Omega^{06}_{k_8k_9k_{10}k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_2k_3k_7}\ \epsilon_{k_4k_5k_6k_8k_9k_{10}}}\end{aligned} \tag{126}$$



$\rightarrow$ T4:

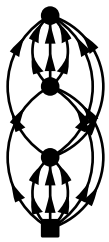


$$\mathrm{T4} = \frac{1}{(a_1 + a_2 + a_3)a_2 a_3} \tag{127}$$

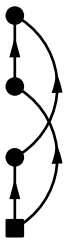
$$\begin{aligned} a_1 &= \epsilon^{k_7 k_8 k_9 k_{10}} \\ a_2 &= \epsilon_{k_1 k_2 k_3 k_7} \\ a_3 &= \epsilon_{k_4 k_5 k_6 k_8 k_9 k_{10}} \end{aligned}$$

Diagram 62:

$$\begin{aligned} \mathrm{PO3.62} &= \lim_{\tau\to\infty} \frac{-(-1)^3}{2(3!)^4} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{33}_{k_{10}k_{11}k_{12}k_4k_5k_6} \Omega^{06}_{k_{10}k_{11}k_{12}k_7k_8k_9} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k} \\ &= \frac{-(-1)^3}{2(3!)^4} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{33}_{k_{10}k_{11}k_{12}k_4k_5k_6} \Omega^{06}_{k_{10}k_{11}k_{12}k_7k_8k_9} \left[\frac{1}{\epsilon_{k_1k_2k_3k_{10}k_{11}k_{12}} \ \epsilon_{k_1k_2k_3k_4k_5k_6} \ \epsilon_{k_7k_8k_9k_{10}k_{11}k_{12}}} \right. \end{aligned} \tag{128}$$



$\rightarrow$ T5:

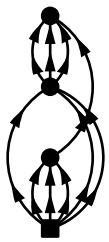


$$\mathrm{T5} = \frac{1}{(a_1 + a_3)(a_2 + a_1 + a_3)a_3} + \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{129}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7 k_8 k_9}_{k_1 k_2 k_3} \\ a_2 &= \epsilon^{k_{10} k_{11} k_{12}}_{k_4 k_5 k_6} \\ a_3 &= \epsilon_{k_7 k_8 k_9 k_{10} k_{11} k_{12}} \end{aligned}$$

Diagram 63:

$$\begin{aligned} \mathrm{PO3.63} &= \lim_{\tau\to\infty} \frac{-(-1)^3}{(3!)^3} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{33}_{k_8k_9k_{10}k_4k_5k_6} \Omega^{04}_{k_8k_9k_{10}k_7} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_7}_{k_1k_2k_3}} e^{-\tau_2 \epsilon^{k} \\ &= \frac{-(-1)^3}{(3!)^3} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{33}_{k_8k_9k_{10}k_4k_5k_6} \Omega^{04}_{k_8k_9k_{10}k_7} \left[\frac{1}{\epsilon_{k_1k_2k_3k_8k_9k_{10}} \ \epsilon_{k_1k_2k_3k_4k_5k_6} \ \epsilon_{k_7k_8k_9k_{10}}} + \frac{}{\epsilon_{k_1k_2k_3k_4k_5k_6}} \right. \end{aligned} \tag{130}$$



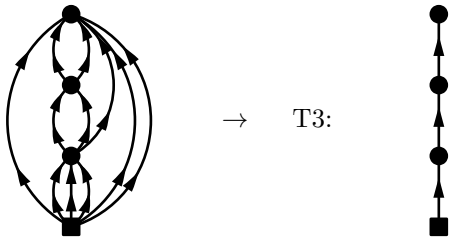
$\rightarrow$ T5:

$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{131}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7}_{k_1k_2k_3} \\ a_2 &= \epsilon^{k_8k_9k_{10}}_{k_4k_5k_6} \\ a_3 &= \epsilon_{k_7k_8k_9k_{10}} \end{aligned}$$

Diagram 64:

$$\begin{aligned} \mathrm{PO3.64} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{22}_{k_{10}k_{11}k_7k_8} \Omega^{06}_{k_{10}k_{11}k_9k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) \\ &= \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{22}_{k_{10}k_{11}k_7k_8} \Omega^{06}_{k_{10}k_{11}k_9k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8k_4k_5k_6k_9}\ \epsilon_{k_4k_5k_6k_9k_{10}k_{11}}} \end{aligned} \tag{132}$$

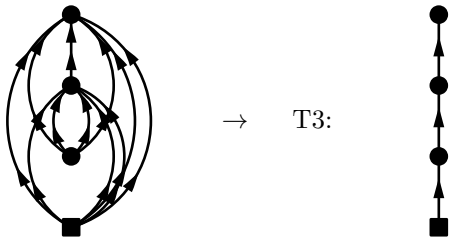


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{133}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7k_8k_9}_{k_1k_2k_3} \\ a_2 &= \epsilon^{k_{10}k_{11}}_{k_7k_8} \\ a_3 &= \epsilon_{k_4k_5k_6k_9k_{10}k_{11}} \end{aligned}$$

Diagram 65:

$$\begin{aligned} \mathrm{PO3.65} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{40}_{k_7k_8k_9k_{10}} \Omega^{15}_{k_{11}k_7k_8k_1k_2k_3} \Omega^{06}_{k_{11}k_9k_{10}k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) \\ &= \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{40}_{k_7k_8k_9k_{10}} \Omega^{15}_{k_{11}k_7k_8k_1k_2k_3} \Omega^{06}_{k_{11}k_9k_{10}k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_2k_3k_7k_8k_4k_5k_6k_9k_{10}}\ \epsilon_{k_4k_5k_6k_9k_{10}k_{11}}} \end{aligned} \tag{134}$$



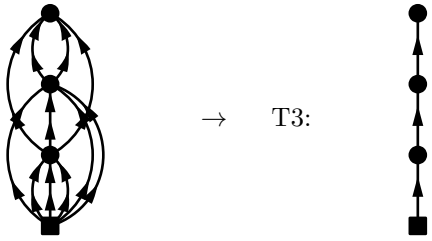
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{135}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7k_8k_9k_{10}} \\ a_2 &= \epsilon^{k_{11}}_{k_1k_2k_3k_7k_8} \\ a_3 &= \epsilon_{k_4k_5k_6k_9k_{10}k_{11}} \end{aligned}$$

Diagram 66:

$$\mathrm{PO3.66} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{24}_{k_{10}k_{11}k_7k_4k_5k_6} \Omega^{04}_{k_{10}k_{11}k_8k_9} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)$$

$$= \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{24}_{k_{10}k_{11}k_7k_4k_5k_6} \Omega^{04}_{k_{10}k_{11}k_8k_9}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_7k_8k_9}\ \epsilon_{k_8k_9k_{10}k_{11}}} \tag{136}$$



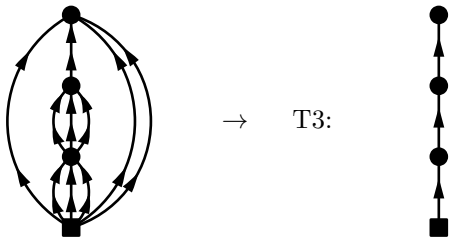
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{137}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_{10}k_{11}}_{k_4k_5k_6k_7}$$
$$a_3 = \epsilon_{k_8k_9k_{10}k_{11}}$$

Diagram 67:

$$\mathrm{PO3.67} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)^3} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{13}_{k_{10}k_7k_8k_9} \Omega^{04}_{k_{10}k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7k_8k_9}_{k_1k_2k_3}}e^{-\tau_2\epsilon^{k_{10}}_{k_7k}}$$

$$= \frac{(-1)^3}{(3!)^3} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{13}_{k_{10}k_7k_8k_9} \Omega^{04}_{k_{10}k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8k_9k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_{10}}} \tag{138}$$



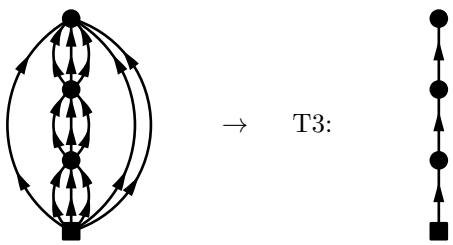
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{139}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_{10}}_{k_7k_8k_9}$$
$$a_3 = \epsilon_{k_4k_5k_6k_{10}}$$

Diagram 68:

$$\mathrm{PO3.68} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)^4} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{33}_{k_{10}k_{11}k_{12}k_7k_8k_9} \Omega^{06}_{k_{10}k_{11}k_{12}k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7k}_{k_1k}}$$

$$= \frac{(-1)^3}{(3!)^4} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{33}_{k_{10}k_{11}k_{12}k_7k_8k_9} \Omega^{06}_{k_{10}k_{11}k_{12}k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8k_9k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_{10}k_{11}k_{12}}} \tag{140}$$

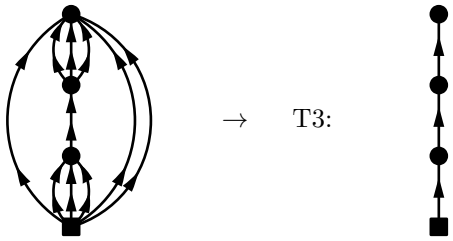


$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{141}$$

$$a_1 = \epsilon^{k_7 k_8 k_9}_{k_1 k_2 k_3}$$
$$a_2 = \epsilon^{k_{10} k_{11} k_{12}}_{k_7 k_8 k_9}$$
$$a_3 = \epsilon_{k_4 k_5 k_6 k_{10} k_{11} k_{12}}$$

Diagram 69:

$$\mathrm{PO3.69} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)^3} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{13}_{k_7 k_1 k_2 k_3} \Omega^{31}_{k_8 k_9 k_{10} k_7} \Omega^{06}_{k_8 k_9 k_{10} k_4 k_5 k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_7}_{k_1 k_2 k_3}} e^{-\tau_2 \epsilon^{k_8 k}_{k_7}}$$
$$= \frac{(-1)^3}{(3!)^3} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{13}_{k_7 k_1 k_2 k_3} \Omega^{31}_{k_8 k_9 k_{10} k_7} \Omega^{06}_{k_8 k_9 k_{10} k_4 k_5 k_6}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_7 k_4 k_5 k_6}\ \epsilon_{k_4 k_5 k_6 k_8 k_9 k_{10}}} \tag{142}$$



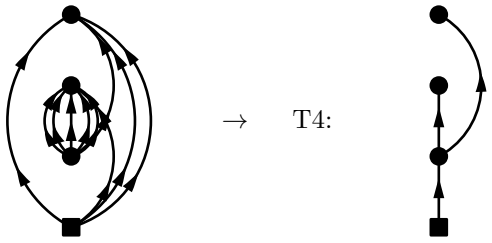
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{143}$$

$$a_1 = \epsilon^{k_7}_{k_1 k_2 k_3}$$
$$a_2 = \epsilon^{k_8 k_9 k_{10}}_{k_7}$$
$$a_3 = \epsilon_{k_4 k_5 k_6 k_8 k_9 k_{10}}$$

Diagram 70:

$$\mathrm{PO3.70} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(3!)(5!)} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{60}_{k_5 k_6 k_7 k_8 k_9 k_{10}} \Omega^{06}_{k_5 k_6 k_7 k_8 k_9 k_1} \Omega^{04}_{k_{10} k_2 k_3 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8 k_9 k_{10}}}$$
$$= \frac{-(-1)^3}{(3!)(5!)} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{60}_{k_5 k_6 k_7 k_8 k_9 k_{10}} \Omega^{06}_{k_5 k_6 k_7 k_8 k_9 k_1} \Omega^{04}_{k_{10} k_2 k_3 k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_1 k_5 k_6 k_7 k_8 k_9}\ \epsilon_{k_2 k_3 k_4 k_{10}}} \tag{144}$$



$\rightarrow$ T4:

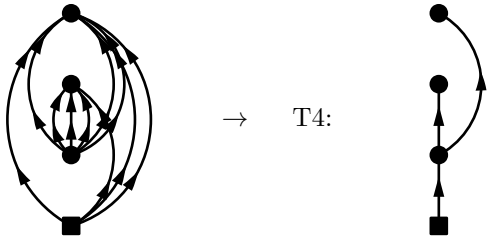
$$\mathrm{T4} = \frac{1}{(a_1 + a_2 + a_3)a_2 a_3} \tag{145}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8 k_9 k_{10}}$$
$$a_2 = \epsilon_{k_1 k_5 k_6 k_7 k_8 k_9}$$
$$a_3 = \epsilon_{k_2 k_3 k_4 k_{10}}$$

Diagram 71:

$$\mathrm{PO3.71} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(3!)^3} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{60}_{k_5k_6k_7k_8k_9k_{10}} \Omega^{04}_{k_5k_6k_7k_1} \Omega^{06}_{k_8k_9k_{10}k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon^{k_5k_6k_7k_8k_9k_{10}}}$$

$$= \frac{-(-1)^3}{(3!)^3} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{60}_{k_5k_6k_7k_8k_9k_{10}} \Omega^{04}_{k_5k_6k_7k_1} \Omega^{06}_{k_8k_9k_{10}k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_5k_6k_7}\ \epsilon_{k_2k_3k_4k_8k_9k_{10}}} \tag{146}$$



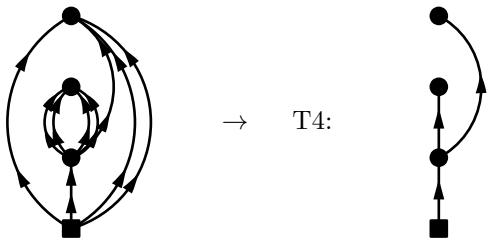
$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{147}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8k_9k_{10}}$$
$$a_2 = \epsilon_{k_1k_5k_6k_7}$$
$$a_3 = \epsilon_{k_2k_3k_4k_8k_9k_{10}}$$

Diagram 72:

$$\mathrm{PO3.72} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{04}_{k_5k_6k_7k_8} \Omega^{04}_{k_9k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon^{k_5k_6k_7k_8k_9}_{k_1}} e^{-\tau_2\epsilon_{k_5k_6}}$$

$$= \frac{(-1)^3}{(3!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{04}_{k_5k_6k_7k_8} \Omega^{04}_{k_9k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_8}\ \epsilon_{k_2k_3k_4k_9}} \tag{148}$$



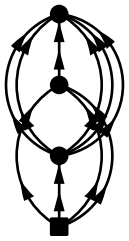
$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{149}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8k_9}_{k_1}$$
$$a_2 = \epsilon_{k_5k_6k_7k_8}$$
$$a_3 = \epsilon_{k_2k_3k_4k_9}$$

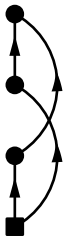
Diagram 73:

$$\mathrm{PO3.73} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(3!)(5!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{13}_{k_{10}k_2k_3k_4} \Omega^{06}_{k_{10}k_5k_6k_7k_8k_9} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7k_8k_9}_{k_1}} e^{-}$$

$$= \frac{-(-1)^3}{(3!)(5!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{13}_{k_{10}k_2k_3k_4} \Omega^{06}_{k_{10}k_5k_6k_7k_8k_9} \left[\frac{1}{\epsilon_{k_1k_{10}}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_8k_9k_{10}}} + \frac{1}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_5k_6k}} \right. \tag{150}$$



$\rightarrow$ T5:

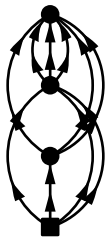


$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{151}$$

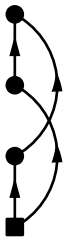
$$\begin{aligned} a_1 &= \epsilon^{k_5k_6k_7k_8k_9}_{k_1} \\ a_2 &= \epsilon^{k_{10}}_{k_2k_3k_4} \\ a_3 &= \epsilon_{k_5k_6k_7k_8k_9k_{10}} \end{aligned}$$

Diagram 74:

$$\begin{aligned} \text{PO3.74} &= \lim_{\tau\to\infty} \frac{-(-1)^3}{(3!)^3} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{33}_{k_8k_9k_{10}k_2k_3k_4} \Omega^{06}_{k_8k_9k_{10}k_5k_6k_7} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1}} e^{-\tau_2\epsilon^{k} \\ &= \frac{-(-1)^3}{(3!)^3} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{33}_{k_8k_9k_{10}k_2k_3k_4} \Omega^{06}_{k_8k_9k_{10}k_5k_6k_7} \left[\frac{1}{\epsilon_{k_1k_8k_9k_{10}}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_8k_9k_{10}}} + \frac{}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_4k} \right. \end{aligned} \tag{152}$$



$\rightarrow$ T5:



$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{153}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6k_7}_{k_1} \\ a_2 &= \epsilon^{k_8k_9k_{10}}_{k_2k_3k_4} \\ a_3 &= \epsilon_{k_5k_6k_7k_8k_9k_{10}} \end{aligned}$$

Diagram 75:

$$\begin{aligned} \text{PO3.75} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{13}_{k_5k_1k_2k_3} \Omega^{40}_{k_6k_7k_8k_9} \Omega^{06}_{k_6k_7k_8k_9k_5k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5}_{k_1k_2k_3}} e^{-\tau_2\epsilon^{k_6k_7k_8k_9} \\ &= \frac{(-1)^3}{(3!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{13}_{k_5k_1k_2k_3} \Omega^{40}_{k_6k_7k_8k_9} \Omega^{06}_{k_6k_7k_8k_9k_5k_4} \left[\frac{1}{\epsilon_{k_1k_2k_3k_4k_6k_7k_8k_9}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5k_6k_7k_8k_9}} + \frac{1}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5}\ \epsilon_{k} \right. \end{aligned} \tag{154}$$

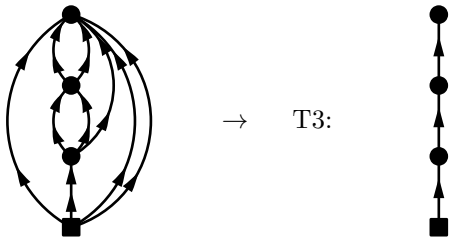
$\rightarrow$ T5:

$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{155}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5}_{k_1k_2k_3} \\ a_2 &= \epsilon^{k_6k_7k_8k_9} \\ a_3 &= \epsilon_{k_4k_5k_6k_7k_8k_9} \end{aligned}$$

Diagram 76:

$$\begin{aligned} \mathrm{PO3.76} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{22}_{k_8k_9k_5k_6} \Omega^{06}_{k_8k_9k_7k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1}} \epsilon \\ &= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{22}_{k_8k_9k_5k_6} \Omega^{06}_{k_8k_9k_7k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_2k_3k_4k_7}\ \epsilon_{k_2k_3k_4k_7k_8k_9}} \end{aligned} \tag{156}$$



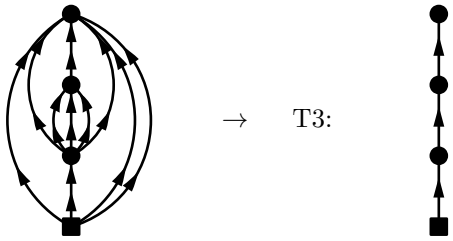
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{157}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6k_7}_{k_1} \\ a_2 &= \epsilon^{k_8k_9}_{k_5k_6} \\ a_3 &= \epsilon_{k_2k_3k_4k_7k_8k_9} \end{aligned}$$

Diagram 77:

$$\begin{aligned} \mathrm{PO3.77} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{13}_{k_{10}k_5k_6k_7} \Omega^{06}_{k_{10}k_8k_9k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k}_{k}} \\ &= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{13}_{k_{10}k_5k_6k_7} \Omega^{06}_{k_{10}k_8k_9k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_2k_3k_4k_8k_9}\ \epsilon_{k_2k_3k_4k_8k_9k_{10}}} \end{aligned} \tag{158}$$



$\rightarrow$ T3:

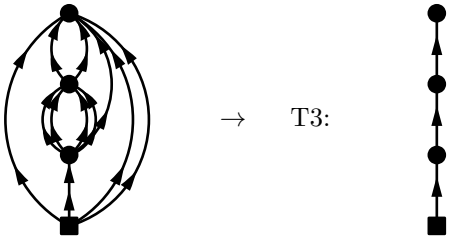
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{159}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6k_7k_8k_9}_{k_1} \\ a_2 &= \epsilon^{k_{10}}_{k_5k_6k_7} \\ a_3 &= \epsilon_{k_2k_3k_4k_8k_9k_{10}} \end{aligned}$$

Diagram 78:

$$\mathrm{PO3.78} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{24}_{k_{10}k_{11}k_5k_6k_7k_8} \Omega^{06}_{k_{10}k_{11}k_9k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau$$

$$= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{24}_{k_{10}k_{11}k_5k_6k_7k_8} \Omega^{06}_{k_{10}k_{11}k_9k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_8k_2k_3k_4k_9}\ \epsilon_{k_2k_3k_4k_9k_{10}k_{11}}} \tag{160}$$



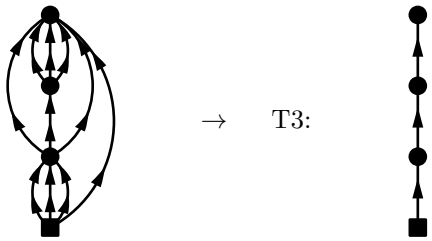
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{161}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8k_9}_{k_1}$$
$$a_2 = \epsilon^{k_{10}k_{11}}_{k_5k_6k_7k_8}$$
$$a_3 = \epsilon_{k_2k_3k_4k_9k_{10}k_{11}}$$

Diagram 79:

$$\mathrm{PO3.79} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{31}_{k_8k_9k_{10}k_5} \Omega^{06}_{k_8k_9k_{10}k_6k_7k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5}_{k_1}}$$

$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{31}_{k_8k_9k_{10}k_5} \Omega^{06}_{k_8k_9k_{10}k_6k_7k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_4k_6k_7}\ \epsilon_{k_4k_6k_7k_8k_9k_{10}}} \tag{162}$$



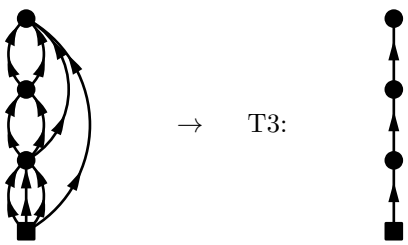
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{163}$$

$$a_1 = \epsilon^{k_5k_6k_7}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_8k_9k_{10}}_{k_5}$$
$$a_3 = \epsilon_{k_4k_6k_7k_8k_9k_{10}}$$

Diagram 80:

$$\mathrm{PO3.80} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{22}_{k_8k_9k_5k_6} \Omega^{04}_{k_8k_9k_7k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1k_2k_3}}\epsilon$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{22}_{k_8k_9k_5k_6} \Omega^{04}_{k_8k_9k_7k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_4k_7}\ \epsilon_{k_4k_7k_8k_9}} \tag{164}$$

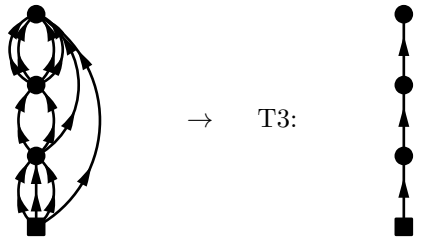


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{165}$$

$$a_1 = \epsilon^{k_5k_6k_7}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_8k_9}_{k_5k_6}$$
$$a_3 = \epsilon_{k_4k_7k_8k_9}$$

Diagram 81:

$$\mathrm{PO3.81} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{42}_{k_8k_9k_{10}k_{11}k_5k_6} \Omega^{06}_{k_8k_9k_{10}k_{11}k_7k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau$$
$$= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{42}_{k_8k_9k_{10}k_{11}k_5k_6} \Omega^{06}_{k_8k_9k_{10}k_{11}k_7k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_4k_7}\ \epsilon_{k_4k_7k_8k_9k_{10}k_{11}}} \tag{166}$$



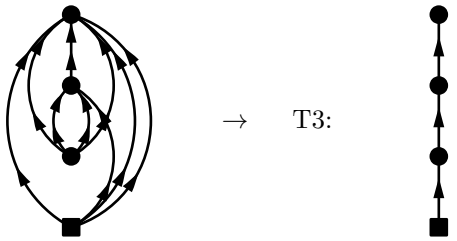
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{167}$$

$$a_1 = \epsilon^{k_5k_6k_7}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_8k_9k_{10}k_{11}}_{k_5k_6}$$
$$a_3 = \epsilon_{k_4k_7k_8k_9k_{10}k_{11}}$$

Diagram 82:

$$\mathrm{PO3.82} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{13}_{k_9k_5k_6k_1} \Omega^{06}_{k_9k_7k_8k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7k_}$$
$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{13}_{k_9k_5k_6k_1} \Omega^{06}_{k_9k_7k_8k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_5k_6k_2k_3k_4k_7k_8}\ \epsilon_{k_2k_3k_4k_7k_8k_9}} \tag{168}$$



$\rightarrow$ T3:

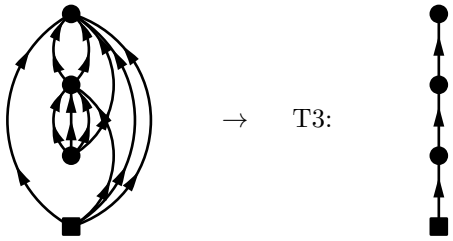
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{169}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9}_{k_1k_5k_6}$$
$$a_3 = \epsilon_{k_2k_3k_4k_7k_8k_9}$$

Diagram 83:

$$\mathrm{PO3.83} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{24}_{k_9k_{10}k_5k_6k_7k_1} \Omega^{06}_{k_9k_{10}k_8k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_1}}$$

$$= \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{24}_{k_9k_{10}k_5k_6k_7k_1} \Omega^{06}_{k_9k_{10}k_8k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_5k_6k_7k_2k_3k_4k_8}\ \epsilon_{k_2k_3k_4k_8k_9k_{10}}} \tag{170}$$



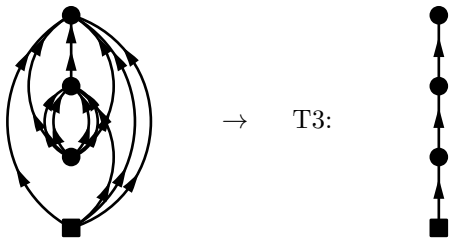
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{171}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9k_{10}}_{k_1k_5k_6k_7}$$
$$a_3 = \epsilon_{k_2k_3k_4k_8k_9k_{10}}$$

Diagram 84:

$$\mathrm{PO3.84} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{60}_{k_5k_6k_7k_8k_9k_{10}} \Omega^{15}_{k_{11}k_5k_6k_7k_8k_1} \Omega^{06}_{k_{11}k_9k_{10}k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau$$

$$= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{60}_{k_5k_6k_7k_8k_9k_{10}} \Omega^{15}_{k_{11}k_5k_6k_7k_8k_1} \Omega^{06}_{k_{11}k_9k_{10}k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_5k_6k_7k_8k_2k_3k_4k_9k_{10}}\ \epsilon_{k_2k_3k_4k_9k_{10}k_{11}}} \tag{172}$$



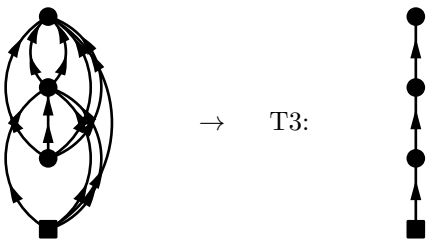
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{173}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8k_9k_{10}}$$
$$a_2 = \epsilon^{k_{11}}_{k_1k_5k_6k_7k_8}$$
$$a_3 = \epsilon_{k_2k_3k_4k_9k_{10}k_{11}}$$

Diagram 85:

$$\mathrm{PO3.85} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{24}_{k_9k_{10}k_5k_1k_2k_3} \Omega^{06}_{k_9k_{10}k_6k_7k_8k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_1}}$$

$$= \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{24}_{k_9k_{10}k_5k_1k_2k_3} \Omega^{06}_{k_9k_{10}k_6k_7k_8k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_3k_5k_4k_6k_7k_8}\ \epsilon_{k_4k_6k_7k_8k_9k_{10}}} \tag{174}$$

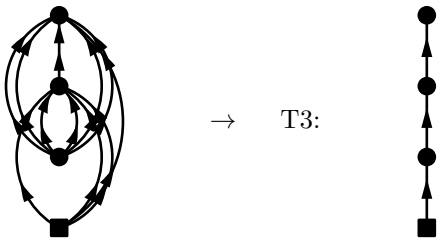


$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{175}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$
$$a_2 = \epsilon^{k_9 k_{10}}_{k_1 k_2 k_3 k_5}$$
$$a_3 = \epsilon_{k_4 k_6 k_7 k_8 k_9 k_{10}}$$

Diagram 86:

$$\mathrm{PO3.86} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{60}_{k_5 k_6 k_7 k_8 k_9 k_{10}} \Omega^{15}_{k_{11} k_5 k_6 k_1 k_2 k_3} \Omega^{06}_{k_{11} k_7 k_8 k_9 k_{10} k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1)\theta(\tau_3 - \tau$$
$$= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{60}_{k_5 k_6 k_7 k_8 k_9 k_{10}} \Omega^{15}_{k_{11} k_5 k_6 k_1 k_2 k_3} \Omega^{06}_{k_{11} k_7 k_8 k_9 k_{10} k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_1 k_2 k_3 k_5 k_6 k_4 k_7 k_8 k_9 k_{10}}\ \epsilon_{k_4 k_7 k_8 k_9 k_{10} k_{11}}} \tag{176}$$



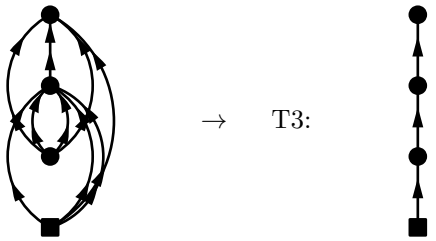
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{177}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8 k_9 k_{10}}$$
$$a_2 = \epsilon^{k_{11}}_{k_1 k_2 k_3 k_5 k_6}$$
$$a_3 = \epsilon_{k_4 k_7 k_8 k_9 k_{10} k_{11}}$$

Diagram 87:

$$\mathrm{PO3.87} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{40}_{k_5 k_6 k_7 k_8} \Omega^{15}_{k_9 k_5 k_6 k_1 k_2 k_3} \Omega^{04}_{k_9 k_7 k_8 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_}$$
$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{40}_{k_5 k_6 k_7 k_8} \Omega^{15}_{k_9 k_5 k_6 k_1 k_2 k_3} \Omega^{04}_{k_9 k_7 k_8 k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_1 k_2 k_3 k_5 k_6 k_4 k_7 k_8}\ \epsilon_{k_4 k_7 k_8 k_9}} \tag{178}$$



$\rightarrow$ T3:

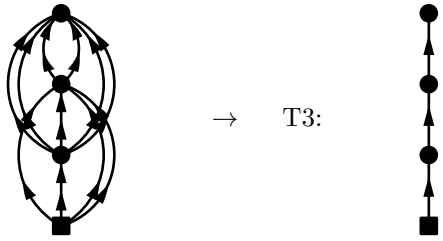
$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{179}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$
$$a_2 = \epsilon^{k_9}_{k_1 k_2 k_3 k_5 k_6}$$
$$a_3 = \epsilon_{k_4 k_7 k_8 k_9}$$

Diagram 88:

$$\text{PO3.88} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{24}_{k_{10}k_{11}k_5k_2k_3k_4} \Omega^{06}_{k_{10}k_{11}k_6k_7k_8k_9} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau$$

$$= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{24}_{k_{10}k_{11}k_5k_2k_3k_4} \Omega^{06}_{k_{10}k_{11}k_6k_7k_8k_9}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_5k_6k_7k_8k_9}\ \epsilon_{k_6k_7k_8k_9k_{10}k_{11}}} \tag{180}$$



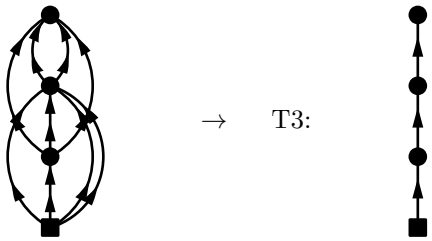
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{181}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8k_9}_{k_1}$$
$$a_2 = \epsilon^{k_{10}k_{11}}_{k_2k_3k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9k_{10}k_{11}}$$

Diagram 89:

$$\text{PO3.89} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{24}_{k_8k_9k_5k_2k_3k_4} \Omega^{04}_{k_8k_9k_6k_7} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1}}\epsilon$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{24}_{k_8k_9k_5k_2k_3k_4} \Omega^{04}_{k_8k_9k_6k_7}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_5k_6k_7}\ \epsilon_{k_6k_7k_8k_9}} \tag{182}$$



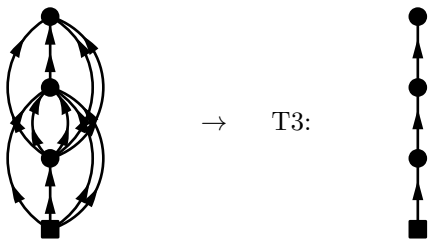
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{183}$$

$$a_1 = \epsilon^{k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8k_9}_{k_2k_3k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9}$$

Diagram 90:

$$\text{PO3.90} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{15}_{k_{10}k_5k_6k_2k_3k_4} \Omega^{04}_{k_{10}k_7k_8k_9} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k}_{k}}$$

$$= \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{15}_{k_{10}k_5k_6k_2k_3k_4} \Omega^{04}_{k_{10}k_7k_8k_9}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_5k_6k_7k_8k_9}\ \epsilon_{k_7k_8k_9k_{10}}} \tag{184}$$

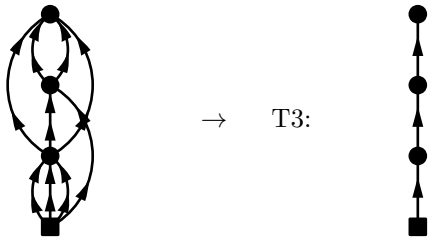


$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{185}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8 k_9}_{k_1}$$
$$a_2 = \epsilon^{k_{10}}_{k_2 k_3 k_4 k_5 k_6}$$
$$a_3 = \epsilon_{k_7 k_8 k_9 k_{10}}$$

Diagram 91:

$$\mathrm{PO3.91} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{22}_{k_8k_9k_5k_4} \Omega^{04}_{k_8k_9k_6k_7} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5k_6k_7}_{k_1k_2k_3}} \epsilon$$
$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{22}_{k_8k_9k_5k_4} \Omega^{04}_{k_8k_9k_6k_7}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5k_6k_7}\ \epsilon_{k_6k_7k_8k_9}} \tag{186}$$



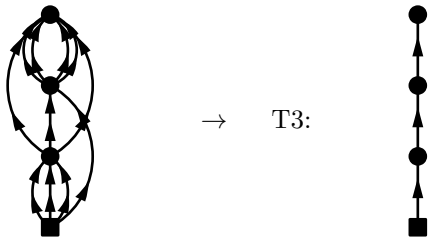
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{187}$$

$$a_1 = \epsilon^{k_5 k_6 k_7}_{k_1 k_2 k_3}$$
$$a_2 = \epsilon^{k_8 k_9}_{k_4 k_5}$$
$$a_3 = \epsilon_{k_6 k_7 k_8 k_9}$$

Diagram 92:

$$\mathrm{PO3.92} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{42}_{k_8k_9k_{10}k_{11}k_5k_4} \Omega^{06}_{k_8k_9k_{10}k_{11}k_6k_7} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1)\theta(\tau_3 - \tau$$
$$= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{42}_{k_8k_9k_{10}k_{11}k_5k_4} \Omega^{06}_{k_8k_9k_{10}k_{11}k_6k_7}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5k_6k_7}\ \epsilon_{k_6k_7k_8k_9k_{10}k_{11}}} \tag{188}$$



$\rightarrow$ T3:

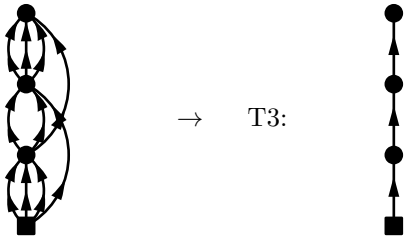
$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{189}$$

$$a_1 = \epsilon^{k_5 k_6 k_7}_{k_1 k_2 k_3}$$
$$a_2 = \epsilon^{k_8 k_9 k_{10} k_{11}}_{k_4 k_5}$$
$$a_3 = \epsilon_{k_6 k_7 k_8 k_9 k_{10} k_{11}}$$

Diagram 93:

$$\text{PO3.93} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{33}_{k_8k_9k_{10}k_5k_6k_4} \Omega^{04}_{k_8k_9k_{10}k_7} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_}_{k}}$$

$$= \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{33}_{k_8k_9k_{10}k_5k_6k_4} \Omega^{04}_{k_8k_9k_{10}k_7}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5k_6k_7}\ \epsilon_{k_7k_8k_9k_{10}}} \tag{190}$$



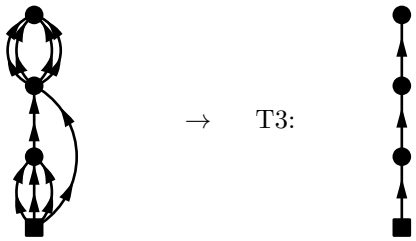
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{191}$$

$$a_1 = \epsilon^{k_5k_6k_7}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_8k_9k_{10}}_{k_4k_5k_6}$$
$$a_3 = \epsilon_{k_7k_8k_9k_{10}}$$

Diagram 94:

$$\text{PO3.94} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{13}_{k_5k_1k_2k_3} \Omega^{42}_{k_6k_7k_8k_9k_5k_4} \Omega^{04}_{k_6k_7k_8k_9} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5}_{k_1k_2k_3}}e^{-\tau_2\epsilon^{k_6k_7k_8k_9}_{k_4k_5}}$$

$$= \frac{(-1)^3}{(3!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{13}_{k_5k_1k_2k_3} \Omega^{42}_{k_6k_7k_8k_9k_5k_4} \Omega^{04}_{k_6k_7k_8k_9}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5}\ \epsilon_{k_6k_7k_8k_9}} \tag{192}$$



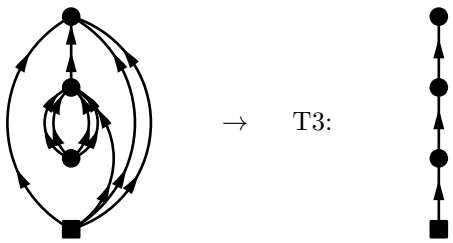
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{193}$$

$$a_1 = \epsilon^{k_5}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_6k_7k_8k_9}_{k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9}$$

Diagram 95:

$$\text{PO3.95} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{15}_{k_9k_5k_6k_7k_8k_1} \Omega^{04}_{k_9k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7k_8}}e^{-\tau_2\epsilon^{k_9}_{k_1k_5k_6}}$$

$$= \frac{(-1)^3}{(3!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{15}_{k_9k_5k_6k_7k_8k_1} \Omega^{04}_{k_9k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_5k_6k_7k_8k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_9}} \tag{194}$$

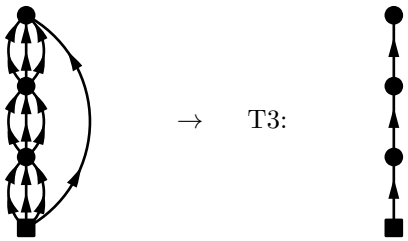


$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{195}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6 k_7 k_8} \\ a_2 &= \epsilon^{k_9}_{k_1 k_5 k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_2 k_3 k_4 k_9} \end{aligned}$$

Diagram 96:

$$\begin{aligned} \mathrm{PO3.96} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)^3} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{33}_{k_5 k_6 k_7 k_1 k_2 k_3} \Omega^{33}_{k_8 k_9 k_{10} k_5 k_6 k_7} \Omega^{04}_{k_8 k_9 k_{10} k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7}_{k_1 k_2 k_3}} e^{-\tau_2 \epsilon^{k_8 k}_{k_5 k}} \\ &= \frac{(-1)^3}{(3!)^3} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{33}_{k_5 k_6 k_7 k_1 k_2 k_3} \Omega^{33}_{k_8 k_9 k_{10} k_5 k_6 k_7} \Omega^{04}_{k_8 k_9 k_{10} k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_5 k_6 k_7 k_4}\ \epsilon_{k_4 k_8 k_9 k_{10}}} \end{aligned} \tag{196}$$



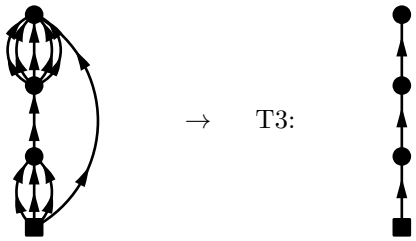
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{197}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6 k_7}_{k_1 k_2 k_3} \\ a_2 &= \epsilon^{k_8 k_9 k_{10}}_{k_5 k_6 k_7} \\ a_3 &= \epsilon_{k_4 k_8 k_9 k_{10}} \end{aligned}$$

Diagram 97:

$$\begin{aligned} \mathrm{PO3.97} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)(5!)} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{13}_{k_5 k_1 k_2 k_3} \Omega^{51}_{k_6 k_7 k_8 k_9 k_{10} k_5} \Omega^{06}_{k_6 k_7 k_8 k_9 k_{10} k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5}_{k_1 k_2 k_3}} e^{-\tau_2 \epsilon^{k_6}_{k_5}} \\ &= \frac{(-1)^3}{(3!)(5!)} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{13}_{k_5 k_1 k_2 k_3} \Omega^{51}_{k_6 k_7 k_8 k_9 k_{10} k_5} \Omega^{06}_{k_6 k_7 k_8 k_9 k_{10} k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_5 k_4}\ \epsilon_{k_4 k_6 k_7 k_8 k_9 k_{10}}} \end{aligned} \tag{198}$$



$\rightarrow$ T3:

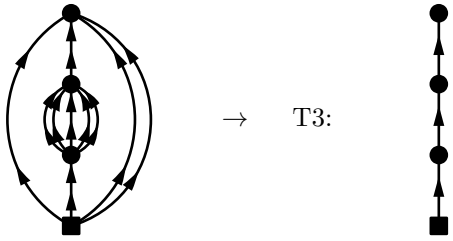
$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{199}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5}_{k_1 k_2 k_3} \\ a_2 &= \epsilon^{k_6 k_7 k_8 k_9 k_{10}}_{k_5} \\ a_3 &= \epsilon_{k_4 k_6 k_7 k_8 k_9 k_{10}} \end{aligned}$$

Diagram 98:

$$\mathrm{PO3.98} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)(5!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{15}_{k_{10}k_5k_6k_7k_8k_9} \Omega^{04}_{k_{10}k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6k_7k_8k_9}_{k_1}} e^{-}$$

$$= \frac{(-1)^3}{(3!)(5!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{15}_{k_{10}k_5k_6k_7k_8k_9} \Omega^{04}_{k_{10}k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_8k_9k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_{10}}} \tag{200}$$



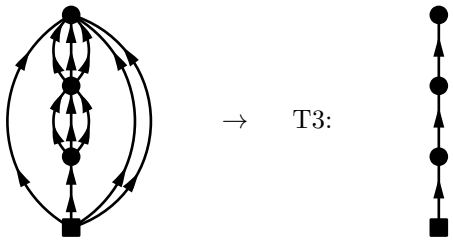
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{201}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8k_9}_{k_1}$$
$$a_2 = \epsilon^{k_{10}}_{k_5k_6k_7k_8k_9}$$
$$a_3 = \epsilon_{k_2k_3k_4k_{10}}$$

Diagram 99:

$$\mathrm{PO3.99} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)^3} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{33}_{k_8k_9k_{10}k_5k_6k_7} \Omega^{06}_{k_8k_9k_{10}k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1}} e^{-\tau_2\epsilon^{k_8k}_{k_5k}}$$

$$= \frac{(-1)^3}{(3!)^3} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{33}_{k_8k_9k_{10}k_5k_6k_7} \Omega^{06}_{k_8k_9k_{10}k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_8k_9k_{10}}} \tag{202}$$



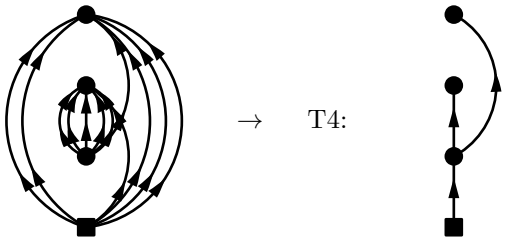
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{203}$$

$$a_1 = \epsilon^{k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8k_9k_{10}}_{k_5k_6k_7}$$
$$a_3 = \epsilon_{k_2k_3k_4k_8k_9k_{10}}$$

Diagram 100:

$$\mathrm{PO3.100} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(5!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{60}_{k_7k_8k_9k_{10}k_{11}k_{12}} \Omega^{06}_{k_7k_8k_9k_{10}k_{11}k_1} \Omega^{06}_{k_{12}k_2k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1\epsilon}$$

$$= \frac{-(-1)^3}{(5!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{60}_{k_7k_8k_9k_{10}k_{11}k_{12}} \Omega^{06}_{k_7k_8k_9k_{10}k_{11}k_1} \Omega^{06}_{k_{12}k_2k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_7k_8k_9k_{10}k_{11}}\ \epsilon_{k_2k_3k_4k_5k_6k_{12}}} \tag{204}$$

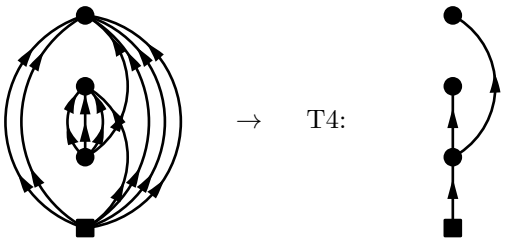


$$\mathrm{T4} = \frac{1}{(a_1 + a_2 + a_3)a_2 a_3} \tag{205}$$

$$a_1 = \epsilon^{k_7 k_8 k_9 k_{10} k_{11} k_{12}}$$
$$a_2 = \epsilon_{k_1 k_7 k_8 k_9 k_{10} k_{11}}$$
$$a_3 = \epsilon_{k_2 k_3 k_4 k_5 k_6 k_{12}}$$

Diagram 101:

$$\mathrm{PO3.101} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(3!)(5!)} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{40}_{k_7 k_8 k_9 k_{10}} \Omega^{04}_{k_7 k_8 k_9 k_1} \Omega^{06}_{k_{10} k_2 k_3 k_4 k_5 k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1) e^{-\tau_1 \epsilon^{k_7 k_8 k_9 k_{10}}} e^{-}$$
$$= \frac{-(-1)^3}{(3!)(5!)} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{40}_{k_7 k_8 k_9 k_{10}} \Omega^{04}_{k_7 k_8 k_9 k_1} \Omega^{06}_{k_{10} k_2 k_3 k_4 k_5 k_6}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_1 k_7 k_8 k_9}\ \epsilon_{k_2 k_3 k_4 k_5 k_6 k_{10}}} \tag{206}$$



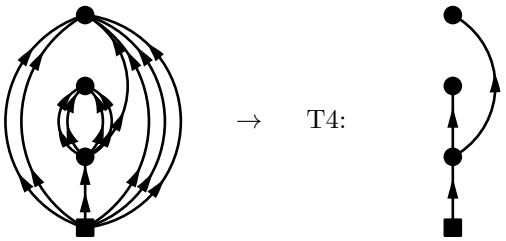
$\rightarrow$ T4:

$$\mathrm{T4} = \frac{1}{(a_1 + a_2 + a_3)a_2 a_3} \tag{207}$$

$$a_1 = \epsilon^{k_7 k_8 k_9 k_{10}}$$
$$a_2 = \epsilon_{k_1 k_7 k_8 k_9}$$
$$a_3 = \epsilon_{k_2 k_3 k_4 k_5 k_6 k_{10}}$$

Diagram 102:

$$\mathrm{PO3.102} = \lim_{\tau\to\infty} \frac{(-1)^3}{(4!)(5!)} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{51}_{k_7 k_8 k_9 k_{10} k_{11} k_1} \Omega^{04}_{k_7 k_8 k_9 k_{10}} \Omega^{06}_{k_{11} k_2 k_3 k_4 k_5 k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1) e^{-\tau_1 \epsilon^{k_7 k_8 k_9}_{k_1}}$$
$$= \frac{(-1)^3}{(4!)(5!)} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{51}_{k_7 k_8 k_9 k_{10} k_{11} k_1} \Omega^{04}_{k_7 k_8 k_9 k_{10}} \Omega^{06}_{k_{11} k_2 k_3 k_4 k_5 k_6}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_7 k_8 k_9 k_{10}}\ \epsilon_{k_2 k_3 k_4 k_5 k_6 k_{11}}} \tag{208}$$



$\rightarrow$ T4:

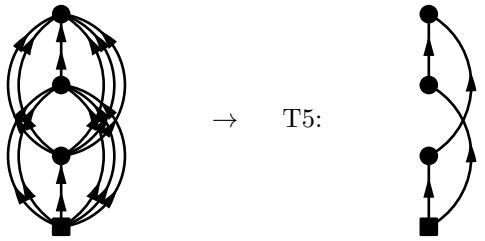
$$\mathrm{T4} = \frac{1}{(a_1 + a_2 + a_3)a_2 a_3} \tag{209}$$

$$a_1 = \epsilon^{k_7 k_8 k_9 k_{10} k_{11}}_{k_1}$$
$$a_2 = \epsilon_{k_7 k_8 k_9 k_{10}}$$
$$a_3 = \epsilon_{k_2 k_3 k_4 k_5 k_6 k_{11}}$$

Diagram 103:

$$\text{PO3.103} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(5!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{51}_{k_7k_8k_9k_{10}k_{11}k_1} \Omega^{15}_{k_{12}k_2k_3k_4k_5k_6} \Omega^{06}_{k_{12}k_7k_8k_9k_{10}k_{11}} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon}$$

$$= \frac{-(-1)^3}{(5!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{51}_{k_7k_8k_9k_{10}k_{11}k_1} \Omega^{15}_{k_{12}k_2k_3k_4k_5k_6} \Omega^{06}_{k_{12}k_7k_8k_9k_{10}k_{11}} \left[\frac{1}{\epsilon_{k_1k_{12}}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8k_9k_{10}k_{11}k_{12}}} + \frac{}{\epsilon_{k_1k}} \right. \tag{210}$$



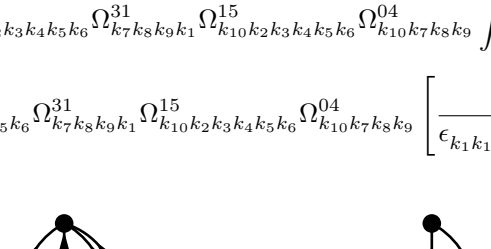
$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{211}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}k_{11}}_{k_1}$$
$$a_2 = \epsilon^{k_{12}}_{k_2k_3k_4k_5k_6}$$
$$a_3 = \epsilon_{k_7k_8k_9k_{10}k_{11}k_{12}}$$

Diagram 104:

$$\text{PO3.104} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(3!)(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{15}_{k_{10}k_2k_3k_4k_5k_6} \Omega^{04}_{k_{10}k_7k_8k_9} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7k_8k_9}_{k_1}} e^{-\tau_2\epsilon}$$

$$= \frac{-(-1)^3}{(3!)(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{15}_{k_{10}k_2k_3k_4k_5k_6} \Omega^{04}_{k_{10}k_7k_8k_9} \left[\frac{1}{\epsilon_{k_1k_{10}}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8k_9k_{10}}} + \frac{}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_4}} \right. \tag{212}$$



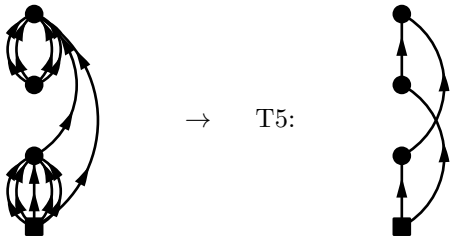
$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{213}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1}$$
$$a_2 = \epsilon^{k_{10}}_{k_2k_3k_4k_5k_6}$$
$$a_3 = \epsilon_{k_7k_8k_9k_{10}}$$

Diagram 105:

$$\text{PO3.105} = \lim_{\tau\to\infty} \frac{(-1)^3}{(4!)(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{15}_{k_7k_1k_2k_3k_4k_5} \Omega^{40}_{k_8k_9k_{10}k_{11}} \Omega^{06}_{k_8k_9k_{10}k_{11}k_7k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7}_{k_1k_2k_3}}$$

$$= \frac{(-1)^3}{(4!)(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{15}_{k_7k_1k_2k_3k_4k_5} \Omega^{40}_{k_8k_9k_{10}k_{11}} \Omega^{06}_{k_8k_9k_{10}k_{11}k_7k_6} \left[\frac{1}{\epsilon_{k_1k_2k_3k_4k_5k_6k_8k_9k_{10}k_{11}}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_6k_7k_8k_9k_{10}k}} \right. \tag{214}$$

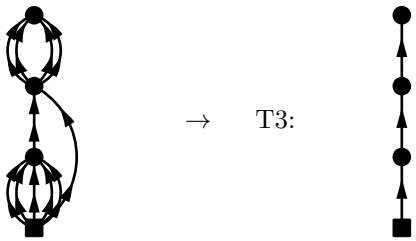


$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{215}$$

$$a_1 = \epsilon^{k_7}_{k_1k_2k_3k_4k_5}$$
$$a_2 = \epsilon^{k_8k_9k_{10}k_{11}}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9k_{10}k_{11}}$$

Diagram 106:

$$\text{PO3.106} = \lim_{\tau\to\infty}\frac{(-1)^3}{(4!)(5!)}\sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{15}_{k_7k_1k_2k_3k_4k_5}\Omega^{42}_{k_8k_9k_{10}k_{11}k_7k_6}\Omega^{04}_{k_8k_9k_{10}k_{11}}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7}_{k_1k_2k_3}}$$
$$= \frac{(-1)^3}{(4!)(5!)}\sum_{k_i}\frac{O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{15}_{k_7k_1k_2k_3k_4k_5}\Omega^{42}_{k_8k_9k_{10}k_{11}k_7k_6}\Omega^{04}_{k_8k_9k_{10}k_{11}}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_6k_7}\ \epsilon_{k_8k_9k_{10}k_{11}}} \tag{216}$$

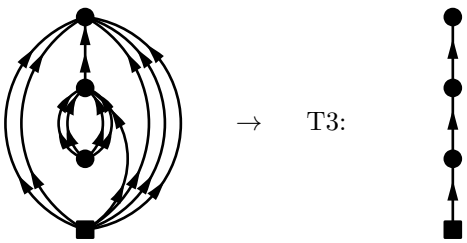


$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{217}$$

$$a_1 = \epsilon^{k_7}_{k_1k_2k_3k_4k_5}$$
$$a_2 = \epsilon^{k_8k_9k_{10}k_{11}}_{k_6k_7}$$
$$a_3 = \epsilon_{k_8k_9k_{10}k_{11}}$$

Diagram 107:

$$\text{PO3.107} = \lim_{\tau\to\infty}\frac{(-1)^3}{(4!)(5!)}\sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{40}_{k_7k_8k_9k_{10}}\Omega^{15}_{k_{11}k_7k_8k_9k_{10}k_1}\Omega^{06}_{k_{11}k_2k_3k_4k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7k_8k_9}}$$
$$= \frac{(-1)^3}{(4!)(5!)}\sum_{k_i}\frac{O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{40}_{k_7k_8k_9k_{10}}\Omega^{15}_{k_{11}k_7k_8k_9k_{10}k_1}\Omega^{06}_{k_{11}k_2k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_7k_8k_9k_{10}k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_4k_5k_6k_{11}}} \tag{218}$$



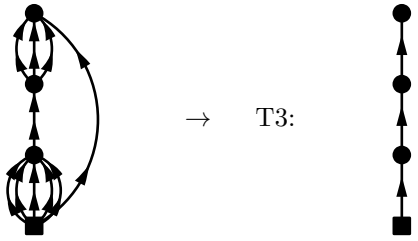
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{219}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}}$$
$$a_2 = \epsilon^{k_{11}}_{k_1k_7k_8k_9k_{10}}$$
$$a_3 = \epsilon_{k_2k_3k_4k_5k_6k_{11}}$$

Diagram 108:

$$\mathrm{PO3.108} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{15}_{k_7k_1k_2k_3k_4k_5} \Omega^{31}_{k_8k_9k_{10}k_7} \Omega^{04}_{k_8k_9k_{10}k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7}_{k_1k_2k_3k_4k_5}} e^{-}$$

$$= \frac{(-1)^3}{(3!)(5!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{15}_{k_7k_1k_2k_3k_4k_5} \Omega^{31}_{k_8k_9k_{10}k_7} \Omega^{04}_{k_8k_9k_{10}k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_6}\ \epsilon_{k_6k_8k_9k_{10}}} \tag{220}$$



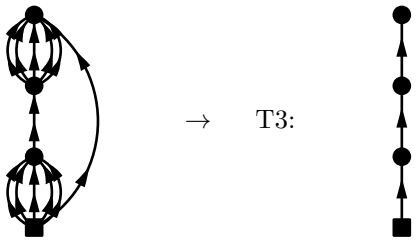
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{221}$$

$$a_1 = \epsilon^{k_7}_{k_1k_2k_3k_4k_5}$$
$$a_2 = \epsilon^{k_8k_9k_{10}}_{k_7}$$
$$a_3 = \epsilon_{k_6k_8k_9k_{10}}$$

Diagram 109:

$$\mathrm{PO3.109} = \lim_{\tau\to\infty} \frac{(-1)^3}{(5!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{15}_{k_7k_1k_2k_3k_4k_5} \Omega^{51}_{k_8k_9k_{10}k_{11}k_{12}k_7} \Omega^{06}_{k_8k_9k_{10}k_{11}k_{12}k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7}_{k_1}}$$

$$= \frac{(-1)^3}{(5!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{15}_{k_7k_1k_2k_3k_4k_5} \Omega^{51}_{k_8k_9k_{10}k_{11}k_{12}k_7} \Omega^{06}_{k_8k_9k_{10}k_{11}k_{12}k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_6}\ \epsilon_{k_6k_8k_9k_{10}k_{11}k_{12}}} \tag{222}$$



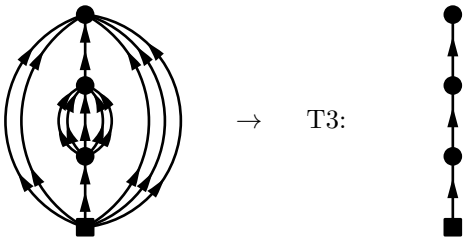
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{223}$$

$$a_1 = \epsilon^{k_7}_{k_1k_2k_3k_4k_5}$$
$$a_2 = \epsilon^{k_8k_9k_{10}k_{11}k_{12}}_{k_7}$$
$$a_3 = \epsilon_{k_6k_8k_9k_{10}k_{11}k_{12}}$$

Diagram 110:

$$\mathrm{PO3.110} = \lim_{\tau\to\infty} \frac{(-1)^3}{(5!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{51}_{k_7k_8k_9k_{10}k_{11}k_1} \Omega^{15}_{k_{12}k_7k_8k_9k_{10}k_{11}} \Omega^{06}_{k_{12}k_2k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7}_{k_1}}$$

$$= \frac{(-1)^3}{(5!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{51}_{k_7k_8k_9k_{10}k_{11}k_1} \Omega^{15}_{k_{12}k_7k_8k_9k_{10}k_{11}} \Omega^{06}_{k_{12}k_2k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8k_9k_{10}k_{11}k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_4k_5k_6k_{12}}} \tag{224}$$

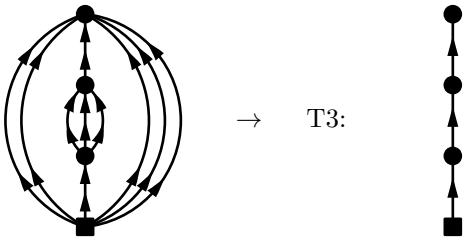


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{225}$$

$$a_1 = \epsilon_{k_1}^{k_7k_8k_9k_{10}k_{11}}$$
$$a_2 = \epsilon_{k_7k_8k_9k_{10}k_{11}}^{k_{12}}$$
$$a_3 = \epsilon_{k_2k_3k_4k_5k_6k_{12}}$$

Diagram 111:

$$\mathrm{PO3.111} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{13}_{k_{10}k_7k_8k_9} \Omega^{06}_{k_{10}k_2k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon_{k_1}^{k_7k_8k_9}} e^{-\tau_2\epsilon}$$
$$= \frac{(-1)^3}{(3!)(5!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{13}_{k_{10}k_7k_8k_9} \Omega^{06}_{k_{10}k_2k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8k_9k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_4k_5k_6k_{10}}} \tag{226}$$



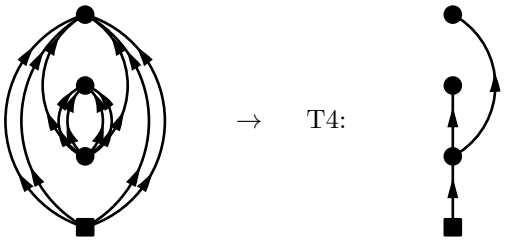
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{227}$$

$$a_1 = \epsilon_{k_1}^{k_7k_8k_9}$$
$$a_2 = \epsilon_{k_7k_8k_9}^{k_{10}}$$
$$a_3 = \epsilon_{k_2k_3k_4k_5k_6k_{10}}$$

Diagram 112:

$$\mathrm{PO3.112} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{60}_{k_5k_6k_7k_8k_9k_{10}} \Omega^{04}_{k_5k_6k_7k_8} \Omega^{06}_{k_9k_{10}k_1k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon^{k_5k_6k_7k_8k_9k}}$$
$$= \frac{(-1)^3}{(2!)(4!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{60}_{k_5k_6k_7k_8k_9k_{10}} \Omega^{04}_{k_5k_6k_7k_8} \Omega^{06}_{k_9k_{10}k_1k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_8}\ \epsilon_{k_1k_2k_3k_4k_9k_{10}}} \tag{228}$$



$\rightarrow$ T4:

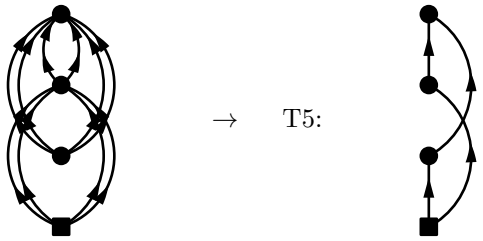
$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{229}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8k_9k_{10}}$$
$$a_2 = \epsilon_{k_5k_6k_7k_8}$$
$$a_3 = \epsilon_{k_1k_2k_3k_4k_9k_{10}}$$

Diagram 113:

$$\mathrm{PO3.113} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{24}_{k_9k_{10}k_1k_2k_3k_4} \Omega^{06}_{k_9k_{10}k_5k_6k_7k_8} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6k_7k_8}} e^{-}$$

$$= \frac{(-1)^3}{(2!)(4!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{24}_{k_9k_{10}k_1k_2k_3k_4} \Omega^{06}_{k_9k_{10}k_5k_6k_7k_8} \left[\frac{1}{\epsilon_{k_9k_{10}}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_8k_9k_{10}}} + \frac{}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_3k_4k} \right. \tag{230}$$



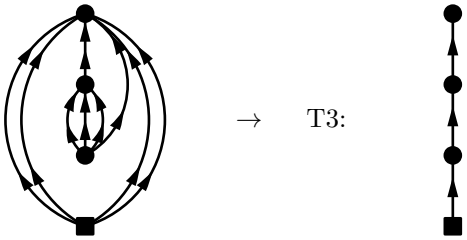
$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{231}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9k_{10}}_{k_1k_2k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6k_7k_8k_9k_{10}}$$

Diagram 114:

$$\mathrm{PO3.114} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{13}_{k_9k_5k_6k_7} \Omega^{06}_{k_9k_8k_1k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6k_7k}}$$

$$= \frac{(-1)^3}{(3!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{13}_{k_9k_5k_6k_7} \Omega^{06}_{k_9k_8k_1k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_1k_2k_3k_4k_8}\ \epsilon_{k_1k_2k_3k_4k_8k_9}} \tag{232}$$



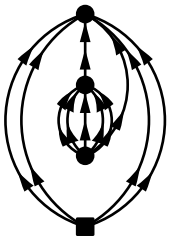
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{233}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9}_{k_5k_6k_7}$$
$$a_3 = \epsilon_{k_1k_2k_3k_4k_8k_9}$$

Diagram 115:

$$\mathrm{PO3.115} = \lim_{\tau\to\infty} \frac{(-1)^3}{(4!)(5!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{60}_{k_5k_6k_7k_8k_9k_{10}} \Omega^{15}_{k_{11}k_5k_6k_7k_8k_9} \Omega^{06}_{k_{11}k_{10}k_1k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)\epsilon$$

$$= \frac{(-1)^3}{(4!)(5!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{60}_{k_5k_6k_7k_8k_9k_{10}} \Omega^{15}_{k_{11}k_5k_6k_7k_8k_9} \Omega^{06}_{k_{11}k_{10}k_1k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_8k_9k_1k_2k_3k_4k_{10}}\ \epsilon_{k_1k_2k_3k_4k_{10}k_{11}}} \tag{234}$$



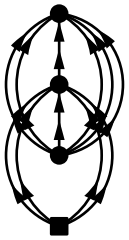
$\rightarrow$ T3:

$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{235}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8k_9k_{10}}$$
$$a_2 = \epsilon^{k_{11}}_{k_5k_6k_7k_8k_9}$$
$$a_3 = \epsilon_{k_1k_2k_3k_4k_{10}k_{11}}$$

Diagram 116:

$$\text{PO3.116} = \lim_{\tau\to\infty}\frac{(-1)^3}{(4!)(5!)}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{60}_{k_5k_6k_7k_8k_9k_{10}}\Omega^{15}_{k_{11}k_5k_1k_2k_3k_4}\Omega^{06}_{k_{11}k_6k_7k_8k_9k_{10}}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)\epsilon$$
$$= \frac{(-1)^3}{(4!)(5!)}\sum_{k_i}\frac{O^{40}_{k_1k_2k_3k_4}\Omega^{60}_{k_5k_6k_7k_8k_9k_{10}}\Omega^{15}_{k_{11}k_5k_1k_2k_3k_4}\Omega^{06}_{k_{11}k_6k_7k_8k_9k_{10}}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_3k_4k_5k_6k_7k_8k_9k_{10}}\ \epsilon_{k_6k_7k_8k_9k_{10}k_{11}}} \tag{236}$$



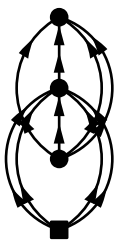
$\rightarrow$ T3:

$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{237}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8k_9k_{10}}$$
$$a_2 = \epsilon^{k_{11}}_{k_1k_2k_3k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9k_{10}k_{11}}$$

Diagram 117:

$$\text{PO3.117} = \lim_{\tau\to\infty}\frac{(-1)^3}{(3!)(4!)}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{40}_{k_5k_6k_7k_8}\Omega^{15}_{k_9k_5k_1k_2k_3k_4}\Omega^{04}_{k_9k_6k_7k_8}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7k}}$$
$$= \frac{(-1)^3}{(3!)(4!)}\sum_{k_i}\frac{O^{40}_{k_1k_2k_3k_4}\Omega^{40}_{k_5k_6k_7k_8}\Omega^{15}_{k_9k_5k_1k_2k_3k_4}\Omega^{04}_{k_9k_6k_7k_8}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_3k_4k_5k_6k_7k_8}\ \epsilon_{k_6k_7k_8k_9}} \tag{238}$$



$\rightarrow$ T3:

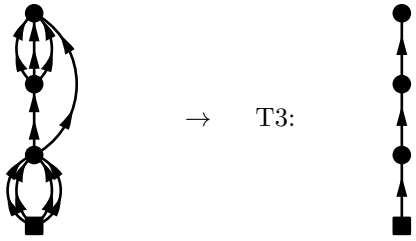
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{239}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9}_{k_1k_2k_3k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9}$$

Diagram 118:

$$\text{PO3.118} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{24}_{k_5k_6k_1k_2k_3k_4} \Omega^{31}_{k_7k_8k_9k_5} \Omega^{04}_{k_7k_8k_9k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6}_{k_1k_2k_3k}}$$

$$= \frac{(-1)^3}{(3!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{24}_{k_5k_6k_1k_2k_3k_4} \Omega^{31}_{k_7k_8k_9k_5} \Omega^{04}_{k_7k_8k_9k_6}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}\ \epsilon_{k_6k_7k_8k_9}} \tag{240}$$



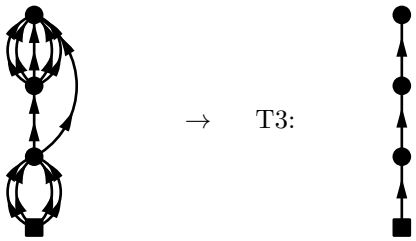
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{241}$$

$$a_1 = \epsilon^{k_5k_6}_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_7k_8k_9}_{k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9}$$

Diagram 119:

$$\text{PO3.119} = \lim_{\tau\to\infty} \frac{(-1)^3}{(4!)(5!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{24}_{k_5k_6k_1k_2k_3k_4} \Omega^{51}_{k_7k_8k_9k_{10}k_{11}k_5} \Omega^{06}_{k_7k_8k_9k_{10}k_{11}k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)\epsilon$$

$$= \frac{(-1)^3}{(4!)(5!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{24}_{k_5k_6k_1k_2k_3k_4} \Omega^{51}_{k_7k_8k_9k_{10}k_{11}k_5} \Omega^{06}_{k_7k_8k_9k_{10}k_{11}k_6}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}\ \epsilon_{k_6k_7k_8k_9k_{10}k_{11}}} \tag{242}$$



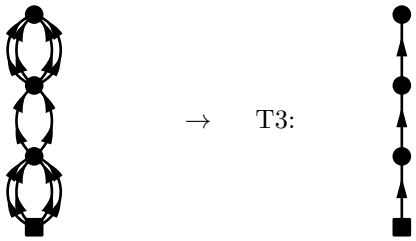
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{243}$$

$$a_1 = \epsilon^{k_5k_6}_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_7k_8k_9k_{10}k_{11}}_{k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9k_{10}k_{11}}$$

Diagram 120:

$$\text{PO3.120} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{24}_{k_5k_6k_1k_2k_3k_4} \Omega^{42}_{k_7k_8k_9k_{10}k_5k_6} \Omega^{04}_{k_7k_8k_9k_{10}} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6}_{k_1k_2k_3k_4}}e^{-}$$

$$= \frac{(-1)^3}{(2!)(4!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{24}_{k_5k_6k_1k_2k_3k_4} \Omega^{42}_{k_7k_8k_9k_{10}k_5k_6} \Omega^{04}_{k_7k_8k_9k_{10}}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}\ \epsilon_{k_7k_8k_9k_{10}}} \tag{244}$$

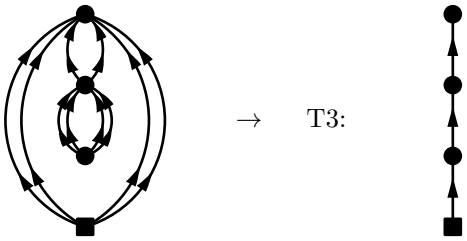


$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{245}$$

$$a_1 = \epsilon^{k_5 k_6}_{k_1 k_2 k_3 k_4}$$
$$a_2 = \epsilon^{k_7 k_8 k_9 k_{10}}_{k_5 k_6}$$
$$a_3 = \epsilon_{k_7 k_8 k_9 k_{10}}$$

Diagram 121:

$$\mathrm{PO3.121} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)^2} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{40}_{k_5 k_6 k_7 k_8} \Omega^{24}_{k_9 k_{10} k_5 k_6 k_7 k_8} \Omega^{06}_{k_9 k_{10} k_1 k_2 k_3 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-}$$
$$= \frac{(-1)^3}{(2!)(4!)^2} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{40}_{k_5 k_6 k_7 k_8} \Omega^{24}_{k_9 k_{10} k_5 k_6 k_7 k_8} \Omega^{06}_{k_9 k_{10} k_1 k_2 k_3 k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_5 k_6 k_7 k_8 k_1 k_2 k_3 k_4}\ \epsilon_{k_1 k_2 k_3 k_4 k_9 k_{10}}} \tag{246}$$



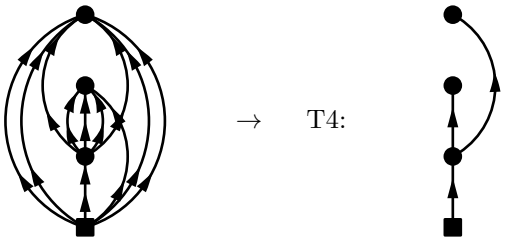
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{247}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$
$$a_2 = \epsilon^{k_9 k_{10}}_{k_5 k_6 k_7 k_8}$$
$$a_3 = \epsilon_{k_1 k_2 k_3 k_4 k_9 k_{10}}$$

Diagram 122:

$$\mathrm{PO3.122} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{51}_{k_7 k_8 k_9 k_{10} k_{11} k_1} \Omega^{04}_{k_7 k_8 k_9 k_2} \Omega^{06}_{k_{10} k_{11} k_3 k_4 k_5 k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1) e^{-\tau_1 \epsilon^{k_7}_{k_1}}$$
$$= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{51}_{k_7 k_8 k_9 k_{10} k_{11} k_1} \Omega^{04}_{k_7 k_8 k_9 k_2} \Omega^{06}_{k_{10} k_{11} k_3 k_4 k_5 k_6}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_2 k_7 k_8 k_9}\ \epsilon_{k_3 k_4 k_5 k_6 k_{10} k_{11}}} \tag{248}$$



$\rightarrow$ T4:

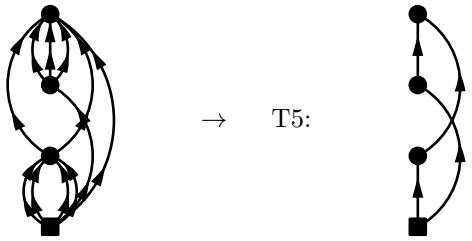
$$\mathrm{T4} = \frac{1}{(a_1 + a_2 + a_3)a_2 a_3} \tag{249}$$

$$a_1 = \epsilon^{k_7 k_8 k_9 k_{10} k_{11}}_{k_1}$$
$$a_2 = \epsilon_{k_2 k_7 k_8 k_9}$$
$$a_3 = \epsilon_{k_3 k_4 k_5 k_6 k_{10} k_{11}}$$

Diagram 123:

$$\mathrm{PO3.123} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{31}_{k_9k_{10}k_{11}k_5} \Omega^{06}_{k_9k_{10}k_{11}k_7k_8k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7}_{k_1}}$$

$$= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{31}_{k_9k_{10}k_{11}k_5} \Omega^{06}_{k_9k_{10}k_{11}k_7k_8k_6} \left[\frac{1}{\epsilon_{k_1k_2k_3k_4k_6k_9k_{10}k_{11}}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_6k_7k_8k_9k_{10}k}} \right. \tag{250}$$



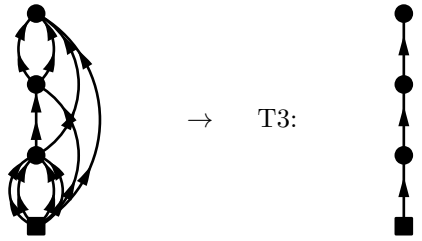
$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{251}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_9k_{10}k_{11}}_{k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9k_{10}k_{11}}$$

Diagram 124:

$$\mathrm{PO3.124} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{22}_{k_9k_{10}k_7k_5} \Omega^{04}_{k_9k_{10}k_8k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k}_{k}}$$

$$= \frac{-(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{22}_{k_9k_{10}k_7k_5} \Omega^{04}_{k_9k_{10}k_8k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_5k_7k_6k_8}\ \epsilon_{k_6k_8k_9k_{10}}} \tag{252}$$



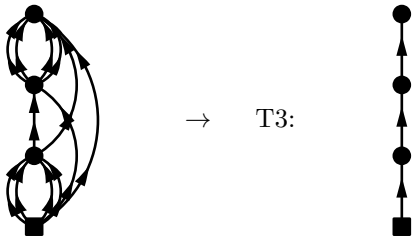
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{253}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_9k_{10}}_{k_5k_7}$$
$$a_3 = \epsilon_{k_6k_8k_9k_{10}}$$

Diagram 125:

$$\mathrm{PO3.125} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(4!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{42}_{k_9k_{10}k_{11}k_{12}k_7k_5} \Omega^{06}_{k_9k_{10}k_{11}k_{12}k_8k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3$$

$$= \frac{-(-1)^3}{(4!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{42}_{k_9k_{10}k_{11}k_{12}k_7k_5} \Omega^{06}_{k_9k_{10}k_{11}k_{12}k_8k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_5k_7k_6k_8}\ \epsilon_{k_6k_8k_9k_{10}k_{11}k_{12}}} \tag{254}$$



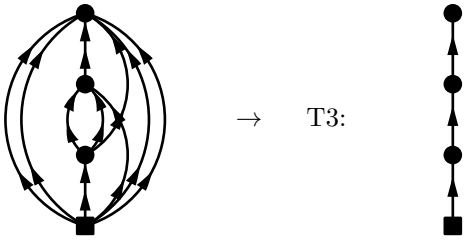
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{255}$$

$$a_1 = \epsilon^{k_7 k_8}_{k_1 k_2 k_3 k_4}$$
$$a_2 = \epsilon^{k_9 k_{10} k_{11} k_{12}}_{k_5 k_7}$$
$$a_3 = \epsilon_{k_6 k_8 k_9 k_{10} k_{11} k_{12}}$$

Diagram 126:

$$\text{PO3.126} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(4!)} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{31}_{k_7 k_8 k_9 k_1} \Omega^{13}_{k_{10} k_7 k_8 k_2} \Omega^{06}_{k_{10} k_9 k_3 k_4 k_5 k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k}_{k}}$$

$$= \frac{-(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{31}_{k_7 k_8 k_9 k_1} \Omega^{13}_{k_{10} k_7 k_8 k_2} \Omega^{06}_{k_{10} k_9 k_3 k_4 k_5 k_6}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_2 k_7 k_8 k_3 k_4 k_5 k_6 k_9}\ \epsilon_{k_3 k_4 k_5 k_6 k_9 k_{10}}} \tag{256}$$



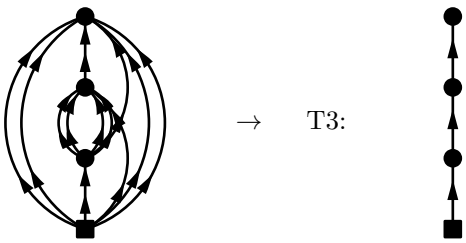
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{257}$$

$$a_1 = \epsilon^{k_7 k_8 k_9}_{k_1}$$
$$a_2 = \epsilon^{k_{10}}_{k_2 k_7 k_8}$$
$$a_3 = \epsilon_{k_3 k_4 k_5 k_6 k_9 k_{10}}$$

Diagram 127:

$$\text{PO3.127} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(4!)^2} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{51}_{k_7 k_8 k_9 k_{10} k_{11} k_1} \Omega^{15}_{k_{12} k_7 k_8 k_9 k_{10} k_2} \Omega^{06}_{k_{12} k_{11} k_3 k_4 k_5 k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3$$

$$= \frac{-(-1)^3}{(4!)^2} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{51}_{k_7 k_8 k_9 k_{10} k_{11} k_1} \Omega^{15}_{k_{12} k_7 k_8 k_9 k_{10} k_2} \Omega^{06}_{k_{12} k_{11} k_3 k_4 k_5 k_6}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_2 k_7 k_8 k_9 k_{10} k_3 k_4 k_5 k_6 k_{11}}\ \epsilon_{k_3 k_4 k_5 k_6 k_{11} k_{12}}} \tag{258}$$



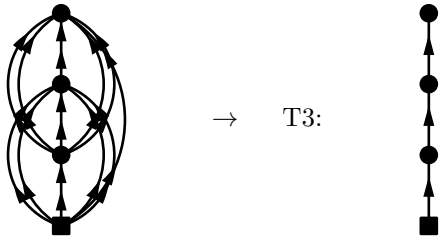
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{259}$$

$$a_1 = \epsilon^{k_7 k_8 k_9 k_{10} k_{11}}_{k_1}$$
$$a_2 = \epsilon^{k_{12}}_{k_2 k_7 k_8 k_9 k_{10}}$$
$$a_3 = \epsilon_{k_3 k_4 k_5 k_6 k_{11} k_{12}}$$

Diagram 128:

$$\text{PO3.128} = \lim_{\tau\to\infty} \frac{(-1)^3}{(4!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{51}_{k_7k_8k_9k_{10}k_{11}k_1} \Omega^{15}_{k_{12}k_7k_2k_3k_4k_5} \Omega^{06}_{k_{12}k_8k_9k_{10}k_{11}k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-$$

$$= \frac{(-1)^3}{(4!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{51}_{k_7k_8k_9k_{10}k_{11}k_1} \Omega^{15}_{k_{12}k_7k_2k_3k_4k_5} \Omega^{06}_{k_{12}k_8k_9k_{10}k_{11}k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_4k_5k_7k_6k_8k_9k_{10}k_{11}}\ \epsilon_{k_6k_8k_9k_{10}k_{11}k_{12}}} \tag{260}$$



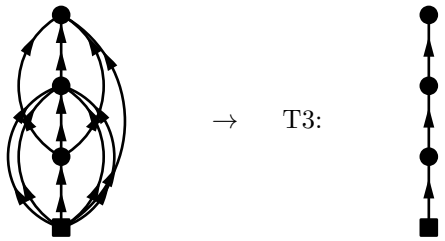
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{261}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}k_{11}}_{k_1}$$
$$a_2 = \epsilon^{k_{12}}_{k_2k_3k_4k_5k_7}$$
$$a_3 = \epsilon_{k_6k_8k_9k_{10}k_{11}k_{12}}$$

Diagram 129:

$$\text{PO3.129} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{15}_{k_{10}k_7k_2k_3k_4k_5} \Omega^{04}_{k_{10}k_8k_9k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k}_{k}}$$

$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{15}_{k_{10}k_7k_2k_3k_4k_5} \Omega^{04}_{k_{10}k_8k_9k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_4k_5k_7k_6k_8k_9}\ \epsilon_{k_6k_8k_9k_{10}}} \tag{262}$$



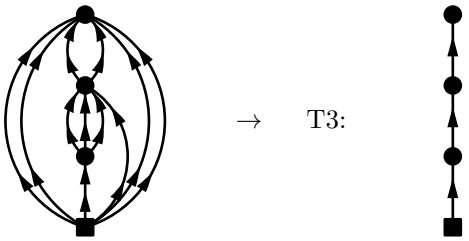
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{263}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1}$$
$$a_2 = \epsilon^{k_{10}}_{k_2k_3k_4k_5k_7}$$
$$a_3 = \epsilon_{k_6k_8k_9k_{10}}$$

Diagram 130:

$$\text{PO3.130} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{24}_{k_{10}k_{11}k_7k_8k_9k_2} \Omega^{06}_{k_{10}k_{11}k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7}_{k_1}}$$

$$= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{24}_{k_{10}k_{11}k_7k_8k_9k_2} \Omega^{06}_{k_{10}k_{11}k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_7k_8k_9k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_5k_6k_{10}k_{11}}} \tag{264}$$

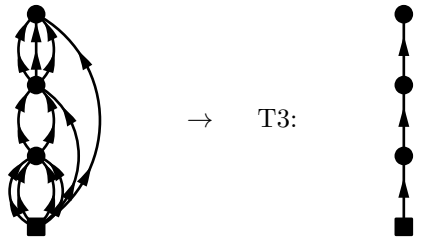


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{265}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1}$$
$$a_2 = \epsilon^{k_{10}k_{11}}_{k_2k_7k_8k_9}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6k_{10}k_{11}}$$

Diagram 131:

$$\mathrm{PO3.131} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{33}_{k_9k_{10}k_{11}k_7k_8k_5} \Omega^{04}_{k_9k_{10}k_{11}k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7}_{k_1}}$$
$$= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{33}_{k_9k_{10}k_{11}k_7k_8k_5} \Omega^{04}_{k_9k_{10}k_{11}k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_5k_7k_8k_6}\ \epsilon_{k_6k_9k_{10}k_{11}}} \tag{266}$$



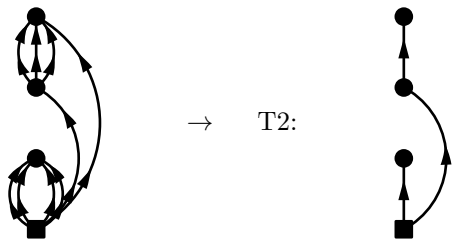
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{267}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_9k_{10}k_{11}}_{k_5k_7k_8}$$
$$a_3 = \epsilon_{k_6k_9k_{10}k_{11}}$$

Diagram 132:

$$\mathrm{PO3.132} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{04}_{k_1k_2k_3k_4} \Omega^{31}_{k_7k_8k_9k_5} \Omega^{04}_{k_7k_8k_9k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon_{k_1k_2k_3k_4}}e^{-\tau_2\epsilon^{k_7k_8k_9}_{k_5}}e^{-\tau_3\epsilon_{k_6k_7}}$$
$$= \frac{(-1)^3}{(3!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{04}_{k_1k_2k_3k_4} \Omega^{31}_{k_7k_8k_9k_5} \Omega^{04}_{k_7k_8k_9k_6}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}\ \epsilon_{k_6k_7k_8k_9}} \tag{268}$$



$\rightarrow$ T2:

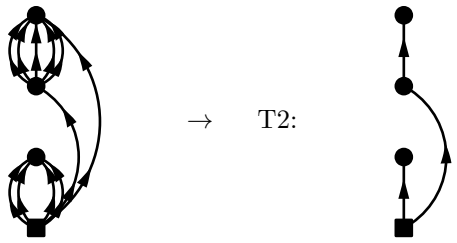
$$\mathrm{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{269}$$

$$a_1 = \epsilon_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_7k_8k_9}_{k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9}$$

Diagram 133:

$$\text{PO3.133} = \lim_{\tau\to\infty} \frac{(-1)^3}{(4!)(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{04}_{k_1k_2k_3k_4} \Omega^{51}_{k_7k_8k_9k_{10}k_{11}k_5} \Omega^{06}_{k_7k_8k_9k_{10}k_{11}k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1k_2k_3k_4}} e^{-\tau_2\epsilon^{k_7k_8}_{k_5}}$$

$$= \frac{(-1)^3}{(4!)(5!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{04}_{k_1k_2k_3k_4} \Omega^{51}_{k_7k_8k_9k_{10}k_{11}k_5} \Omega^{06}_{k_7k_8k_9k_{10}k_{11}k_6}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}\ \epsilon_{k_6k_7k_8k_9k_{10}k_{11}}} \tag{270}$$



$\rightarrow$ T2:

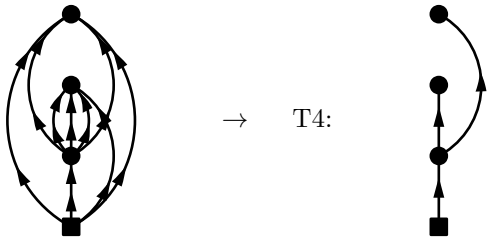
$$\text{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{271}$$

$$a_1 = \epsilon_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_7k_8k_9k_{10}k_{11}}_{k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9k_{10}k_{11}}$$

Diagram 134:

$$\text{PO3.134} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{04}_{k_5k_6k_7k_2} \Omega^{04}_{k_8k_9k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1\epsilon^{k_5k_6k_7k_8k_9}_{k_1}} e^{-\tau_2\epsilon_k}$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{04}_{k_5k_6k_7k_2} \Omega^{04}_{k_8k_9k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_5k_6k_7}\ \epsilon_{k_3k_4k_8k_9}} \tag{272}$$



$\rightarrow$ T4:

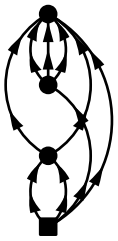
$$\text{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{273}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8k_9}_{k_1}$$
$$a_2 = \epsilon_{k_2k_5k_6k_7}$$
$$a_3 = \epsilon_{k_3k_4k_8k_9}$$

Diagram 135:

$$\text{PO3.135} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{31}_{k_7k_8k_9k_3} \Omega^{06}_{k_7k_8k_9k_5k_6k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}_{k_1k_2}} e^{-\tau_2\epsilon^{k_7k_8k_9}_{k_3}} \epsilon$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{31}_{k_7k_8k_9k_3} \Omega^{06}_{k_7k_8k_9k_5k_6k_4} \left[\frac{1}{\epsilon_{k_1k_2k_4k_7k_8k_9}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5k_6k_7k_8k_9}} + \frac{1}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6}} \right. \tag{274}$$



$\rightarrow$ T5:

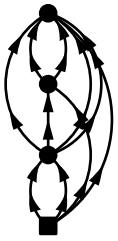
$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{275}$$

$$a_1 = \epsilon^{k_5 k_6}_{k_1 k_2}$$
$$a_2 = \epsilon^{k_7 k_8 k_9}_{k_3}$$
$$a_3 = \epsilon_{k_4 k_5 k_6 k_7 k_8 k_9}$$

Diagram 136:

$$\text{PO3.136} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{42}_{k_5 k_6 k_7 k_8 k_1 k_2} \Omega^{22}_{k_9 k_{10} k_5 k_3} \Omega^{06}_{k_9 k_{10} k_6 k_7 k_8 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon}$$

$$= \frac{-(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{42}_{k_5 k_6 k_7 k_8 k_1 k_2} \Omega^{22}_{k_9 k_{10} k_5 k_3} \Omega^{06}_{k_9 k_{10} k_6 k_7 k_8 k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_3 k_5 k_4 k_6 k_7 k_8}\ \epsilon_{k_4 k_6 k_7 k_8 k_9 k_{10}}} \tag{276}$$



$\rightarrow$ T3:

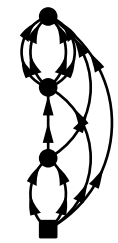
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{277}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}_{k_1 k_2}$$
$$a_2 = \epsilon^{k_9 k_{10}}_{k_3 k_5}$$
$$a_3 = \epsilon_{k_4 k_6 k_7 k_8 k_9 k_{10}}$$

Diagram 137:

$$\text{PO3.137} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(4!)} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{22}_{k_5 k_6 k_1 k_2} \Omega^{42}_{k_7 k_8 k_9 k_{10} k_5 k_3} \Omega^{06}_{k_7 k_8 k_9 k_{10} k_6 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon_k}$$

$$= \frac{-(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{22}_{k_5 k_6 k_1 k_2} \Omega^{42}_{k_7 k_8 k_9 k_{10} k_5 k_3} \Omega^{06}_{k_7 k_8 k_9 k_{10} k_6 k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_3 k_5 k_4 k_6}\ \epsilon_{k_4 k_6 k_7 k_8 k_9 k_{10}}} \tag{278}$$



$\rightarrow$ T3:

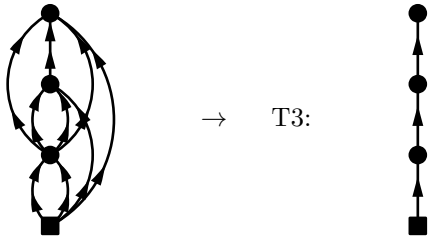
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{279}$$

$$a_1 = \epsilon^{k_5 k_6}_{k_1 k_2}$$
$$a_2 = \epsilon^{k_7 k_8 k_9 k_{10}}_{k_3 k_5}$$
$$a_3 = \epsilon_{k_4 k_6 k_7 k_8 k_9 k_{10}}$$

Diagram 138:

$$\text{PO3.138} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{13}_{k_9k_5k_6k_3} \Omega^{04}_{k_9k_7k_8k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7k_8}_{k_1k_2}}$$

$$= \frac{(-1)^3}{(2!)^3} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{13}_{k_9k_5k_6k_3} \Omega^{04}_{k_9k_7k_8k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_5k_6k_4k_7k_8}\ \epsilon_{k_4k_7k_8k_9}} \tag{280}$$



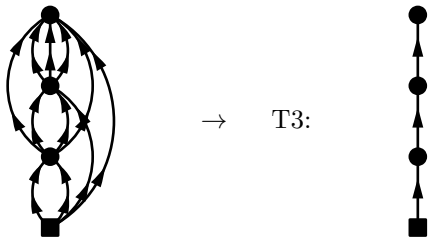
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{281}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}_{k_1k_2}$$
$$a_2 = \epsilon^{k_9}_{k_3k_5k_6}$$
$$a_3 = \epsilon_{k_4k_7k_8k_9}$$

Diagram 139:

$$\text{PO3.139} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{33}_{k_9k_{10}k_{11}k_5k_6k_3} \Omega^{06}_{k_9k_{10}k_{11}k_7k_8k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)$$

$$= \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{33}_{k_9k_{10}k_{11}k_5k_6k_3} \Omega^{06}_{k_9k_{10}k_{11}k_7k_8k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_5k_6k_4k_7k_8}\ \epsilon_{k_4k_7k_8k_9k_{10}k_{11}}} \tag{282}$$



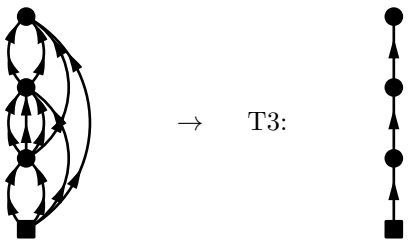
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{283}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}_{k_1k_2}$$
$$a_2 = \epsilon^{k_9k_{10}k_{11}}_{k_3k_5k_6}$$
$$a_3 = \epsilon_{k_4k_7k_8k_9k_{10}k_{11}}$$

Diagram 140:

$$\text{PO3.140} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{24}_{k_9k_{10}k_5k_6k_7k_3} \Omega^{04}_{k_9k_{10}k_8k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon}$$

$$= \frac{-(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{24}_{k_9k_{10}k_5k_6k_7k_3} \Omega^{04}_{k_9k_{10}k_8k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_5k_6k_7k_4k_8}\ \epsilon_{k_4k_8k_9k_{10}}} \tag{284}$$

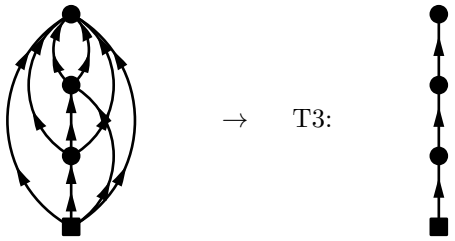


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{285}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6k_7k_8}_{k_1k_2} \\ a_2 &= \epsilon^{k_9k_{10}}_{k_3k_5k_6k_7} \\ a_3 &= \epsilon_{k_4k_8k_9k_{10}} \end{aligned}$$

Diagram 141:

$$\begin{aligned} \mathrm{PO3.141} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{22}_{k_8k_9k_5k_2} \Omega^{06}_{k_8k_9k_6k_7k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1}}e^{-} \\ &= \frac{(-1)^3}{(2!)^3} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{22}_{k_8k_9k_5k_2} \Omega^{06}_{k_8k_9k_6k_7k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_5k_3k_4k_6k_7}\ \epsilon_{k_3k_4k_6k_7k_8k_9}} \end{aligned} \tag{286}$$



$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{287}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6k_7}_{k_1} \\ a_2 &= \epsilon^{k_8k_9}_{k_2k_5} \\ a_3 &= \epsilon_{k_3k_4k_6k_7k_8k_9} \end{aligned}$$

Diagram 142:

$$\begin{aligned} \mathrm{PO3.142} &= \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{13}_{k_{10}k_5k_6k_2} \Omega^{06}_{k_{10}k_7k_8k_9k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon} \\ &= \frac{-(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{13}_{k_{10}k_5k_6k_2} \Omega^{06}_{k_{10}k_7k_8k_9k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_5k_6k_3k_4k_7k_8k_9}\ \epsilon_{k_3k_4k_7k_8k_9k_{10}}} \end{aligned} \tag{288}$$

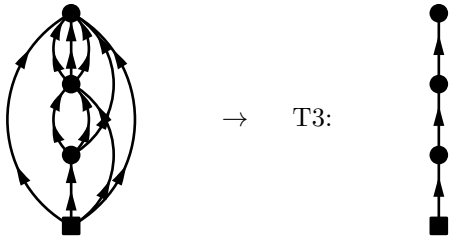
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{289}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6k_7k_8k_9}_{k_1} \\ a_2 &= \epsilon^{k_{10}}_{k_2k_5k_6} \\ a_3 &= \epsilon_{k_3k_4k_7k_8k_9k_{10}} \end{aligned}$$

Diagram 143:

$$\text{PO3.143} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{33}_{k_8k_9k_{10}k_5k_6k_2} \Omega^{06}_{k_8k_9k_{10}k_7k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon}$$

$$= \frac{-(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{33}_{k_8k_9k_{10}k_5k_6k_2} \Omega^{06}_{k_8k_9k_{10}k_7k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_5k_6k_3k_4k_7}\ \epsilon_{k_3k_4k_7k_8k_9k_{10}}} \tag{290}$$



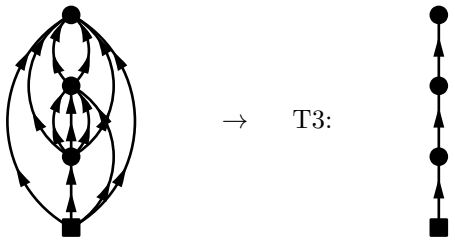
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{291}$$

$$a_1 = \epsilon^{k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8k_9k_{10}}_{k_2k_5k_6}$$
$$a_3 = \epsilon_{k_3k_4k_7k_8k_9k_{10}}$$

Diagram 144:

$$\text{PO3.144} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{24}_{k_{10}k_{11}k_5k_6k_7k_2} \Omega^{06}_{k_{10}k_{11}k_8k_9k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)$$

$$= \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{24}_{k_{10}k_{11}k_5k_6k_7k_2} \Omega^{06}_{k_{10}k_{11}k_8k_9k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_5k_6k_7k_3k_4k_8k_9}\ \epsilon_{k_3k_4k_8k_9k_{10}k_{11}}} \tag{292}$$



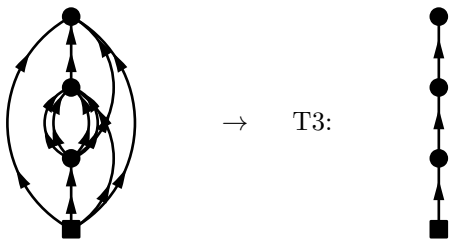
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{293}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8k_9}_{k_1}$$
$$a_2 = \epsilon^{k_{10}k_{11}}_{k_2k_5k_6k_7}$$
$$a_3 = \epsilon_{k_3k_4k_8k_9k_{10}k_{11}}$$

Diagram 145:

$$\text{PO3.145} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{15}_{k_{10}k_5k_6k_7k_8k_2} \Omega^{04}_{k_{10}k_9k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon_k}$$

$$= \frac{-(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{15}_{k_{10}k_5k_6k_7k_8k_2} \Omega^{04}_{k_{10}k_9k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_5k_6k_7k_8k_3k_4k_9}\ \epsilon_{k_3k_4k_9k_{10}}} \tag{294}$$

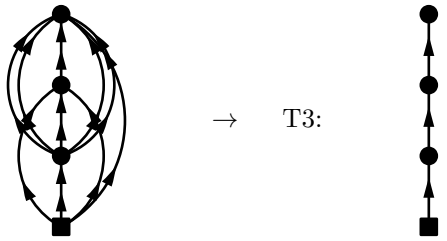


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{295}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6k_7k_8k_9}_{k_1} \\ a_2 &= \epsilon^{k_{10}}_{k_2k_5k_6k_7k_8} \\ a_3 &= \epsilon_{k_3k_4k_9k_{10}} \end{aligned}$$

Diagram 146:

$$\begin{aligned} \mathrm{PO3.146} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{13}_{k_{10}k_5k_2k_3} \Omega^{06}_{k_{10}k_6k_7k_8k_9k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k} \\ &= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{13}_{k_{10}k_5k_2k_3} \Omega^{06}_{k_{10}k_6k_7k_8k_9k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_5k_4k_6k_7k_8k_9}\ \epsilon_{k_4k_6k_7k_8k_9k_{10}}} \end{aligned} \tag{296}$$

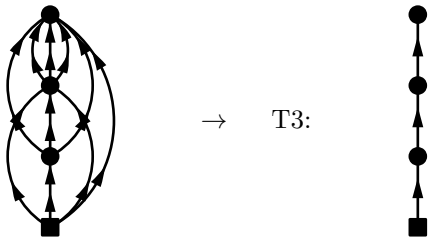


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{297}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6k_7k_8k_9}_{k_1} \\ a_2 &= \epsilon^{k_{10}}_{k_2k_3k_5} \\ a_3 &= \epsilon_{k_4k_6k_7k_8k_9k_{10}} \end{aligned}$$

Diagram 147:

$$\begin{aligned} \mathrm{PO3.147} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{33}_{k_8k_9k_{10}k_5k_2k_3} \Omega^{06}_{k_8k_9k_{10}k_6k_7k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon} \\ &= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{33}_{k_8k_9k_{10}k_5k_2k_3} \Omega^{06}_{k_8k_9k_{10}k_6k_7k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_5k_4k_6k_7}\ \epsilon_{k_4k_6k_7k_8k_9k_{10}}} \end{aligned} \tag{298}$$



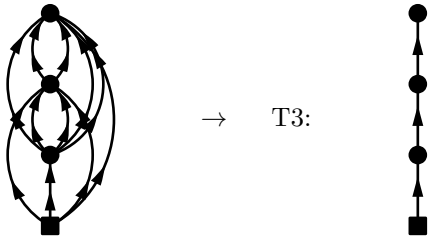
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{299}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6k_7}_{k_1} \\ a_2 &= \epsilon^{k_8k_9k_{10}}_{k_2k_3k_5} \\ a_3 &= \epsilon_{k_4k_6k_7k_8k_9k_{10}} \end{aligned}$$

Diagram 148:

$$\text{PO3.148} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{24}_{k_{10}k_{11}k_5k_6k_2k_3} \Omega^{06}_{k_{10}k_{11}k_7k_8k_9k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)$$

$$= \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{24}_{k_{10}k_{11}k_5k_6k_2k_3} \Omega^{06}_{k_{10}k_{11}k_7k_8k_9k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_5k_6k_4k_7k_8k_9}\ \epsilon_{k_4k_7k_8k_9k_{10}k_{11}}} \tag{300}$$



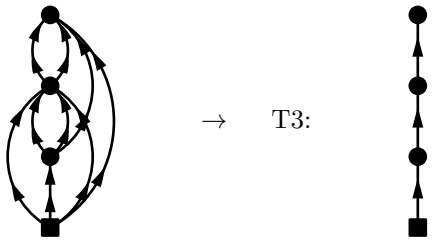
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{301}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8k_9}_{k_1}$$
$$a_2 = \epsilon^{k_{10}k_{11}}_{k_2k_3k_5k_6}$$
$$a_3 = \epsilon_{k_4k_7k_8k_9k_{10}k_{11}}$$

Diagram 149:

$$\text{PO3.149} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{24}_{k_8k_9k_5k_6k_2k_3} \Omega^{04}_{k_8k_9k_7k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1}}e^{-}$$

$$= \frac{(-1)^3}{(2!)^3} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{24}_{k_8k_9k_5k_6k_2k_3} \Omega^{04}_{k_8k_9k_7k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_5k_6k_4k_7}\ \epsilon_{k_4k_7k_8k_9}} \tag{302}$$



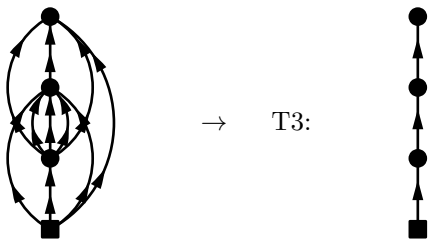
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{303}$$

$$a_1 = \epsilon^{k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8k_9}_{k_2k_3k_5k_6}$$
$$a_3 = \epsilon_{k_4k_7k_8k_9}$$

Diagram 150:

$$\text{PO3.150} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{15}_{k_{10}k_5k_6k_7k_2k_3} \Omega^{04}_{k_{10}k_8k_9k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon}$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{15}_{k_{10}k_5k_6k_7k_2k_3} \Omega^{04}_{k_{10}k_8k_9k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_5k_6k_7k_4k_8k_9}\ \epsilon_{k_4k_8k_9k_{10}}} \tag{304}$$

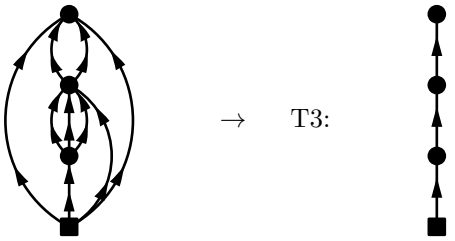


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{305}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8k_9}_{k_1}$$
$$a_2 = \epsilon^{k_{10}}_{k_2k_3k_5k_6k_7}$$
$$a_3 = \epsilon_{k_4k_8k_9k_{10}}$$

Diagram 151:

$$\mathrm{PO3.151} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)^2(3!)}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{31}_{k_5k_6k_7k_1}\Omega^{24}_{k_8k_9k_5k_6k_7k_2}\Omega^{04}_{k_8k_9k_3k_4}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1}}e^{-\tau_2\epsilon^{k_8k_9}_{k_2k_5k}}$$
$$= \frac{(-1)^3}{(2!)^2(3!)}\sum_{k_i}\frac{O^{40}_{k_1k_2k_3k_4}\Omega^{31}_{k_5k_6k_7k_1}\Omega^{24}_{k_8k_9k_5k_6k_7k_2}\Omega^{04}_{k_8k_9k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_5k_6k_7k_3k_4}\ \epsilon_{k_3k_4k_8k_9}} \tag{306}$$

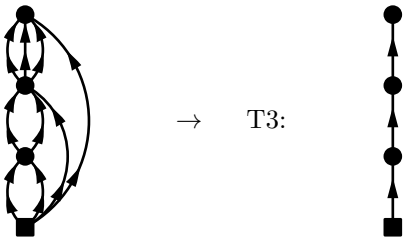


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{307}$$

$$a_1 = \epsilon^{k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8k_9}_{k_2k_5k_6k_7}$$
$$a_3 = \epsilon_{k_3k_4k_8k_9}$$

Diagram 152:

$$\mathrm{PO3.152} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)^2(3!)}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{22}_{k_5k_6k_1k_2}\Omega^{33}_{k_7k_8k_9k_5k_6k_3}\Omega^{04}_{k_7k_8k_9k_4}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6}_{k_1k_2}}e^{-\tau_2\epsilon^{k_7k_8k_9}_{k_3k_5k_6}}\epsilon$$
$$= \frac{(-1)^3}{(2!)^2(3!)}\sum_{k_i}\frac{O^{40}_{k_1k_2k_3k_4}\Omega^{22}_{k_5k_6k_1k_2}\Omega^{33}_{k_7k_8k_9k_5k_6k_3}\Omega^{04}_{k_7k_8k_9k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_5k_6k_4}\ \epsilon_{k_4k_7k_8k_9}} \tag{308}$$

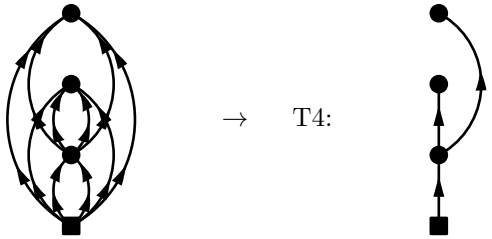


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{309}$$

$$a_1 = \epsilon^{k_5k_6}_{k_1k_2}$$
$$a_2 = \epsilon^{k_7k_8k_9}_{k_3k_5k_6}$$
$$a_3 = \epsilon_{k_4k_7k_8k_9}$$

Diagram 153:

$$\begin{aligned}\mathrm{PO3.153} &= \lim_{\tau\to\infty}\frac{(-1)^3}{2(2!)^5}\sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{42}_{k_7k_8k_9k_{10}k_1k_2}\Omega^{04}_{k_7k_8k_3k_4}\Omega^{04}_{k_9k_{10}k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon^{k_7k_8k_9k_{10}}_{k_1k_2}}e^{-\tau_2}\\ &= \frac{(-1)^3}{2(2!)^5}\sum_{k_i}\frac{O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{42}_{k_7k_8k_9k_{10}k_1k_2}\Omega^{04}_{k_7k_8k_3k_4}\Omega^{04}_{k_9k_{10}k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_7k_8}\ \epsilon_{k_5k_6k_9k_{10}}}\end{aligned} \tag{310}$$

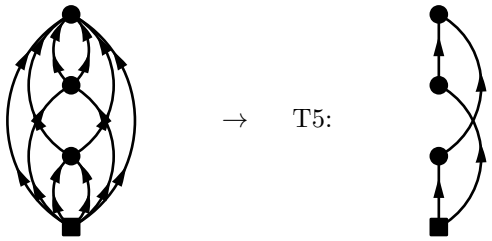


$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{311}$$

$$\begin{aligned}a_1 &= \epsilon^{k_7k_8k_9k_{10}}_{k_1k_2}\\ a_2 &= \epsilon_{k_3k_4k_7k_8}\\ a_3 &= \epsilon_{k_5k_6k_9k_{10}}\end{aligned}$$

Diagram 154:

$$\begin{aligned}\mathrm{PO3.154} &= \lim_{\tau\to\infty}\frac{(-1)^3}{2(2!)^5}\sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{22}_{k_7k_8k_1k_2}\Omega^{22}_{k_9k_{10}k_3k_4}\Omega^{06}_{k_9k_{10}k_7k_8k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7k_8}_{k_1k_2}}e^{-\tau_2\epsilon^{k_9k_1}_{k_3k_4}}\\ &= \frac{(-1)^3}{2(2!)^5}\sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{22}_{k_7k_8k_1k_2}\Omega^{22}_{k_9k_{10}k_3k_4}\Omega^{06}_{k_9k_{10}k_7k_8k_5k_6}\left[\frac{1}{\epsilon_{k_1k_2k_5k_6k_9k_{10}}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_5k_6k_7k_8k_9k_{10}}}+\frac{}{\epsilon_{k_1k_2k_3k_4k_5}}\right.\end{aligned} \tag{312}$$

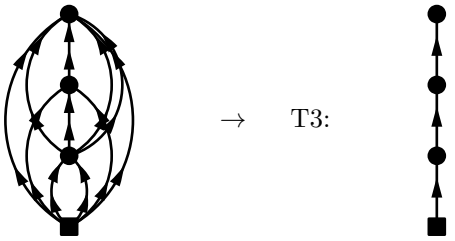


$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3}+\frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{313}$$

$$\begin{aligned}a_1 &= \epsilon^{k_7k_8}_{k_1k_2}\\ a_2 &= \epsilon^{k_9k_{10}}_{k_3k_4}\\ a_3 &= \epsilon_{k_5k_6k_7k_8k_9k_{10}}\end{aligned}$$

Diagram 155:

$$\begin{aligned}\mathrm{PO3.155} &= \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)^3(3!)}\sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{42}_{k_7k_8k_9k_{10}k_1k_2}\Omega^{13}_{k_{11}k_7k_3k_4}\Omega^{06}_{k_{11}k_8k_9k_{10}k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)\\ &= \frac{(-1)^3}{(2!)^3(3!)}\sum_{k_i}\frac{O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{42}_{k_7k_8k_9k_{10}k_1k_2}\Omega^{13}_{k_{11}k_7k_3k_4}\Omega^{06}_{k_{11}k_8k_9k_{10}k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_7k_5k_6k_8k_9k_{10}}\ \epsilon_{k_5k_6k_8k_9k_{10}k_{11}}}\end{aligned} \tag{314}$$



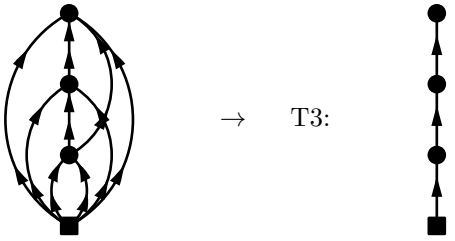
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{315}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}}_{k_1k_2}$$
$$a_2 = \epsilon^{k_{11}}_{k_3k_4k_7}$$
$$a_3 = \epsilon_{k_5k_6k_8k_9k_{10}k_{11}}$$

Diagram 156:

$$\text{PO3.156} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{13}_{k_9k_7k_3k_4} \Omega^{04}_{k_9k_8k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7k_8}_{k_1k_2}} e^{-\tau_2}$$

$$= \frac{(-1)^3}{(2!)^3} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{13}_{k_9k_7k_3k_4} \Omega^{04}_{k_9k_8k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_7k_5k_6k_8}\ \epsilon_{k_5k_6k_8k_9}} \tag{316}$$



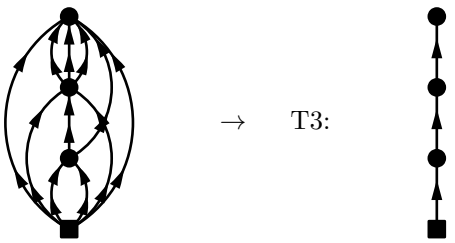
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{317}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2}$$
$$a_2 = \epsilon^{k_9}_{k_3k_4k_7}$$
$$a_3 = \epsilon_{k_5k_6k_8k_9}$$

Diagram 157:

$$\text{PO3.157} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{33}_{k_9k_{10}k_{11}k_7k_3k_4} \Omega^{06}_{k_9k_{10}k_{11}k_8k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)$$

$$= \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{33}_{k_9k_{10}k_{11}k_7k_3k_4} \Omega^{06}_{k_9k_{10}k_{11}k_8k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_7k_5k_6k_8}\ \epsilon_{k_5k_6k_8k_9k_{10}k_{11}}} \tag{318}$$



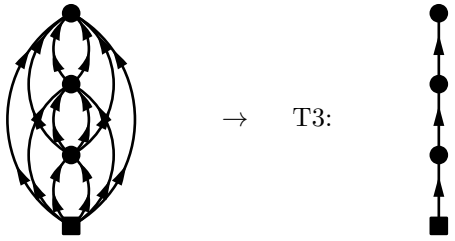
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{319}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2}$$
$$a_2 = \epsilon^{k_9k_{10}k_{11}}_{k_3k_4k_7}$$
$$a_3 = \epsilon_{k_5k_6k_8k_9k_{10}k_{11}}$$

Diagram 158:

$$\text{PO3.158} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^6} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{24}_{k_{11}k_{12}k_7k_8k_3k_4} \Omega^{06}_{k_{11}k_{12}k_9k_{10}k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-$$

$$= \frac{(-1)^3}{(2!)^6} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{24}_{k_{11}k_{12}k_7k_8k_3k_4} \Omega^{06}_{k_{11}k_{12}k_9k_{10}k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_7k_8k_5k_6k_9k_{10}}\ \epsilon_{k_5k_6k_9k_{10}k_{11}k_{12}}} \tag{320}$$



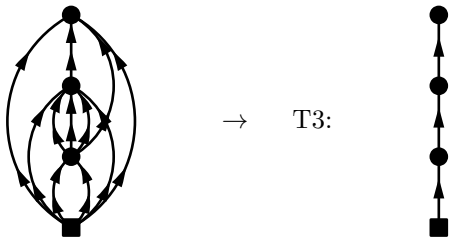
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{321}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}}_{k_1k_2}$$
$$a_2 = \epsilon^{k_{11}k_{12}}_{k_3k_4k_7k_8}$$
$$a_3 = \epsilon_{k_5k_6k_9k_{10}k_{11}k_{12}}$$

Diagram 159:

$$\text{PO3.159} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{15}_{k_{11}k_7k_8k_9k_3k_4} \Omega^{04}_{k_{11}k_{10}k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)$$

$$= \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{15}_{k_{11}k_7k_8k_9k_3k_4} \Omega^{04}_{k_{11}k_{10}k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_7k_8k_9k_5k_6k_{10}}\ \epsilon_{k_5k_6k_{10}k_{11}}} \tag{322}$$



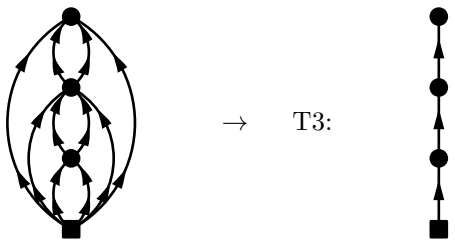
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{323}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}}_{k_1k_2}$$
$$a_2 = \epsilon^{k_{11}}_{k_3k_4k_7k_8k_9}$$
$$a_3 = \epsilon_{k_5k_6k_{10}k_{11}}$$

Diagram 160:

$$\text{PO3.160} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^5} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{24}_{k_9k_{10}k_7k_8k_3k_4} \Omega^{04}_{k_9k_{10}k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7k_8}_{k_1k_2}}e^{-\tau_2\epsilon^{k_9k_1}_{k_3k_4}}$$

$$= \frac{(-1)^3}{(2!)^5} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{24}_{k_9k_{10}k_7k_8k_3k_4} \Omega^{04}_{k_9k_{10}k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_7k_8k_5k_6}\ \epsilon_{k_5k_6k_9k_{10}}} \tag{324}$$

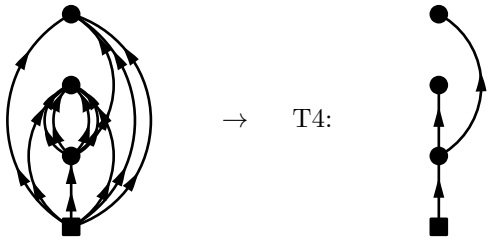


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{325}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7 k_8}_{k_1 k_2} \\ a_2 &= \epsilon^{k_9 k_{10}}_{k_3 k_4 k_7 k_8} \\ a_3 &= \epsilon_{k_5 k_6 k_9 k_{10}} \end{aligned}$$

Diagram 161:

$$\begin{aligned} \mathrm{PO3.161} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{51}_{k_7 k_8 k_9 k_{10} k_{11} k_1} \Omega^{06}_{k_7 k_8 k_9 k_{10} k_2 k_3} \Omega^{04}_{k_{11} k_4 k_5 k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1 \epsilon^{k_7}_{k_1}} \\ &= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{51}_{k_7 k_8 k_9 k_{10} k_{11} k_1} \Omega^{06}_{k_7 k_8 k_9 k_{10} k_2 k_3} \Omega^{04}_{k_{11} k_4 k_5 k_6}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_2 k_3 k_7 k_8 k_9 k_{10}}\ \epsilon_{k_4 k_5 k_6 k_{11}}} \end{aligned} \tag{326}$$

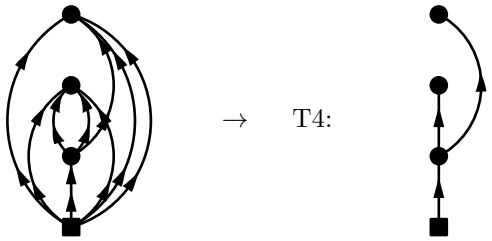


$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2 a_3} \tag{327}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7 k_8 k_9 k_{10} k_{11}}_{k_1} \\ a_2 &= \epsilon_{k_2 k_3 k_7 k_8 k_9 k_{10}} \\ a_3 &= \epsilon_{k_4 k_5 k_6 k_{11}} \end{aligned}$$

Diagram 162:

$$\begin{aligned} \mathrm{PO3.162} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{31}_{k_7 k_8 k_9 k_1} \Omega^{04}_{k_7 k_8 k_2 k_3} \Omega^{04}_{k_9 k_4 k_5 k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1 \epsilon^{k_7 k_8 k_9}_{k_1}} e^{-\tau_2 \epsilon_{k_2 k_3 k}} \\ &= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{31}_{k_7 k_8 k_9 k_1} \Omega^{04}_{k_7 k_8 k_2 k_3} \Omega^{04}_{k_9 k_4 k_5 k_6}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_2 k_3 k_7 k_8}\ \epsilon_{k_4 k_5 k_6 k_9}} \end{aligned} \tag{328}$$



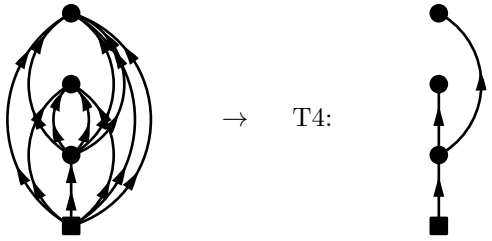
$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2 a_3} \tag{329}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7 k_8 k_9}_{k_1} \\ a_2 &= \epsilon_{k_2 k_3 k_7 k_8} \\ a_3 &= \epsilon_{k_4 k_5 k_6 k_9} \end{aligned}$$

Diagram 163:

$$\mathrm{PO3.163} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{51}_{k_7k_8k_9k_{10}k_{11}k_1} \Omega^{04}_{k_7k_8k_2k_3} \Omega^{06}_{k_9k_{10}k_{11}k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1 \epsilon^{k_7k_8}_{k_1}}$$

$$= \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{51}_{k_7k_8k_9k_{10}k_{11}k_1} \Omega^{04}_{k_7k_8k_2k_3} \Omega^{06}_{k_9k_{10}k_{11}k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_7k_8}\ \epsilon_{k_4k_5k_6k_9k_{10}k_{11}}} \tag{330}$$



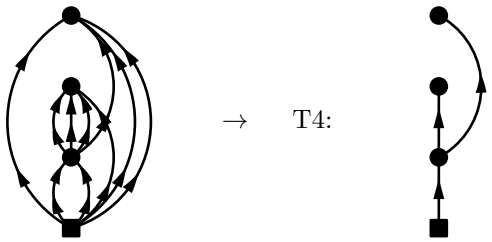
$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{331}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}k_{11}}_{k_1}$$
$$a_2 = \epsilon_{k_2k_3k_7k_8}$$
$$a_3 = \epsilon_{k_4k_5k_6k_9k_{10}k_{11}}$$

Diagram 164:

$$\mathrm{PO3.164} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{04}_{k_7k_8k_9k_3} \Omega^{04}_{k_{10}k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1 \epsilon^{k_7k_8k_9k_{10}}_{k_1k_2}} e^{-}$$

$$= \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{04}_{k_7k_8k_9k_3} \Omega^{04}_{k_{10}k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_7k_8k_9}\ \epsilon_{k_4k_5k_6k_{10}}} \tag{332}$$



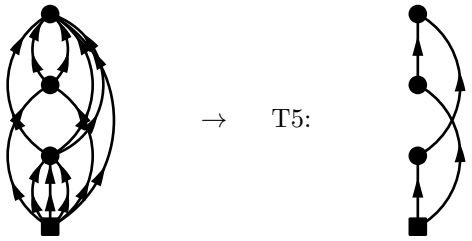
$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{333}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}}_{k_1k_2}$$
$$a_2 = \epsilon_{k_3k_7k_8k_9}$$
$$a_3 = \epsilon_{k_4k_5k_6k_{10}}$$

Diagram 165:

$$\mathrm{PO3.165} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{22}_{k_{10}k_{11}k_4k_5} \Omega^{06}_{k_{10}k_{11}k_7k_8k_9k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_7k_8}_{k_1k_2}}$$

$$= \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{22}_{k_{10}k_{11}k_4k_5} \Omega^{06}_{k_{10}k_{11}k_7k_8k_9k_6} \left[\frac{1}{\epsilon_{k_1k_2k_3k_6k_{10}k_{11}}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_6k_7k_8k_9k_{10}k_{11}}} + \right. \tag{334}$$

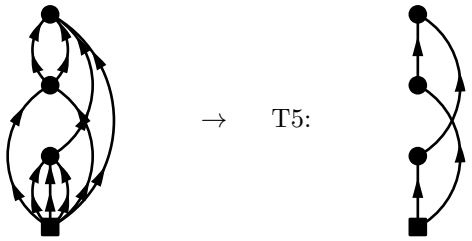


$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{335}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7k_8k_9}_{k_1k_2k_3} \\ a_2 &= \epsilon^{k_{10}k_{11}}_{k_4k_5} \\ a_3 &= \epsilon_{k_6k_7k_8k_9k_{10}k_{11}} \end{aligned}$$

Diagram 166:

$$\begin{aligned} \text{PO3.166} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{22}_{k_8k_9k_4k_5} \Omega^{04}_{k_8k_9k_7k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7}_{k_1k_2k_3}} e^{-\tau_2\epsilon^{k_8k_9}_{k_4k_5}} \epsilon \\ &= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{22}_{k_8k_9k_4k_5} \Omega^{04}_{k_8k_9k_7k_6} \left[\frac{1}{\epsilon_{k_1k_2k_3k_6k_8k_9}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_6k_7k_8k_9}} + \frac{1}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_5} \right. \end{aligned} \tag{336}$$

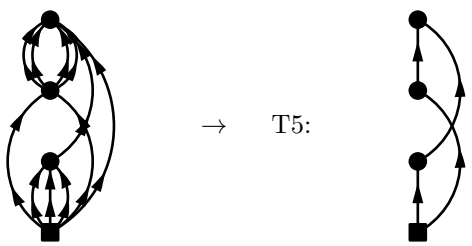


$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{337}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7}_{k_1k_2k_3} \\ a_2 &= \epsilon^{k_8k_9}_{k_4k_5} \\ a_3 &= \epsilon_{k_6k_7k_8k_9} \end{aligned}$$

Diagram 167:

$$\begin{aligned} \text{PO3.167} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{42}_{k_8k_9k_{10}k_{11}k_4k_5} \Omega^{06}_{k_8k_9k_{10}k_{11}k_7k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7}_{k_1} \\ &= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{42}_{k_8k_9k_{10}k_{11}k_4k_5} \Omega^{06}_{k_8k_9k_{10}k_{11}k_7k_6} \left[\frac{1}{\epsilon_{k_1k_2k_3k_6k_8k_9k_{10}k_{11}}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_6k_7k_8k_9k_{10}k} \right. \end{aligned} \tag{338}$$

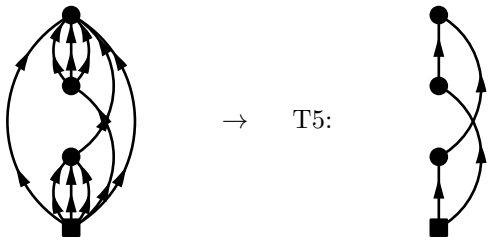


$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{339}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7}_{k_1k_2k_3} \\ a_2 &= \epsilon^{k_8k_9k_{10}k_{11}}_{k_4k_5} \\ a_3 &= \epsilon_{k_6k_7k_8k_9k_{10}k_{11}} \end{aligned}$$

Diagram 168:

$$\begin{aligned} \mathrm{PO3.168} &= \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{31}_{k_8k_9k_{10}k_4} \Omega^{06}_{k_8k_9k_{10}k_7k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7}_{k_1k_2k_3}}e^{-\tau_2} \\ &= \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{31}_{k_8k_9k_{10}k_4} \Omega^{06}_{k_8k_9k_{10}k_7k_5k_6} \left[\frac{1}{\epsilon_{k_1k_2k_3k_5k_6k_8k_9k_{10}}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_5k_6k_7k_8k_9k_{10}}} + \frac{}{\epsilon_{k_1k} \right. \end{aligned} \tag{340}$$

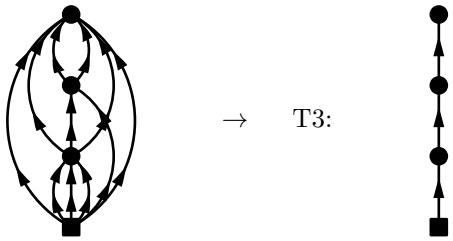


$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{341}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7}_{k_1k_2k_3} \\ a_2 &= \epsilon^{k_8k_9k_{10}}_{k_4} \\ a_3 &= \epsilon_{k_5k_6k_7k_8k_9k_{10}} \end{aligned}$$

Diagram 169:

$$\begin{aligned} \mathrm{PO3.169} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{22}_{k_{10}k_{11}k_7k_4} \Omega^{06}_{k_{10}k_{11}k_8k_9k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) \\ &= \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{22}_{k_{10}k_{11}k_7k_4} \Omega^{06}_{k_{10}k_{11}k_8k_9k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_7k_5k_6k_8k_9}\ \epsilon_{k_5k_6k_8k_9k_{10}k_{11}}} \end{aligned} \tag{342}$$



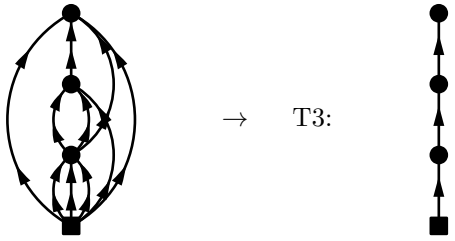
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{343}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7k_8k_9}_{k_1k_2k_3} \\ a_2 &= \epsilon^{k_{10}k_{11}}_{k_4k_7} \\ a_3 &= \epsilon_{k_5k_6k_8k_9k_{10}k_{11}} \end{aligned}$$

Diagram 170:

$$\text{PO3.170} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{13}_{k_{10}k_7k_8k_4} \Omega^{04}_{k_{10}k_9k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon}$$

$$= \frac{-(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{13}_{k_{10}k_7k_8k_4} \Omega^{04}_{k_{10}k_9k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_7k_8k_5k_6k_9}\ \epsilon_{k_5k_6k_9k_{10}}} \tag{344}$$



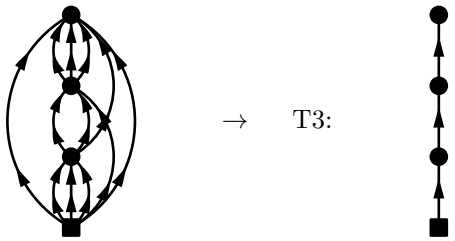
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{345}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_{10}}_{k_4k_7k_8}$$
$$a_3 = \epsilon_{k_5k_6k_9k_{10}}$$

Diagram 171:

$$\text{PO3.171} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{33}_{k_{10}k_{11}k_{12}k_7k_8k_4} \Omega^{06}_{k_{10}k_{11}k_{12}k_9k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau$$

$$= \frac{-(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{33}_{k_{10}k_{11}k_{12}k_7k_8k_4} \Omega^{06}_{k_{10}k_{11}k_{12}k_9k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_7k_8k_5k_6k_9}\ \epsilon_{k_5k_6k_9k_{10}k_{11}k_{12}}} \tag{346}$$



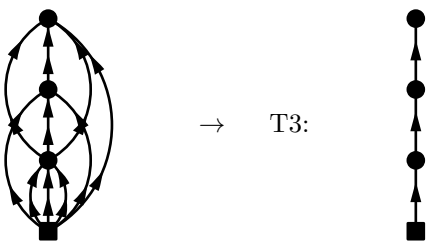
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{347}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_{10}k_{11}k_{12}}_{k_4k_7k_8}$$
$$a_3 = \epsilon_{k_5k_6k_9k_{10}k_{11}k_{12}}$$

Diagram 172:

$$\text{PO3.172} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{13}_{k_{10}k_7k_4k_5} \Omega^{04}_{k_{10}k_8k_9k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon}$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{13}_{k_{10}k_7k_4k_5} \Omega^{04}_{k_{10}k_8k_9k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_7k_6k_8k_9}\ \epsilon_{k_6k_8k_9k_{10}}} \tag{348}$$

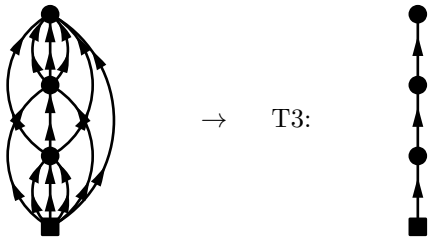


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{349}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_{10}}_{k_4k_5k_7}$$
$$a_3 = \epsilon_{k_6k_8k_9k_{10}}$$

Diagram 173:

$$\mathrm{PO3.173} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{33}_{k_{10}k_{11}k_{12}k_7k_4k_5} \Omega^{06}_{k_{10}k_{11}k_{12}k_8k_9k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau$$
$$= \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{33}_{k_{10}k_{11}k_{12}k_7k_4k_5} \Omega^{06}_{k_{10}k_{11}k_{12}k_8k_9k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_7k_6k_8k_9}\ \epsilon_{k_6k_8k_9k_{10}k_{11}k_{12}}} \tag{350}$$

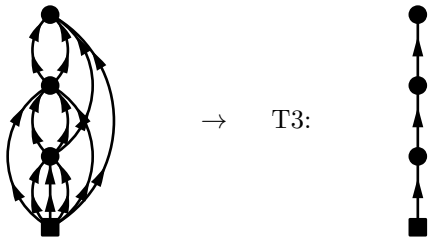


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{351}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_{10}k_{11}k_{12}}_{k_4k_5k_7}$$
$$a_3 = \epsilon_{k_6k_8k_9k_{10}k_{11}k_{12}}$$

Diagram 174:

$$\mathrm{PO3.174} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{24}_{k_{10}k_{11}k_7k_8k_4k_5} \Omega^{04}_{k_{10}k_{11}k_9k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)$$
$$= \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{24}_{k_{10}k_{11}k_7k_8k_4k_5} \Omega^{04}_{k_{10}k_{11}k_9k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_7k_8k_6k_9}\ \epsilon_{k_6k_9k_{10}k_{11}}} \tag{352}$$



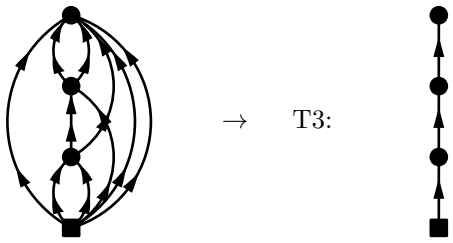
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{353}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_{10}k_{11}}_{k_4k_5k_7k_8}$$
$$a_3 = \epsilon_{k_6k_9k_{10}k_{11}}$$

Diagram 175:

$$\text{PO3.175} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{22}_{k_9k_{10}k_7k_3} \Omega^{06}_{k_9k_{10}k_8k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon}$$

$$= \frac{-(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{22}_{k_9k_{10}k_7k_3} \Omega^{06}_{k_9k_{10}k_8k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_7k_4k_5k_6k_8}\ \epsilon_{k_4k_5k_6k_8k_9k_{10}}} \tag{354}$$



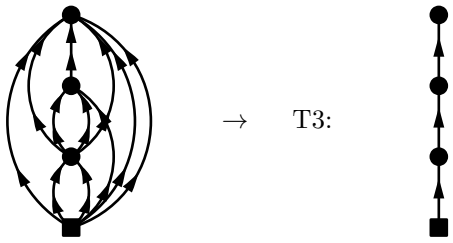
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{355}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2}$$
$$a_2 = \epsilon^{k_9k_{10}}_{k_3k_7}$$
$$a_3 = \epsilon_{k_4k_5k_6k_8k_9k_{10}}$$

Diagram 176:

$$\text{PO3.176} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{13}_{k_{11}k_7k_8k_3} \Omega^{06}_{k_{11}k_9k_{10}k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)$$

$$= \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{13}_{k_{11}k_7k_8k_3} \Omega^{06}_{k_{11}k_9k_{10}k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_7k_8k_4k_5k_6k_9k_{10}}\ \epsilon_{k_4k_5k_6k_9k_{10}k_{11}}} \tag{356}$$



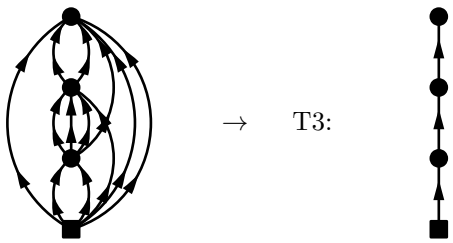
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{357}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}}_{k_1k_2}$$
$$a_2 = \epsilon^{k_{11}}_{k_3k_7k_8}$$
$$a_3 = \epsilon_{k_4k_5k_6k_9k_{10}k_{11}}$$

Diagram 177:

$$\text{PO3.177} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{24}_{k_{11}k_{12}k_7k_8k_9k_3} \Omega^{06}_{k_{11}k_{12}k_{10}k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau$$

$$= \frac{-(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{24}_{k_{11}k_{12}k_7k_8k_9k_3} \Omega^{06}_{k_{11}k_{12}k_{10}k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_7k_8k_9k_4k_5k_6k_{10}}\ \epsilon_{k_4k_5k_6k_{10}k_{11}k_{12}}} \tag{358}$$



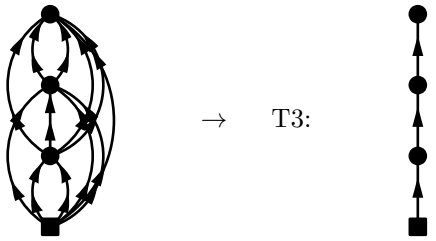
$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{359}$$

$$a_1 = \epsilon^{k_7 k_8 k_9 k_{10}}_{k_1 k_2}$$
$$a_2 = \epsilon^{k_{11} k_{12}}_{k_3 k_7 k_8 k_9}$$
$$a_3 = \epsilon_{k_4 k_5 k_6 k_{10} k_{11} k_{12}}$$

Diagram 178:

$$\mathrm{PO3.178} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{42}_{k_7 k_8 k_9 k_{10} k_1 k_2} \Omega^{24}_{k_{11} k_{12} k_7 k_3 k_4 k_5} \Omega^{06}_{k_{11} k_{12} k_8 k_9 k_{10} k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1)\theta(\tau$$

$$= \frac{-(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{42}_{k_7 k_8 k_9 k_{10} k_1 k_2} \Omega^{24}_{k_{11} k_{12} k_7 k_3 k_4 k_5} \Omega^{06}_{k_{11} k_{12} k_8 k_9 k_{10} k_6}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_3 k_4 k_5 k_7 k_6 k_8 k_9 k_{10}}\ \epsilon_{k_6 k_8 k_9 k_{10} k_{11} k_{12}}} \tag{360}$$



$\rightarrow$ T3:

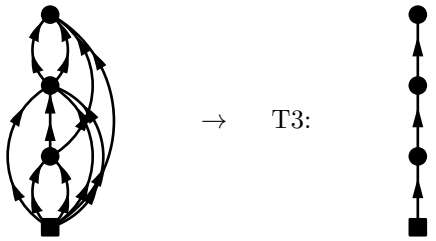
$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{361}$$

$$a_1 = \epsilon^{k_7 k_8 k_9 k_{10}}_{k_1 k_2}$$
$$a_2 = \epsilon^{k_{11} k_{12}}_{k_3 k_4 k_5 k_7}$$
$$a_3 = \epsilon_{k_6 k_8 k_9 k_{10} k_{11} k_{12}}$$

Diagram 179:

$$\mathrm{PO3.179} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{22}_{k_7 k_8 k_1 k_2} \Omega^{24}_{k_9 k_{10} k_7 k_3 k_4 k_5} \Omega^{04}_{k_9 k_{10} k_8 k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon}$$

$$= \frac{-(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{22}_{k_7 k_8 k_1 k_2} \Omega^{24}_{k_9 k_{10} k_7 k_3 k_4 k_5} \Omega^{04}_{k_9 k_{10} k_8 k_6}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_3 k_4 k_5 k_7 k_6 k_8}\ \epsilon_{k_6 k_8 k_9 k_{10}}} \tag{362}$$



$\rightarrow$ T3:

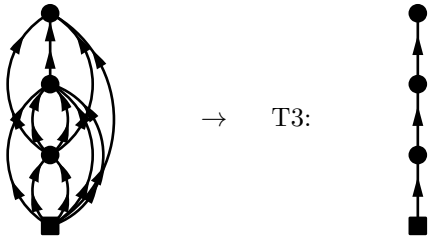
$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{363}$$

$$a_1 = \epsilon^{k_7 k_8}_{k_1 k_2}$$
$$a_2 = \epsilon^{k_9 k_{10}}_{k_3 k_4 k_5 k_7}$$
$$a_3 = \epsilon_{k_6 k_8 k_9 k_{10}}$$

Diagram 180:

$$\text{PO3.180} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{15}_{k_{11}k_7k_8k_3k_4k_5} \Omega^{04}_{k_{11}k_9k_{10}k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)$$

$$= \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{15}_{k_{11}k_7k_8k_3k_4k_5} \Omega^{04}_{k_{11}k_9k_{10}k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_5k_7k_8k_6k_9k_{10}}\ \epsilon_{k_6k_9k_{10}k_{11}}} \tag{364}$$



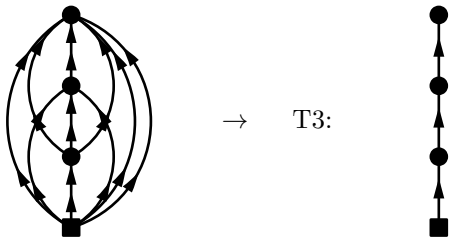
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{365}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}}_{k_1k_2}$$
$$a_2 = \epsilon^{k_{11}}_{k_3k_4k_5k_7k_8}$$
$$a_3 = \epsilon_{k_6k_9k_{10}k_{11}}$$

Diagram 181:

$$\text{PO3.181} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{13}_{k_{10}k_7k_2k_3} \Omega^{06}_{k_{10}k_8k_9k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon}$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{13}_{k_{10}k_7k_2k_3} \Omega^{06}_{k_{10}k_8k_9k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_7k_4k_5k_6k_8k_9}\ \epsilon_{k_4k_5k_6k_8k_9k_{10}}} \tag{366}$$



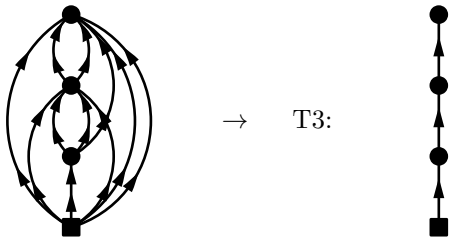
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{367}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1}$$
$$a_2 = \epsilon^{k_{10}}_{k_2k_3k_7}$$
$$a_3 = \epsilon_{k_4k_5k_6k_8k_9k_{10}}$$

Diagram 182:

$$\text{PO3.182} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{24}_{k_{10}k_{11}k_7k_8k_2k_3} \Omega^{06}_{k_{10}k_{11}k_9k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)$$

$$= \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{24}_{k_{10}k_{11}k_7k_8k_2k_3} \Omega^{06}_{k_{10}k_{11}k_9k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_7k_8k_4k_5k_6k_9}\ \epsilon_{k_4k_5k_6k_9k_{10}k_{11}}} \tag{368}$$

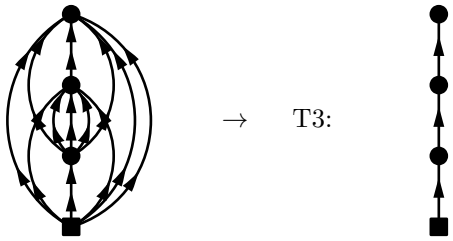


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{369}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1}$$
$$a_2 = \epsilon^{k_{10}k_{11}}_{k_2k_3k_7k_8}$$
$$a_3 = \epsilon_{k_4k_5k_6k_9k_{10}k_{11}}$$

Diagram 183:

$$\mathrm{PO3.183} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{51}_{k_7k_8k_9k_{10}k_{11}k_1} \Omega^{15}_{k_{12}k_7k_8k_9k_2k_3} \Omega^{06}_{k_{12}k_{10}k_{11}k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau$$
$$= \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{51}_{k_7k_8k_9k_{10}k_{11}k_1} \Omega^{15}_{k_{12}k_7k_8k_9k_2k_3} \Omega^{06}_{k_{12}k_{10}k_{11}k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_7k_8k_9k_4k_5k_6k_{10}k_{11}}\ \epsilon_{k_4k_5k_6k_{10}k_{11}k_{12}}} \tag{370}$$

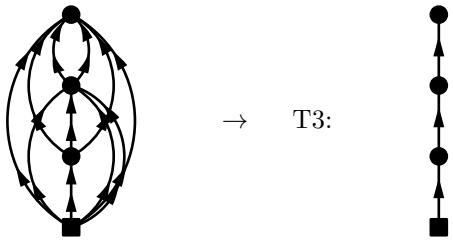


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{371}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}k_{11}}_{k_1}$$
$$a_2 = \epsilon^{k_{12}}_{k_2k_3k_7k_8k_9}$$
$$a_3 = \epsilon_{k_4k_5k_6k_{10}k_{11}k_{12}}$$

Diagram 184:

$$\mathrm{PO3.184} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{24}_{k_{10}k_{11}k_7k_2k_3k_4} \Omega^{06}_{k_{10}k_{11}k_8k_9k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)$$
$$= \frac{(-1)^3}{(2!)^3(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{24}_{k_{10}k_{11}k_7k_2k_3k_4} \Omega^{06}_{k_{10}k_{11}k_8k_9k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_4k_7k_5k_6k_8k_9}\ \epsilon_{k_5k_6k_8k_9k_{10}k_{11}}} \tag{372}$$



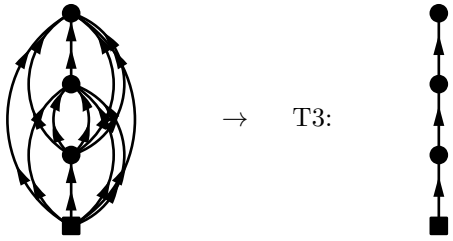
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{373}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1}$$
$$a_2 = \epsilon^{k_{10}k_{11}}_{k_2k_3k_4k_7}$$
$$a_3 = \epsilon_{k_5k_6k_8k_9k_{10}k_{11}}$$

Diagram 185:

$$\text{PO3.185} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{51}_{k_7k_8k_9k_{10}k_{11}k_1} \Omega^{15}_{k_{12}k_7k_8k_2k_3k_4} \Omega^{06}_{k_{12}k_9k_{10}k_{11}k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau$$

$$= \frac{-(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{51}_{k_7k_8k_9k_{10}k_{11}k_1} \Omega^{15}_{k_{12}k_7k_8k_2k_3k_4} \Omega^{06}_{k_{12}k_9k_{10}k_{11}k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_4k_7k_8k_5k_6k_9k_{10}k_{11}}\ \epsilon_{k_5k_6k_9k_{10}k_{11}k_{12}}} \tag{374}$$



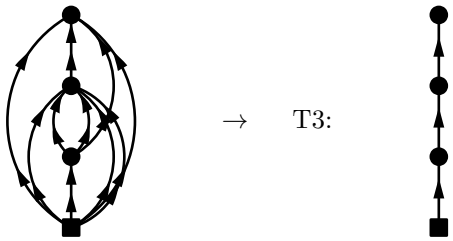
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{375}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}k_{11}}_{k_1}$$
$$a_2 = \epsilon^{k_{12}}_{k_2k_3k_4k_7k_8}$$
$$a_3 = \epsilon_{k_5k_6k_9k_{10}k_{11}k_{12}}$$

Diagram 186:

$$\text{PO3.186} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{15}_{k_{10}k_7k_8k_2k_3k_4} \Omega^{04}_{k_{10}k_9k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon}$$

$$= \frac{-(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{15}_{k_{10}k_7k_8k_2k_3k_4} \Omega^{04}_{k_{10}k_9k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_4k_7k_8k_5k_6k_9}\ \epsilon_{k_5k_6k_9k_{10}}} \tag{376}$$



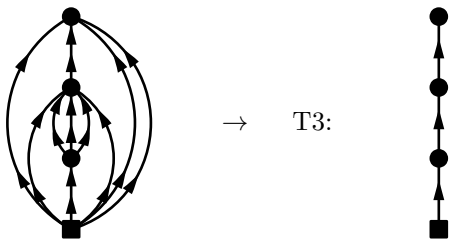
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{377}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1}$$
$$a_2 = \epsilon^{k_{10}}_{k_2k_3k_4k_7k_8}$$
$$a_3 = \epsilon_{k_5k_6k_9k_{10}}$$

Diagram 187:

$$\text{PO3.187} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{15}_{k_{10}k_7k_8k_9k_2k_3} \Omega^{04}_{k_{10}k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7k_8k_9}_{k_1}}e^{-\tau_2}$$

$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{15}_{k_{10}k_7k_8k_9k_2k_3} \Omega^{04}_{k_{10}k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_7k_8k_9k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_{10}}} \tag{378}$$

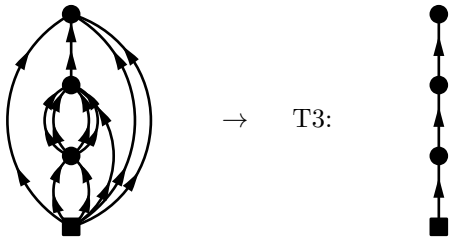


$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{379}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7 k_8 k_9}_{k_1} \\ a_2 &= \epsilon^{k_{10}}_{k_2 k_3 k_7 k_8 k_9} \\ a_3 &= \epsilon_{k_4 k_5 k_6 k_{10}} \end{aligned}$$

Diagram 188:

$$\begin{aligned} \mathrm{PO3.188} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{42}_{k_7 k_8 k_9 k_{10} k_1 k_2} \Omega^{15}_{k_{11} k_7 k_8 k_9 k_{10} k_3} \Omega^{04}_{k_{11} k_4 k_5 k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_7}_{k_1}} \\ &= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{42}_{k_7 k_8 k_9 k_{10} k_1 k_2} \Omega^{15}_{k_{11} k_7 k_8 k_9 k_{10} k_3} \Omega^{04}_{k_{11} k_4 k_5 k_6}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_3 k_7 k_8 k_9 k_{10} k_4 k_5 k_6}\ \epsilon_{k_4 k_5 k_6 k_{11}}} \end{aligned} \tag{380}$$

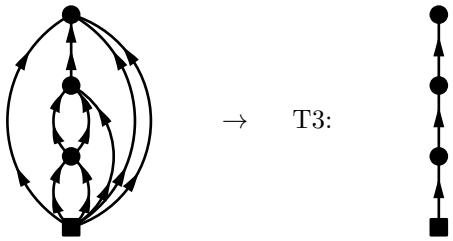


$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{381}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7 k_8 k_9 k_{10}}_{k_1 k_2} \\ a_2 &= \epsilon^{k_{11}}_{k_3 k_7 k_8 k_9 k_{10}} \\ a_3 &= \epsilon_{k_4 k_5 k_6 k_{11}} \end{aligned}$$

Diagram 189:

$$\begin{aligned} \mathrm{PO3.189} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{22}_{k_7 k_8 k_1 k_2} \Omega^{13}_{k_9 k_7 k_8 k_3} \Omega^{04}_{k_9 k_4 k_5 k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_7 k_8}_{k_1 k_2}} e^{-\tau_2 \epsilon^{k_9}_{k_3 k_7 k_8}} \epsilon \\ &= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{22}_{k_7 k_8 k_1 k_2} \Omega^{13}_{k_9 k_7 k_8 k_3} \Omega^{04}_{k_9 k_4 k_5 k_6}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_3 k_7 k_8 k_4 k_5 k_6}\ \epsilon_{k_4 k_5 k_6 k_9}} \end{aligned} \tag{382}$$



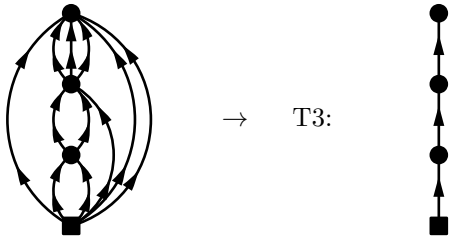
$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{383}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7 k_8}_{k_1 k_2} \\ a_2 &= \epsilon^{k_9}_{k_3 k_7 k_8} \\ a_3 &= \epsilon_{k_4 k_5 k_6 k_9} \end{aligned}$$

Diagram 190:

$$\text{PO3.190} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{33}_{k_9k_{10}k_{11}k_7k_8k_3} \Omega^{06}_{k_9k_{10}k_{11}k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7k_8}_{k_1k_2}}$$

$$= \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{33}_{k_9k_{10}k_{11}k_7k_8k_3} \Omega^{06}_{k_9k_{10}k_{11}k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_7k_8k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_9k_{10}k_{11}}} \tag{384}$$



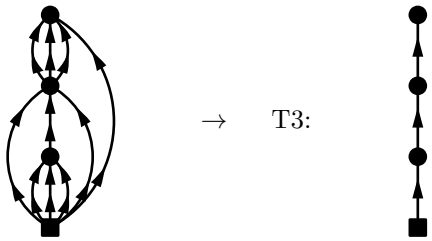
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{385}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2}$$
$$a_2 = \epsilon^{k_9k_{10}k_{11}}_{k_3k_7k_8}$$
$$a_3 = \epsilon_{k_4k_5k_6k_9k_{10}k_{11}}$$

Diagram 191:

$$\text{PO3.191} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{33}_{k_8k_9k_{10}k_7k_4k_5} \Omega^{04}_{k_8k_9k_{10}k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7}_{k_1k_2k_3}}e^{-\tau_2}$$

$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{33}_{k_8k_9k_{10}k_7k_4k_5} \Omega^{04}_{k_8k_9k_{10}k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_7k_6}\ \epsilon_{k_6k_8k_9k_{10}}} \tag{386}$$



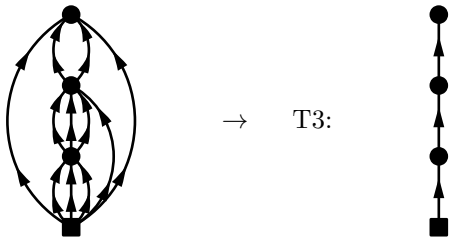
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{387}$$

$$a_1 = \epsilon^{k_7}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_8k_9k_{10}}_{k_4k_5k_7}$$
$$a_3 = \epsilon_{k_6k_8k_9k_{10}}$$

Diagram 192:

$$\text{PO3.192} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{24}_{k_{10}k_{11}k_7k_8k_9k_4} \Omega^{04}_{k_{10}k_{11}k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7k_8}_{k_1k_2}}$$

$$= \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{24}_{k_{10}k_{11}k_7k_8k_9k_4} \Omega^{04}_{k_{10}k_{11}k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_7k_8k_9k_5k_6}\ \epsilon_{k_5k_6k_{10}k_{11}}} \tag{388}$$

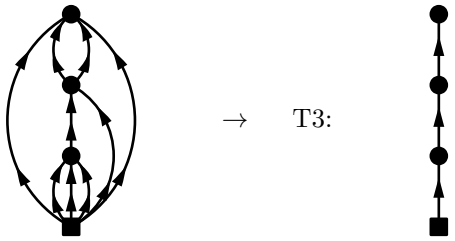


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{389}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7k_8k_9}_{k_1k_2k_3} \\ a_2 &= \epsilon^{k_{10}k_{11}}_{k_4k_7k_8k_9} \\ a_3 &= \epsilon_{k_5k_6k_{10}k_{11}} \end{aligned}$$

Diagram 193:

$$\begin{aligned} \mathrm{PO3.193} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{22}_{k_8k_9k_7k_4} \Omega^{04}_{k_8k_9k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7}_{k_1k_2k_3}} e^{-\tau_2\epsilon^{k_8k_9}_{k_4k_7}} \epsilon \\ &= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{22}_{k_8k_9k_7k_4} \Omega^{04}_{k_8k_9k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_7k_5k_6}\ \epsilon_{k_5k_6k_8k_9}} \end{aligned} \tag{390}$$

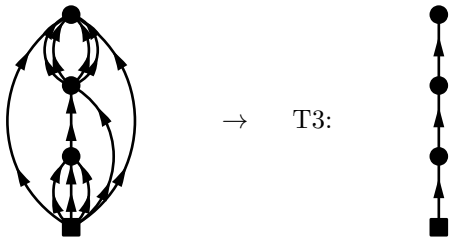


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{391}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7}_{k_1k_2k_3} \\ a_2 &= \epsilon^{k_8k_9}_{k_4k_7} \\ a_3 &= \epsilon_{k_5k_6k_8k_9} \end{aligned}$$

Diagram 194:

$$\begin{aligned} \mathrm{PO3.194} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{42}_{k_8k_9k_{10}k_{11}k_7k_4} \Omega^{06}_{k_8k_9k_{10}k_{11}k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7}_{k_1} \\ &= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{42}_{k_8k_9k_{10}k_{11}k_7k_4} \Omega^{06}_{k_8k_9k_{10}k_{11}k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_7k_5k_6}\ \epsilon_{k_5k_6k_8k_9k_{10}k_{11}}} \end{aligned} \tag{392}$$



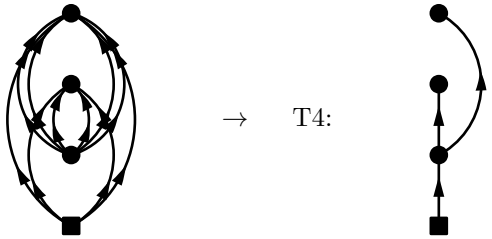
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{393}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7}_{k_1k_2k_3} \\ a_2 &= \epsilon^{k_8k_9k_{10}k_{11}}_{k_4k_7} \\ a_3 &= \epsilon_{k_5k_6k_8k_9k_{10}k_{11}} \end{aligned}$$

Diagram 195:

$$\mathrm{PO3.195} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{60}_{k_5k_6k_7k_8k_9k_{10}} \Omega^{04}_{k_5k_6k_1k_2} \Omega^{06}_{k_7k_8k_9k_{10}k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1 \epsilon^{k_5k_6k_7k_8k_9k}}$$

$$= \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{60}_{k_5k_6k_7k_8k_9k_{10}} \Omega^{04}_{k_5k_6k_1k_2} \Omega^{06}_{k_7k_8k_9k_{10}k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_5k_6}\ \epsilon_{k_3k_4k_7k_8k_9k_{10}}} \tag{394}$$



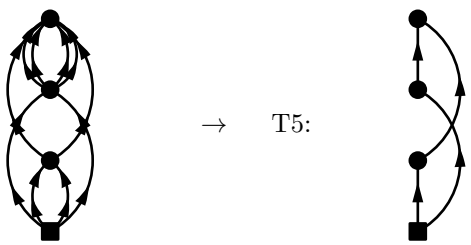
$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{395}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8k_9k_{10}}$$
$$a_2 = \epsilon_{k_1k_2k_5k_6}$$
$$a_3 = \epsilon_{k_3k_4k_7k_8k_9k_{10}}$$

Diagram 196:

$$\mathrm{PO3.196} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{42}_{k_7k_8k_9k_{10}k_3k_4} \Omega^{06}_{k_7k_8k_9k_{10}k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}_{k_1k_2}} e^{-\tau_2\epsilon^{k}_{}}$$

$$= \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{42}_{k_7k_8k_9k_{10}k_3k_4} \Omega^{06}_{k_7k_8k_9k_{10}k_5k_6} \left[\frac{1}{\epsilon_{k_1k_2k_7k_8k_9k_{10}}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_8k_9k_{10}}} + \frac{}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k}} \right. \tag{396}$$



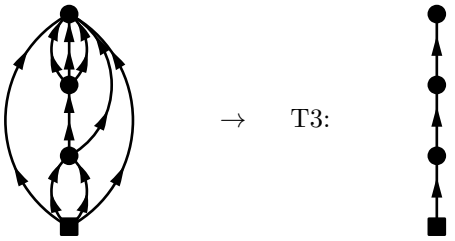
$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{397}$$

$$a_1 = \epsilon^{k_5k_6}_{k_1k_2}$$
$$a_2 = \epsilon^{k_7k_8k_9k_{10}}_{k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6k_7k_8k_9k_{10}}$$

Diagram 197:

$$\mathrm{PO3.197} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{31}_{k_7k_8k_9k_5} \Omega^{06}_{k_7k_8k_9k_6k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}_{k_1k_2}} e$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{31}_{k_7k_8k_9k_5} \Omega^{06}_{k_7k_8k_9k_6k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_3k_4k_6}\ \epsilon_{k_3k_4k_6k_7k_8k_9}} \tag{398}$$



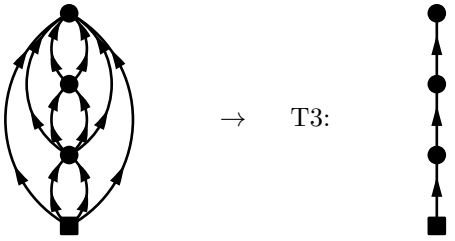
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{399}$$

$$a_1 = \epsilon^{k_5 k_6}_{k_1 k_2}$$
$$a_2 = \epsilon^{k_7 k_8 k_9}_{k_5}$$
$$a_3 = \epsilon_{k_3 k_4 k_6 k_7 k_8 k_9}$$

Diagram 198:

$$\text{PO3.198} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^5} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{42}_{k_5 k_6 k_7 k_8 k_1 k_2} \Omega^{22}_{k_9 k_{10} k_5 k_6} \Omega^{06}_{k_9 k_{10} k_7 k_8 k_3 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5 k}_{k_1 k}}$$

$$= \frac{(-1)^3}{(2!)^5} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{42}_{k_5 k_6 k_7 k_8 k_1 k_2} \Omega^{22}_{k_9 k_{10} k_5 k_6} \Omega^{06}_{k_9 k_{10} k_7 k_8 k_3 k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_5 k_6 k_3 k_4 k_7 k_8}\ \epsilon_{k_3 k_4 k_7 k_8 k_9 k_{10}}} \tag{400}$$



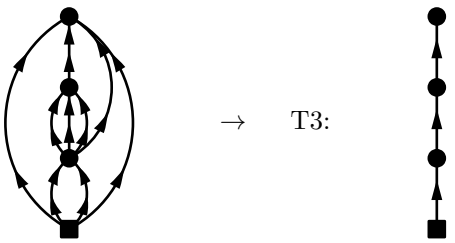
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{401}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}_{k_1 k_2}$$
$$a_2 = \epsilon^{k_9 k_{10}}_{k_5 k_6}$$
$$a_3 = \epsilon_{k_3 k_4 k_7 k_8 k_9 k_{10}}$$

Diagram 199:

$$\text{PO3.199} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{42}_{k_5 k_6 k_7 k_8 k_1 k_2} \Omega^{13}_{k_9 k_5 k_6 k_7} \Omega^{04}_{k_9 k_8 k_3 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7}_{k_1 k_2}}$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{42}_{k_5 k_6 k_7 k_8 k_1 k_2} \Omega^{13}_{k_9 k_5 k_6 k_7} \Omega^{04}_{k_9 k_8 k_3 k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_5 k_6 k_7 k_3 k_4 k_8}\ \epsilon_{k_3 k_4 k_8 k_9}} \tag{402}$$



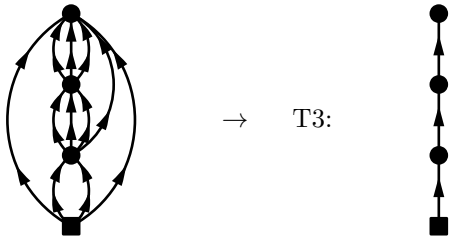
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{403}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}_{k_1 k_2}$$
$$a_2 = \epsilon^{k_9}_{k_5 k_6 k_7}$$
$$a_3 = \epsilon_{k_3 k_4 k_8 k_9}$$

Diagram 200:

$$\text{PO3.200} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{33}_{k_9k_{10}k_{11}k_5k_6k_7} \Omega^{06}_{k_9k_{10}k_{11}k_8k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2$$

$$= \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{33}_{k_9k_{10}k_{11}k_5k_6k_7} \Omega^{06}_{k_9k_{10}k_{11}k_8k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_3k_4k_8}\ \epsilon_{k_3k_4k_8k_9k_{10}k_{11}}} \tag{404}$$



$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{405}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}_{k_1k_2}$$
$$a_2 = \epsilon^{k_9k_{10}k_{11}}_{k_5k_6k_7}$$
$$a_3 = \epsilon_{k_3k_4k_8k_9k_{10}k_{11}}$$

Diagram 201:

$$\text{PO3.201} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{13}_{k_9k_5k_1k_2} \Omega^{06}_{k_9k_6k_7k_8k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7}}$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{13}_{k_9k_5k_1k_2} \Omega^{06}_{k_9k_6k_7k_8k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_5k_3k_4k_6k_7k_8}\ \epsilon_{k_3k_4k_6k_7k_8k_9}} \tag{406}$$

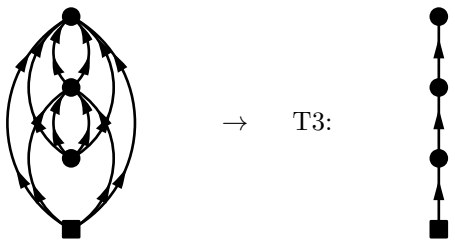
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{407}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9}_{k_1k_2k_5}$$
$$a_3 = \epsilon_{k_3k_4k_6k_7k_8k_9}$$

Diagram 202:

$$\text{PO3.202} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^5} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{24}_{k_9k_{10}k_5k_6k_1k_2} \Omega^{06}_{k_9k_{10}k_7k_8k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k}}$$

$$= \frac{(-1)^3}{(2!)^5} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{24}_{k_9k_{10}k_5k_6k_1k_2} \Omega^{06}_{k_9k_{10}k_7k_8k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_5k_6k_3k_4k_7k_8}\ \epsilon_{k_3k_4k_7k_8k_9k_{10}}} \tag{408}$$



$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{409}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9k_{10}}_{k_1k_2k_5k_6}$$
$$a_3 = \epsilon_{k_3k_4k_7k_8k_9k_{10}}$$

Diagram 203:

$$\mathrm{PO3.203} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{60}_{k_5k_6k_7k_8k_9k_{10}} \Omega^{15}_{k_{11}k_5k_6k_7k_1k_2} \Omega^{06}_{k_{11}k_8k_9k_{10}k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2$$

$$= \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{60}_{k_5k_6k_7k_8k_9k_{10}} \Omega^{15}_{k_{11}k_5k_6k_7k_1k_2} \Omega^{06}_{k_{11}k_8k_9k_{10}k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_5k_6k_7k_3k_4k_8k_9k_{10}}\ \epsilon_{k_3k_4k_8k_9k_{10}k_{11}}} \tag{410}$$

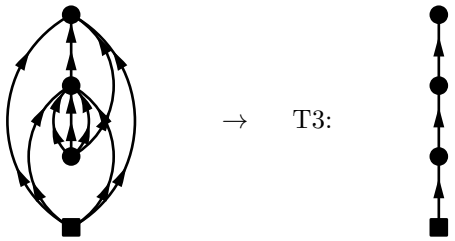
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{411}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8k_9k_{10}}$$
$$a_2 = \epsilon^{k_{11}}_{k_1k_2k_5k_6k_7}$$
$$a_3 = \epsilon_{k_3k_4k_8k_9k_{10}k_{11}}$$

Diagram 204:

$$\mathrm{PO3.204} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{15}_{k_9k_5k_6k_7k_1k_2} \Omega^{04}_{k_9k_8k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7}}$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{15}_{k_9k_5k_6k_7k_1k_2} \Omega^{04}_{k_9k_8k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_5k_6k_7k_3k_4k_8}\ \epsilon_{k_3k_4k_8k_9}} \tag{412}$$



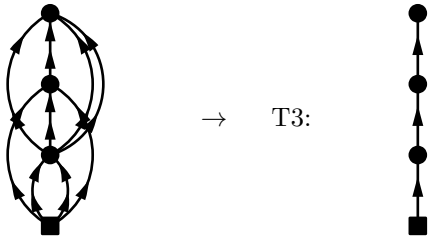
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{413}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9}_{k_1k_2k_5k_6k_7}$$
$$a_3 = \epsilon_{k_3k_4k_8k_9}$$

Diagram 205:

$$\text{PO3.205} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{13}_{k_9k_5k_3k_4} \Omega^{04}_{k_9k_6k_7k_8} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1k_2}}$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{13}_{k_9k_5k_3k_4} \Omega^{04}_{k_9k_6k_7k_8}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6k_7k_8}\ \epsilon_{k_6k_7k_8k_9}} \tag{414}$$



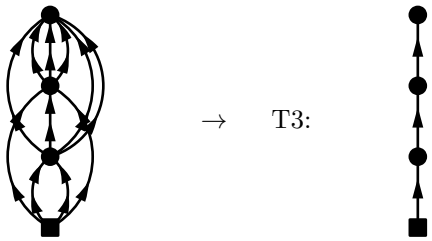
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{415}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}_{k_1k_2}$$
$$a_2 = \epsilon^{k_9}_{k_3k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9}$$

Diagram 206:

$$\text{PO3.206} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{33}_{k_9k_{10}k_{11}k_5k_3k_4} \Omega^{06}_{k_9k_{10}k_{11}k_6k_7k_8} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2$$

$$= \frac{(-1)^3}{(2!)^2(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{33}_{k_9k_{10}k_{11}k_5k_3k_4} \Omega^{06}_{k_9k_{10}k_{11}k_6k_7k_8}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6k_7k_8}\ \epsilon_{k_6k_7k_8k_9k_{10}k_{11}}} \tag{416}$$



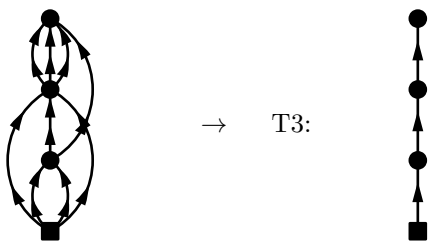
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{417}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}_{k_1k_2}$$
$$a_2 = \epsilon^{k_9k_{10}k_{11}}_{k_3k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9k_{10}k_{11}}$$

Diagram 207:

$$\text{PO3.207} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{33}_{k_7k_8k_9k_5k_3k_4} \Omega^{04}_{k_7k_8k_9k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6}_{k_1k_2}}e$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{33}_{k_7k_8k_9k_5k_3k_4} \Omega^{04}_{k_7k_8k_9k_6}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_6k_7k_8k_9}} \tag{418}$$

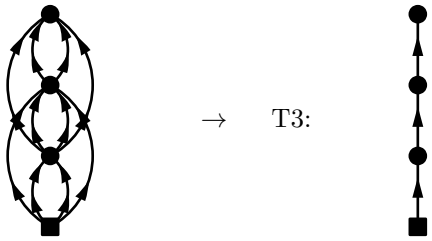


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{419}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6}_{k_1k_2} \\ a_2 &= \epsilon^{k_7k_8k_9}_{k_3k_4k_5} \\ a_3 &= \epsilon_{k_6k_7k_8k_9} \end{aligned}$$

Diagram 208:

$$\begin{aligned} \mathrm{PO3.208} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^5} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{24}_{k_9k_{10}k_5k_6k_3k_4} \Omega^{04}_{k_9k_{10}k_7k_8} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k}_{k_1k}} \\ &= \frac{(-1)^3}{(2!)^5} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{24}_{k_9k_{10}k_5k_6k_3k_4} \Omega^{04}_{k_9k_{10}k_7k_8}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6k_7k_8}\ \epsilon_{k_7k_8k_9k_{10}}} \end{aligned} \tag{420}$$



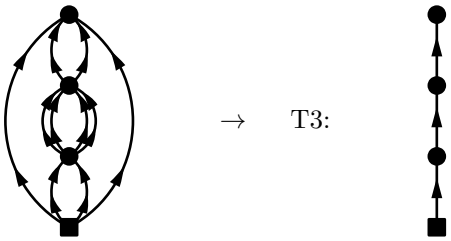
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{421}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6k_7k_8}_{k_1k_2} \\ a_2 &= \epsilon^{k_9k_{10}}_{k_3k_4k_5k_6} \\ a_3 &= \epsilon_{k_7k_8k_9k_{10}} \end{aligned}$$

Diagram 209:

$$\begin{aligned} \mathrm{PO3.209} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{24}_{k_9k_{10}k_5k_6k_7k_8} \Omega^{04}_{k_9k_{10}k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7k_8}_{k_1k_2}}e^{-} \\ &= \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{24}_{k_9k_{10}k_5k_6k_7k_8} \Omega^{04}_{k_9k_{10}k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_8k_3k_4}\ \epsilon_{k_3k_4k_9k_{10}}} \end{aligned} \tag{422}$$



$\rightarrow$ T3:

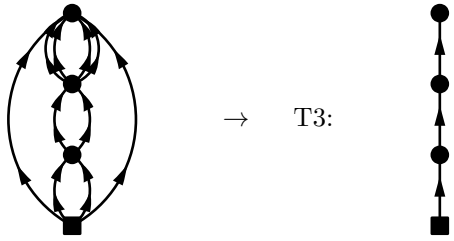
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{423}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6k_7k_8}_{k_1k_2} \\ a_2 &= \epsilon^{k_9k_{10}}_{k_5k_6k_7k_8} \\ a_3 &= \epsilon_{k_3k_4k_9k_{10}} \end{aligned}$$

Diagram 210:

$$\text{PO3.210} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{42}_{k_7k_8k_9k_{10}k_5k_6} \Omega^{06}_{k_7k_8k_9k_{10}k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}_{k_1k_2}} e^{-\tau_2\epsilon^{k}}$$

$$= \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{42}_{k_7k_8k_9k_{10}k_5k_6} \Omega^{06}_{k_7k_8k_9k_{10}k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_3k_4}\ \epsilon_{k_3k_4k_7k_8k_9k_{10}}} \tag{424}$$



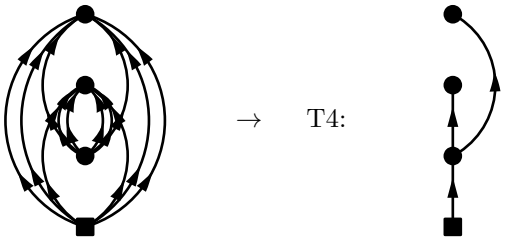
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{425}$$

$$a_1 = \epsilon^{k_5k_6}_{k_1k_2}$$
$$a_2 = \epsilon^{k_7k_8k_9k_{10}}_{k_5k_6}$$
$$a_3 = \epsilon_{k_3k_4k_7k_8k_9k_{10}}$$

Diagram 211:

$$\text{PO3.211} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{60}_{k_7k_8k_9k_{10}k_{11}k_{12}} \Omega^{06}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{06}_{k_{11}k_{12}k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau}$$

$$= \frac{(-1)^3}{(2!)^2(4!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{60}_{k_7k_8k_9k_{10}k_{11}k_{12}} \Omega^{06}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{06}_{k_{11}k_{12}k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_2k_7k_8k_9k_{10}}\ \epsilon_{k_3k_4k_5k_6k_{11}k_{12}}} \tag{426}$$



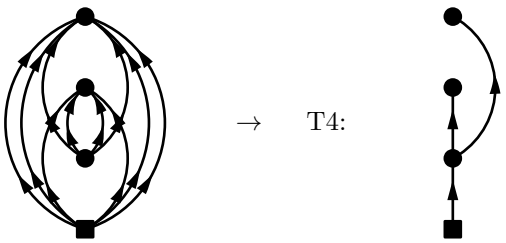
$$\text{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{427}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}k_{11}k_{12}}$$
$$a_2 = \epsilon_{k_1k_2k_7k_8k_9k_{10}}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6k_{11}k_{12}}$$

Diagram 212:

$$\text{PO3.212} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{40}_{k_7k_8k_9k_{10}} \Omega^{04}_{k_7k_8k_1k_2} \Omega^{06}_{k_9k_{10}k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1\epsilon^{k_7k_8k_9k_{10}}} e^{-}$$

$$= \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{40}_{k_7k_8k_9k_{10}} \Omega^{04}_{k_7k_8k_1k_2} \Omega^{06}_{k_9k_{10}k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_2k_7k_8}\ \epsilon_{k_3k_4k_5k_6k_9k_{10}}} \tag{428}$$

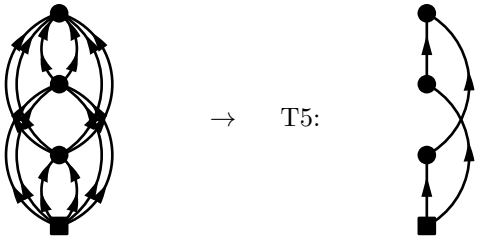


$$\mathrm{T4} = \frac{1}{(a_1 + a_2 + a_3)a_2 a_3} \tag{429}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7 k_8 k_9 k_{10}} \\ a_2 &= \epsilon_{k_1 k_2 k_7 k_8} \\ a_3 &= \epsilon_{k_3 k_4 k_5 k_6 k_9 k_{10}} \end{aligned}$$

Diagram 213:

$$\begin{aligned} \mathrm{PO3.213} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{24}_{k_{11}k_{12}k_3k_4k_5k_6} \Omega^{06}_{k_{11}k_{12}k_7k_8k_9k_{10}} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau} \\ &= \frac{(-1)^3}{(2!)^2(4!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{24}_{k_{11}k_{12}k_3k_4k_5k_6} \Omega^{06}_{k_{11}k_{12}k_7k_8k_9k_{10}} \left[\frac{1}{\epsilon_{k_1k_2k_{11}k_{12}}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8k_9k_{10}k_{11}k_{12}}} \right. \end{aligned} \tag{430}$$

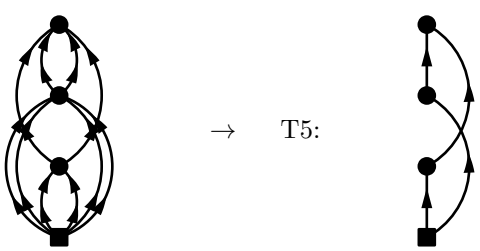


$$\mathrm{T5} = \frac{1}{(a_1 + a_3)(a_2 + a_1 + a_3)a_3} + \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{431}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7k_8k_9k_{10}}_{k_1k_2} \\ a_2 &= \epsilon^{k_{11}k_{12}}_{k_3k_4k_5k_6} \\ a_3 &= \epsilon_{k_7k_8k_9k_{10}k_{11}k_{12}} \end{aligned}$$

Diagram 214:

$$\begin{aligned} \mathrm{PO3.214} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{24}_{k_9k_{10}k_3k_4k_5k_6} \Omega^{04}_{k_9k_{10}k_7k_8} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7k_8}_{k_1k_2}} e^{-\tau_2\epsilon^{k} \\ &= \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{24}_{k_9k_{10}k_3k_4k_5k_6} \Omega^{04}_{k_9k_{10}k_7k_8} \left[\frac{1}{\epsilon_{k_1k_2k_9k_{10}}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8k_9k_{10}}} + \frac{}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k} \right. \end{aligned} \tag{432}$$



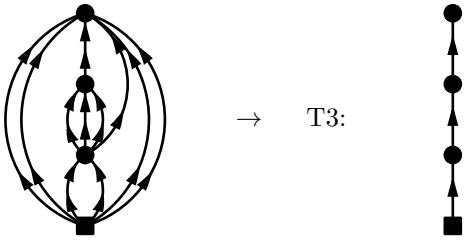
$$\mathrm{T5} = \frac{1}{(a_1 + a_3)(a_2 + a_1 + a_3)a_3} + \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{433}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7k_8}_{k_1k_2} \\ a_2 &= \epsilon^{k_9k_{10}}_{k_3k_4k_5k_6} \\ a_3 &= \epsilon_{k_7k_8k_9k_{10}} \end{aligned}$$

Diagram 215:

$$\text{PO3.215} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{13}_{k_{11}k_7k_8k_9} \Omega^{06}_{k_{11}k_{10}k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-$$

$$= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{13}_{k_{11}k_7k_8k_9} \Omega^{06}_{k_{11}k_{10}k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8k_9k_3k_4k_5k_6k_{10}}\ \epsilon_{k_3k_4k_5k_6k_{10}k_{11}}} \tag{434}$$



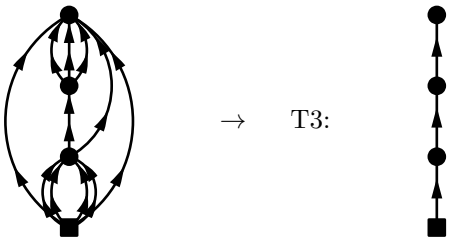
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{435}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}}_{k_1k_2}$$
$$a_2 = \epsilon^{k_{11}}_{k_7k_8k_9}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6k_{10}k_{11}}$$

Diagram 216:

$$\text{PO3.216} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{31}_{k_9k_{10}k_{11}k_7} \Omega^{06}_{k_9k_{10}k_{11}k_8k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-$$

$$= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{31}_{k_9k_{10}k_{11}k_7} \Omega^{06}_{k_9k_{10}k_{11}k_8k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_5k_6k_8}\ \epsilon_{k_5k_6k_8k_9k_{10}k_{11}}} \tag{436}$$



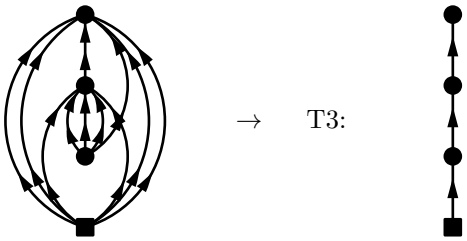
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{437}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_9k_{10}k_{11}}_{k_7}$$
$$a_3 = \epsilon_{k_5k_6k_8k_9k_{10}k_{11}}$$

Diagram 217:

$$\text{PO3.217} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{40}_{k_7k_8k_9k_{10}} \Omega^{15}_{k_{11}k_7k_8k_9k_1k_2} \Omega^{06}_{k_{11}k_{10}k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-$$

$$= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{40}_{k_7k_8k_9k_{10}} \Omega^{15}_{k_{11}k_7k_8k_9k_1k_2} \Omega^{06}_{k_{11}k_{10}k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_2k_7k_8k_9k_3k_4k_5k_6k_{10}}\ \epsilon_{k_3k_4k_5k_6k_{10}k_{11}}} \tag{438}$$



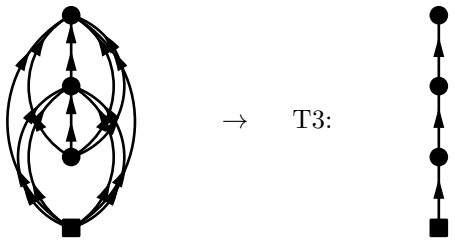
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{439}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}}$$
$$a_2 = \epsilon^{k_{11}}_{k_1k_2k_7k_8k_9}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6k_{10}k_{11}}$$

Diagram 218:

$$\mathrm{PO3.218} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{40}_{k_7k_8k_9k_{10}} \Omega^{15}_{k_{11}k_7k_1k_2k_3k_4} \Omega^{06}_{k_{11}k_8k_9k_{10}k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3 -$$

$$= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{40}_{k_7k_8k_9k_{10}} \Omega^{15}_{k_{11}k_7k_1k_2k_3k_4} \Omega^{06}_{k_{11}k_8k_9k_{10}k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_2k_3k_4k_7k_5k_6k_8k_9k_{10}}\ \epsilon_{k_5k_6k_8k_9k_{10}k_{11}}} \tag{440}$$



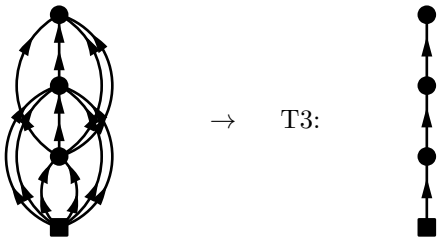
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{441}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}}$$
$$a_2 = \epsilon^{k_{11}}_{k_1k_2k_3k_4k_7}$$
$$a_3 = \epsilon_{k_5k_6k_8k_9k_{10}k_{11}}$$

Diagram 219:

$$\mathrm{PO3.219} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{15}_{k_{11}k_7k_3k_4k_5k_6} \Omega^{04}_{k_{11}k_8k_9k_{10}} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3 -$$

$$= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{15}_{k_{11}k_7k_3k_4k_5k_6} \Omega^{04}_{k_{11}k_8k_9k_{10}}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_5k_6k_7k_8k_9k_{10}}\ \epsilon_{k_8k_9k_{10}k_{11}}} \tag{442}$$



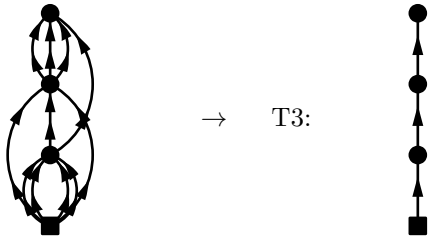
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{443}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}}_{k_1k_2}$$
$$a_2 = \epsilon^{k_{11}}_{k_3k_4k_5k_6k_7}$$
$$a_3 = \epsilon_{k_8k_9k_{10}k_{11}}$$

Diagram 220:

$$\text{PO3.220} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{33}_{k_9k_{10}k_{11}k_7k_5k_6} \Omega^{04}_{k_9k_{10}k_{11}k_8} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-$$

$$= \frac{(-1)^3}{(2!)(3!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{33}_{k_9k_{10}k_{11}k_7k_5k_6} \Omega^{04}_{k_9k_{10}k_{11}k_8}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_5k_6k_7k_8}\ \epsilon_{k_8k_9k_{10}k_{11}}} \tag{444}$$



$\rightarrow$ T3:

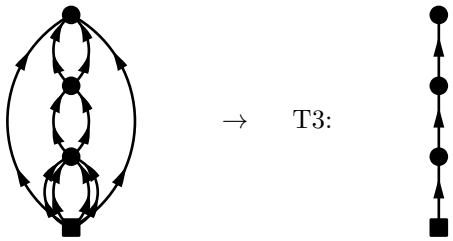
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{445}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_9k_{10}k_{11}}_{k_5k_6k_7}$$
$$a_3 = \epsilon_{k_8k_9k_{10}k_{11}}$$

Diagram 221:

$$\text{PO3.221} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{22}_{k_9k_{10}k_7k_8} \Omega^{04}_{k_9k_{10}k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7k_8}_{k_1k_2k_3k_4}}e^{-}$$

$$= \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{22}_{k_9k_{10}k_7k_8} \Omega^{04}_{k_9k_{10}k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8k_5k_6}\ \epsilon_{k_5k_6k_9k_{10}}} \tag{446}$$



$\rightarrow$ T3:

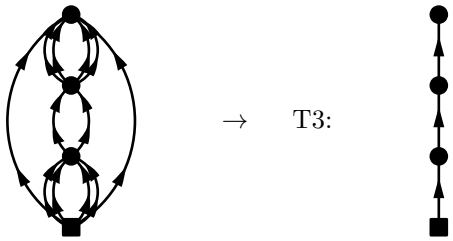
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{447}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_9k_{10}}_{k_7k_8}$$
$$a_3 = \epsilon_{k_5k_6k_9k_{10}}$$

Diagram 222:

$$\text{PO3.222} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{42}_{k_9k_{10}k_{11}k_{12}k_7k_8} \Omega^{06}_{k_9k_{10}k_{11}k_{12}k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau}$$

$$= \frac{(-1)^3}{(2!)^2(4!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{42}_{k_9k_{10}k_{11}k_{12}k_7k_8} \Omega^{06}_{k_9k_{10}k_{11}k_{12}k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8k_5k_6}\ \epsilon_{k_5k_6k_9k_{10}k_{11}k_{12}}} \tag{448}$$



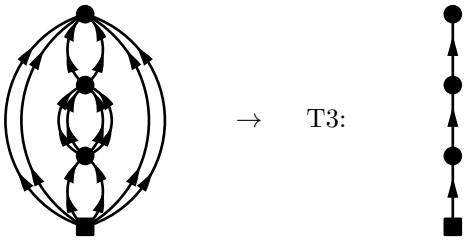
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{449}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7k_8}_{k_1k_2k_3k_4} \\ a_2 &= \epsilon^{k_9k_{10}k_{11}k_{12}}_{k_7k_8} \\ a_3 &= \epsilon_{k_5k_6k_9k_{10}k_{11}k_{12}} \end{aligned}$$

Diagram 223:

$$\begin{aligned} \mathrm{PO3.223} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{24}_{k_{11}k_{12}k_7k_8k_9k_{10}} \Omega^{06}_{k_{11}k_{12}k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau} \\ &= \frac{(-1)^3}{(2!)^2(4!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{24}_{k_{11}k_{12}k_7k_8k_9k_{10}} \Omega^{06}_{k_{11}k_{12}k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8k_9k_{10}k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_5k_6k_{11}k_{12}}} \end{aligned} \tag{450}$$

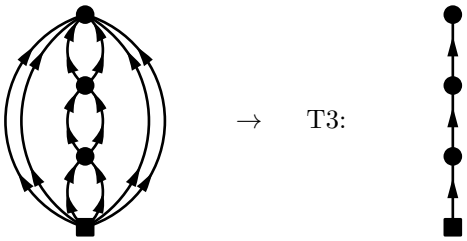


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{451}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7k_8k_9k_{10}}_{k_1k_2} \\ a_2 &= \epsilon^{k_{11}k_{12}}_{k_7k_8k_9k_{10}} \\ a_3 &= \epsilon_{k_3k_4k_5k_6k_{11}k_{12}} \end{aligned}$$

Diagram 224:

$$\begin{aligned} \mathrm{PO3.224} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{22}_{k_9k_{10}k_7k_8} \Omega^{06}_{k_9k_{10}k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7k_8}_{k_1k_2}}e^{-\tau_2\epsilon^{k}} \\ &= \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{22}_{k_9k_{10}k_7k_8} \Omega^{06}_{k_9k_{10}k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_5k_6k_9k_{10}}} \end{aligned} \tag{452}$$



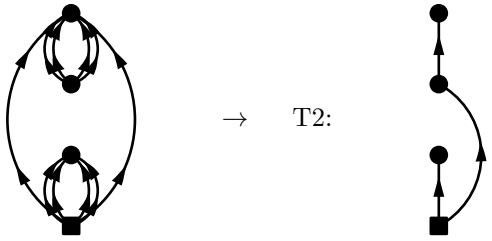
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{453}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7k_8}_{k_1k_2} \\ a_2 &= \epsilon^{k_9k_{10}}_{k_7k_8} \\ a_3 &= \epsilon_{k_3k_4k_5k_6k_9k_{10}} \end{aligned}$$

Diagram 225:

$$\text{PO3.225} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{04}_{k_1k_2k_3k_4} \Omega^{40}_{k_7k_8k_9k_{10}} \Omega^{06}_{k_7k_8k_9k_{10}k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1k_2k_3k_4}} e^{-\tau_2\epsilon^{k_7k_8k_9k_1}}$$

$$= \frac{(-1)^3}{(2!)(4!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{04}_{k_1k_2k_3k_4} \Omega^{40}_{k_7k_8k_9k_{10}} \Omega^{06}_{k_7k_8k_9k_{10}k_5k_6}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}\ \epsilon_{k_5k_6k_7k_8k_9k_{10}}} \tag{454}$$



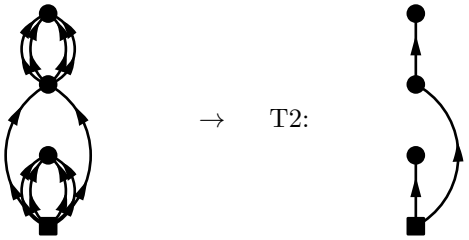
$$\text{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{455}$$

$$a_1 = \epsilon_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_7k_8k_9k_{10}}$$
$$a_3 = \epsilon_{k_5k_6k_7k_8k_9k_{10}}$$

Diagram 226:

$$\text{PO3.226} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{04}_{k_1k_2k_3k_4} \Omega^{42}_{k_7k_8k_9k_{10}k_5k_6} \Omega^{04}_{k_7k_8k_9k_{10}} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1k_2k_3k_4}} e^{-\tau_2\epsilon^{k_7k_8k_9k_1}_{k_5k_6}}$$

$$= \frac{(-1)^3}{(2!)(4!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{04}_{k_1k_2k_3k_4} \Omega^{42}_{k_7k_8k_9k_{10}k_5k_6} \Omega^{04}_{k_7k_8k_9k_{10}}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}\ \epsilon_{k_7k_8k_9k_{10}}} \tag{456}$$



$$\text{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{457}$$

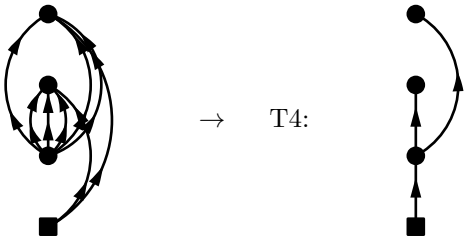
$$a_1 = \epsilon_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_7k_8k_9k_{10}}_{k_5k_6}$$
$$a_3 = \epsilon_{k_7k_8k_9k_{10}}$$

3.2 Three-body canonical diagrams for a generic operator only

Diagram 227:

$$\text{PO3.227} = \lim_{\tau\to\infty} \frac{-(-1)^3}{2(3!)^2} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{60}_{k_3k_4k_5k_6k_7k_8} \Omega^{04}_{k_3k_4k_5k_1} \Omega^{04}_{k_6k_7k_8k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1\epsilon^{k_3k_4k_5k_6k_7k_8}} e^{-\tau_2\epsilon_{k_1k_3}}$$

$$= \frac{-(-1)^3}{2(3!)^2} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{60}_{k_3k_4k_5k_6k_7k_8} \Omega^{04}_{k_3k_4k_5k_1} \Omega^{04}_{k_6k_7k_8k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_3k_4k_5}\ \epsilon_{k_2k_6k_7k_8}} \tag{458}$$



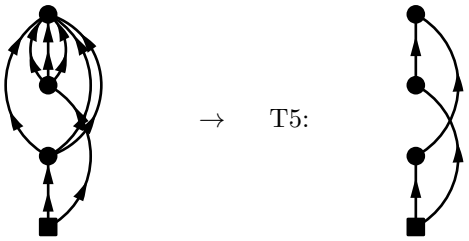
$$\text{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{459}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7k_8}$$
$$a_2 = \epsilon_{k_1k_3k_4k_5}$$
$$a_3 = \epsilon_{k_2k_6k_7k_8}$$

Diagram 228:

$$\text{PO3.228} = \lim_{\tau\to\infty} \frac{-(-1)^3}{2(3!)^2} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{31}_{k_6k_7k_8k_2}\Omega^{06}_{k_6k_7k_8k_3k_4k_5} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5}_{k_1}}e^{-\tau_2\epsilon^{k_6k_7k_8}_{k_2}}e^{-\tau}$$

$$= \frac{-(-1)^3}{2(3!)^2} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{31}_{k_6k_7k_8k_2}\Omega^{06}_{k_6k_7k_8k_3k_4k_5} \left[\frac{1}{\epsilon_{k_1k_6k_7k_8}\ \epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6k_7k_8}} + \frac{1}{\epsilon_{k_1k_2}\ \epsilon_{k_2k_3k_4k_5}\ \epsilon_{k_3k_4k_5k_6k_7k_8}}\right] \tag{460}$$



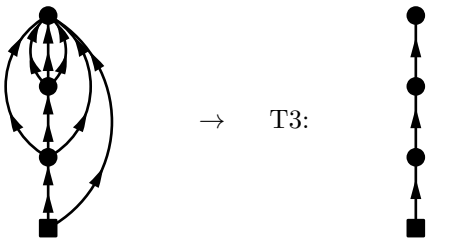
$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{461}$$

$$a_1 = \epsilon^{k_3k_4k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6k_7k_8}_{k_2}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6k_7k_8}$$

Diagram 229:

$$\text{PO3.229} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{31}_{k_6k_7k_8k_3}\Omega^{06}_{k_6k_7k_8k_4k_5k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5}_{k_1}}e^{-\tau_2}$$

$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{31}_{k_6k_7k_8k_3}\Omega^{06}_{k_6k_7k_8k_4k_5k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_2k_4k_5}\ \epsilon_{k_2k_4k_5k_6k_7k_8}} \tag{462}$$



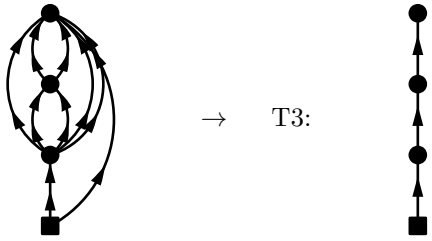
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{463}$$

$$a_1 = \epsilon^{k_3k_4k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6k_7k_8}_{k_3}$$
$$a_3 = \epsilon_{k_2k_4k_5k_6k_7k_8}$$

Diagram 230:

$$\text{PO3.230} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)^2(3!)}\sum_{k_i} O^{20}_{k_1k_2}\Omega^{51}_{k_3k_4k_5k_6k_7k_1}\Omega^{22}_{k_8k_9k_3k_4}\Omega^{06}_{k_8k_9k_5k_6k_7k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5}_{k_1}}$$

$$= \frac{(-1)^3}{(2!)^2(3!)}\sum_{k_i}\frac{O^{20}_{k_1k_2}\Omega^{51}_{k_3k_4k_5k_6k_7k_1}\Omega^{22}_{k_8k_9k_3k_4}\Omega^{06}_{k_8k_9k_5k_6k_7k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_2k_5k_6k_7}\ \epsilon_{k_2k_5k_6k_7k_8k_9}} \tag{464}$$



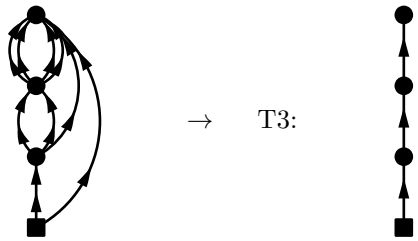
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{465}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8k_9}_{k_3k_4}$$
$$a_3 = \epsilon_{k_2k_5k_6k_7k_8k_9}$$

Diagram 231:

$$\text{PO3.231} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(4!)}\sum_{k_i} O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{42}_{k_6k_7k_8k_9k_3k_4}\Omega^{06}_{k_6k_7k_8k_9k_5k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5}_{k_1}}\epsilon$$

$$= \frac{(-1)^3}{(2!)(4!)}\sum_{k_i}\frac{O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{42}_{k_6k_7k_8k_9k_3k_4}\Omega^{06}_{k_6k_7k_8k_9k_5k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_2k_5}\ \epsilon_{k_2k_5k_6k_7k_8k_9}} \tag{466}$$



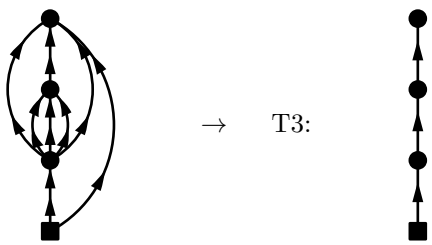
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{467}$$

$$a_1 = \epsilon^{k_3k_4k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6k_7k_8k_9}_{k_3k_4}$$
$$a_3 = \epsilon_{k_2k_5k_6k_7k_8k_9}$$

Diagram 232:

$$\text{PO3.232} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(3!)}\sum_{k_i} O^{20}_{k_1k_2}\Omega^{51}_{k_3k_4k_5k_6k_7k_1}\Omega^{13}_{k_8k_3k_4k_5}\Omega^{04}_{k_8k_6k_7k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5k_6k_7}_{k_1}}e$$

$$= \frac{(-1)^3}{(2!)(3!)}\sum_{k_i}\frac{O^{20}_{k_1k_2}\Omega^{51}_{k_3k_4k_5k_6k_7k_1}\Omega^{13}_{k_8k_3k_4k_5}\Omega^{04}_{k_8k_6k_7k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_2k_6k_7}\ \epsilon_{k_2k_6k_7k_8}} \tag{468}$$

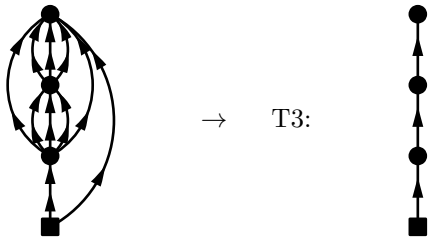


$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{469}$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5 k_6 k_7}$$
$$a_2 = \epsilon_{k_3 k_4 k_5}^{k_8}$$
$$a_3 = \epsilon_{k_2 k_6 k_7 k_8}$$

Diagram 233:

$$\mathrm{PO3.233} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{20}_{k_1 k_2} \Omega^{51}_{k_3 k_4 k_5 k_6 k_7 k_1} \Omega^{33}_{k_8 k_9 k_{10} k_3 k_4 k_5} \Omega^{06}_{k_8 k_9 k_{10} k_6 k_7 k_2} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon}$$
$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{20}_{k_1 k_2} \Omega^{51}_{k_3 k_4 k_5 k_6 k_7 k_1} \Omega^{33}_{k_8 k_9 k_{10} k_3 k_4 k_5} \Omega^{06}_{k_8 k_9 k_{10} k_6 k_7 k_2}}{\epsilon_{k_1 k_2}\ \epsilon_{k_3 k_4 k_5 k_2 k_6 k_7}\ \epsilon_{k_2 k_6 k_7 k_8 k_9 k_{10}}} \tag{470}$$



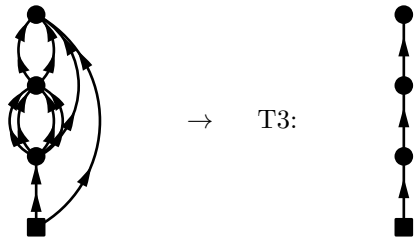
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{471}$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5 k_6 k_7}$$
$$a_2 = \epsilon_{k_3 k_4 k_5}^{k_8 k_9 k_{10}}$$
$$a_3 = \epsilon_{k_2 k_6 k_7 k_8 k_9 k_{10}}$$

Diagram 234:

$$\mathrm{PO3.234} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{20}_{k_1 k_2} \Omega^{51}_{k_3 k_4 k_5 k_6 k_7 k_1} \Omega^{24}_{k_8 k_9 k_3 k_4 k_5 k_6} \Omega^{04}_{k_8 k_9 k_7 k_2} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5 k}}$$
$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{20}_{k_1 k_2} \Omega^{51}_{k_3 k_4 k_5 k_6 k_7 k_1} \Omega^{24}_{k_8 k_9 k_3 k_4 k_5 k_6} \Omega^{04}_{k_8 k_9 k_7 k_2}}{\epsilon_{k_1 k_2}\ \epsilon_{k_3 k_4 k_5 k_6 k_2 k_7}\ \epsilon_{k_2 k_7 k_8 k_9}} \tag{472}$$



$\rightarrow$ T3:

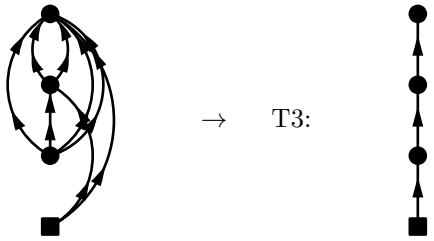
$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{473}$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5 k_6 k_7}$$
$$a_2 = \epsilon_{k_3 k_4 k_5 k_6}^{k_8 k_9}$$
$$a_3 = \epsilon_{k_2 k_7 k_8 k_9}$$

Diagram 235:

$$\text{PO3.235} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{22}_{k_7k_8k_3k_1}\Omega^{06}_{k_7k_8k_4k_5k_6k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5k_6}}e^{-}$$

$$= \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{22}_{k_7k_8k_3k_1}\Omega^{06}_{k_7k_8k_4k_5k_6k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_3k_2k_4k_5k_6}\ \epsilon_{k_2k_4k_5k_6k_7k_8}} \tag{474}$$



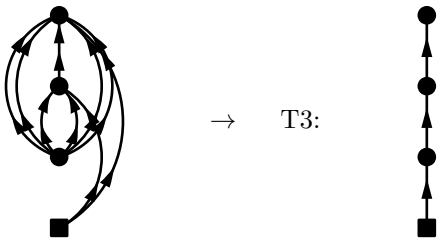
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{475}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}$$
$$a_2 = \epsilon^{k_7k_8}_{k_1k_3}$$
$$a_3 = \epsilon_{k_2k_4k_5k_6k_7k_8}$$

Diagram 236:

$$\text{PO3.236} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{60}_{k_3k_4k_5k_6k_7k_8}\Omega^{13}_{k_9k_3k_4k_1}\Omega^{06}_{k_9k_5k_6k_7k_8k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5k}}$$

$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{60}_{k_3k_4k_5k_6k_7k_8}\Omega^{13}_{k_9k_3k_4k_1}\Omega^{06}_{k_9k_5k_6k_7k_8k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_3k_4k_2k_5k_6k_7k_8}\ \epsilon_{k_2k_5k_6k_7k_8k_9}} \tag{476}$$



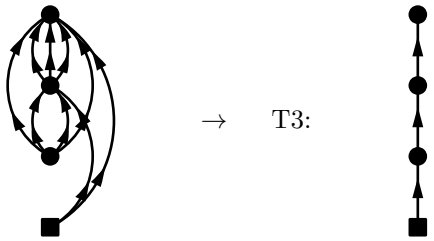
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{477}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9}_{k_1k_3k_4}$$
$$a_3 = \epsilon_{k_2k_5k_6k_7k_8k_9}$$

Diagram 237:

$$\text{PO3.237} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{33}_{k_7k_8k_9k_3k_4k_1}\Omega^{06}_{k_7k_8k_9k_5k_6k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5}}$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{33}_{k_7k_8k_9k_3k_4k_1}\Omega^{06}_{k_7k_8k_9k_5k_6k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_3k_4k_2k_5k_6}\ \epsilon_{k_2k_5k_6k_7k_8k_9}} \tag{478}$$

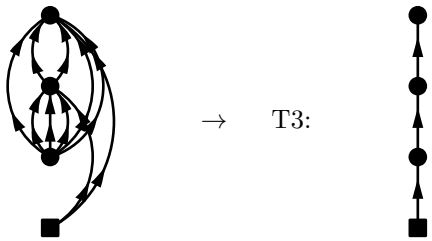


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{479}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}$$
$$a_2 = \epsilon^{k_7k_8k_9}_{k_1k_3k_4}$$
$$a_3 = \epsilon_{k_2k_5k_6k_7k_8k_9}$$

Diagram 238:

$$\mathrm{PO3.238} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{60}_{k_3k_4k_5k_6k_7k_8}\Omega^{24}_{k_9k_{10}k_3k_4k_5k_1}\Omega^{06}_{k_9k_{10}k_6k_7k_8k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon}$$
$$= \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{60}_{k_3k_4k_5k_6k_7k_8}\Omega^{24}_{k_9k_{10}k_3k_4k_5k_1}\Omega^{06}_{k_9k_{10}k_6k_7k_8k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_3k_4k_5k_2k_6k_7k_8}\ \epsilon_{k_2k_6k_7k_8k_9k_{10}}} \tag{480}$$



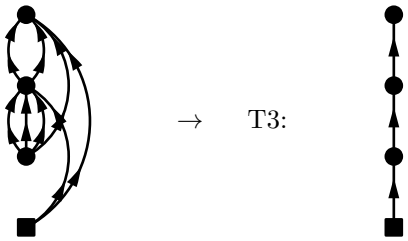
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{481}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9k_{10}}_{k_1k_3k_4k_5}$$
$$a_3 = \epsilon_{k_2k_6k_7k_8k_9k_{10}}$$

Diagram 239:

$$\mathrm{PO3.239} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{24}_{k_7k_8k_3k_4k_5k_1}\Omega^{04}_{k_7k_8k_6k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5k_6}}e^{-}$$
$$= \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{24}_{k_7k_8k_3k_4k_5k_1}\Omega^{04}_{k_7k_8k_6k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_3k_4k_5k_2k_6}\ \epsilon_{k_2k_6k_7k_8}} \tag{482}$$



$\rightarrow$ T3:

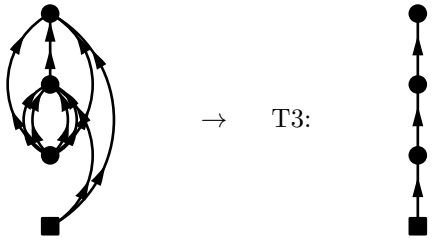
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{483}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}$$
$$a_2 = \epsilon^{k_7k_8}_{k_1k_3k_4k_5}$$
$$a_3 = \epsilon_{k_2k_6k_7k_8}$$

Diagram 240:

$$\text{PO3.240} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{60}_{k_3k_4k_5k_6k_7k_8} \Omega^{15}_{k_9k_3k_4k_5k_6k_1} \Omega^{04}_{k_9k_7k_8k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_3k_4k_5k}}$$

$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{60}_{k_3k_4k_5k_6k_7k_8} \Omega^{15}_{k_9k_3k_4k_5k_6k_1} \Omega^{04}_{k_9k_7k_8k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_3k_4k_5k_6k_2k_7k_8}\ \epsilon_{k_2k_7k_8k_9}} \tag{484}$$



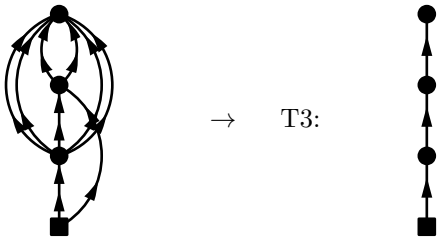
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{485}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9}_{k_1k_3k_4k_5k_6}$$
$$a_3 = \epsilon_{k_2k_7k_8k_9}$$

Diagram 241:

$$\text{PO3.241} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{51}_{k_3k_4k_5k_6k_7k_1} \Omega^{22}_{k_8k_9k_3k_2} \Omega^{06}_{k_8k_9k_4k_5k_6k_7} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_3k_4k_5k}_{k_1}}$$

$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{51}_{k_3k_4k_5k_6k_7k_1} \Omega^{22}_{k_8k_9k_3k_2} \Omega^{06}_{k_8k_9k_4k_5k_6k_7}}{\epsilon_{k_1k_2}\ \epsilon_{k_2k_3k_4k_5k_6k_7}\ \epsilon_{k_4k_5k_6k_7k_8k_9}} \tag{486}$$



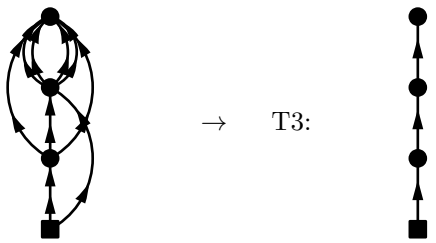
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{487}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8k_9}_{k_2k_3}$$
$$a_3 = \epsilon_{k_4k_5k_6k_7k_8k_9}$$

Diagram 242:

$$\text{PO3.242} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{31}_{k_3k_4k_5k_1} \Omega^{42}_{k_6k_7k_8k_9k_3k_2} \Omega^{06}_{k_6k_7k_8k_9k_4k_5} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_3k_4k_5}_{k_1}} \epsilon$$

$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{31}_{k_3k_4k_5k_1} \Omega^{42}_{k_6k_7k_8k_9k_3k_2} \Omega^{06}_{k_6k_7k_8k_9k_4k_5}}{\epsilon_{k_1k_2}\ \epsilon_{k_2k_3k_4k_5}\ \epsilon_{k_4k_5k_6k_7k_8k_9}} \tag{488}$$

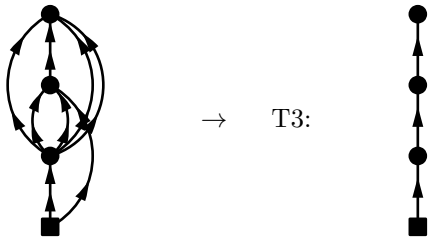


$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{489}$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$$
$$a_2 = \epsilon_{k_2 k_3}^{k_6 k_7 k_8 k_9}$$
$$a_3 = \epsilon_{k_4 k_5 k_6 k_7 k_8 k_9}$$

Diagram 243:

$$\mathrm{PO3.243} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} O^{20}_{k_1 k_2} \Omega^{51}_{k_3 k_4 k_5 k_6 k_7 k_1} \Omega^{13}_{k_8 k_3 k_4 k_2} \Omega^{04}_{k_8 k_5 k_6 k_7} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5 k_6 k_7}} \epsilon$$
$$= \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{20}_{k_1 k_2} \Omega^{51}_{k_3 k_4 k_5 k_6 k_7 k_1} \Omega^{13}_{k_8 k_3 k_4 k_2} \Omega^{04}_{k_8 k_5 k_6 k_7}}{\epsilon_{k_1 k_2}\ \epsilon_{k_2 k_3 k_4 k_5 k_6 k_7}\ \epsilon_{k_5 k_6 k_7 k_8}} \tag{490}$$

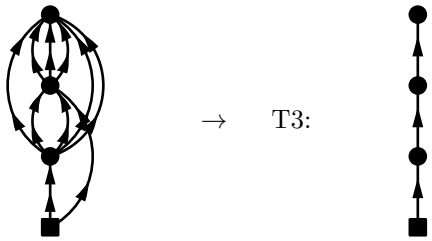


$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{491}$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5 k_6 k_7}$$
$$a_2 = \epsilon_{k_2 k_3 k_4}^{k_8}$$
$$a_3 = \epsilon_{k_5 k_6 k_7 k_8}$$

Diagram 244:

$$\mathrm{PO3.244} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{20}_{k_1 k_2} \Omega^{51}_{k_3 k_4 k_5 k_6 k_7 k_1} \Omega^{33}_{k_8 k_9 k_{10} k_3 k_4 k_2} \Omega^{06}_{k_8 k_9 k_{10} k_5 k_6 k_7} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon}$$
$$= \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{20}_{k_1 k_2} \Omega^{51}_{k_3 k_4 k_5 k_6 k_7 k_1} \Omega^{33}_{k_8 k_9 k_{10} k_3 k_4 k_2} \Omega^{06}_{k_8 k_9 k_{10} k_5 k_6 k_7}}{\epsilon_{k_1 k_2}\ \epsilon_{k_2 k_3 k_4 k_5 k_6 k_7}\ \epsilon_{k_5 k_6 k_7 k_8 k_9 k_{10}}} \tag{492}$$



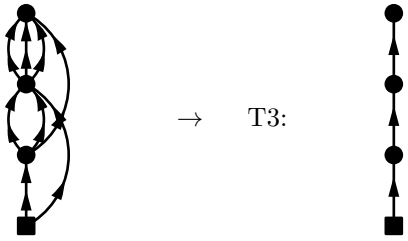
$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{493}$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5 k_6 k_7}$$
$$a_2 = \epsilon_{k_2 k_3 k_4}^{k_8 k_9 k_{10}}$$
$$a_3 = \epsilon_{k_5 k_6 k_7 k_8 k_9 k_{10}}$$

Diagram 245:

$$\text{PO3.245} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{33}_{k_6k_7k_8k_3k_4k_2}\Omega^{04}_{k_6k_7k_8k_5}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5}_{k_1}}e^{-\tau_2}$$

$$= \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{33}_{k_6k_7k_8k_3k_4k_2}\Omega^{04}_{k_6k_7k_8k_5}}{\epsilon_{k_1k_2}\ \epsilon_{k_2k_3k_4k_5}\ \epsilon_{k_5k_6k_7k_8}} \tag{494}$$



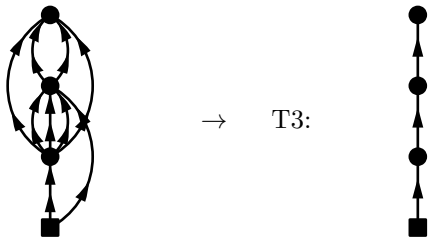
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{495}$$

$$a_1 = \epsilon^{k_3k_4k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6k_7k_8}_{k_2k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6k_7k_8}$$

Diagram 246:

$$\text{PO3.246} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{51}_{k_3k_4k_5k_6k_7k_1}\Omega^{24}_{k_8k_9k_3k_4k_5k_2}\Omega^{04}_{k_8k_9k_6k_7}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5}_{k_1}}$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{51}_{k_3k_4k_5k_6k_7k_1}\Omega^{24}_{k_8k_9k_3k_4k_5k_2}\Omega^{04}_{k_8k_9k_6k_7}}{\epsilon_{k_1k_2}\ \epsilon_{k_2k_3k_4k_5k_6k_7}\ \epsilon_{k_6k_7k_8k_9}} \tag{496}$$



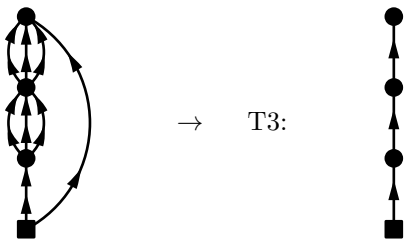
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{497}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8k_9}_{k_2k_3k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9}$$

Diagram 247:

$$\text{PO3.247} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)^2} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{33}_{k_6k_7k_8k_3k_4k_5}\Omega^{04}_{k_6k_7k_8k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5}_{k_1}}e^{-\tau_2\epsilon^{k_6k_7k_8}_{k_3k_4k_5}}e^{-\tau_3\epsilon}$$

$$= \frac{(-1)^3}{(3!)^2} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{33}_{k_6k_7k_8k_3k_4k_5}\Omega^{04}_{k_6k_7k_8k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_2}\ \epsilon_{k_2k_6k_7k_8}} \tag{498}$$

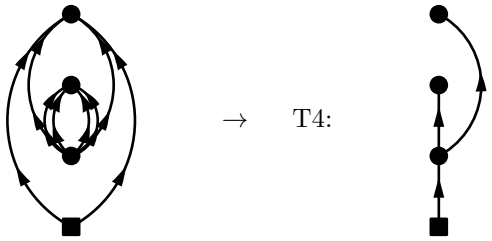


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{499}$$

$$a_1 = \epsilon^{k_3k_4k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6k_7k_8}_{k_3k_4k_5}$$
$$a_3 = \epsilon_{k_2k_6k_7k_8}$$

Diagram 248:

$$\mathrm{PO3.248} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)^2(4!)}\sum_{k_i} O^{20}_{k_1k_2}\Omega^{60}_{k_3k_4k_5k_6k_7k_8}\Omega^{04}_{k_3k_4k_5k_6}\Omega^{04}_{k_7k_8k_1k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon^{k_3k_4k_5k_6k_7k_8}}e^{-\tau_2\epsilon_{k_3k_}}$$
$$= \frac{(-1)^3}{(2!)^2(4!)}\sum_{k_i}\frac{O^{20}_{k_1k_2}\Omega^{60}_{k_3k_4k_5k_6k_7k_8}\Omega^{04}_{k_3k_4k_5k_6}\Omega^{04}_{k_7k_8k_1k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_1k_2k_7k_8}} \tag{500}$$

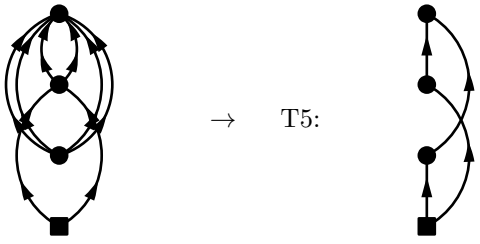


$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{501}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7k_8}$$
$$a_2 = \epsilon_{k_3k_4k_5k_6}$$
$$a_3 = \epsilon_{k_1k_2k_7k_8}$$

Diagram 249:

$$\mathrm{PO3.249} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)^2(4!)}\sum_{k_i} O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{22}_{k_7k_8k_1k_2}\Omega^{06}_{k_7k_8k_3k_4k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5k_6}}e^{-\tau_2\epsilon^{k_7k_8}_{k_1k_2}}e^{-}$$
$$= \frac{(-1)^3}{(2!)^2(4!)}\sum_{k_i} O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{22}_{k_7k_8k_1k_2}\Omega^{06}_{k_7k_8k_3k_4k_5k_6}\left[\frac{1}{\epsilon_{k_7k_8}\ \epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6k_7k_8}}+\frac{1}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_5k_6k_7k_8}}\right] \tag{502}$$



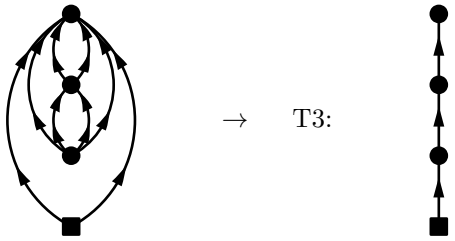
$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3}+\frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{503}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}$$
$$a_2 = \epsilon^{k_7k_8}_{k_1k_2}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6k_7k_8}$$

Diagram 250:

$$\text{PO3.250} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^4} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{40}_{k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_3k_4} \Omega^{06}_{k_7k_8k_5k_6k_1k_2} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_3k_4k_5k_6}} e^{-\tau_2}$$

$$= \frac{(-1)^3}{(2!)^4} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{40}_{k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_3k_4} \Omega^{06}_{k_7k_8k_5k_6k_1k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_1k_2k_5k_6}\ \epsilon_{k_1k_2k_5k_6k_7k_8}} \tag{504}$$



$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{505}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}$$
$$a_2 = \epsilon^{k_7k_8}_{k_3k_4}$$
$$a_3 = \epsilon_{k_1k_2k_5k_6k_7k_8}$$

Diagram 251:

$$\text{PO3.251} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{60}_{k_3k_4k_5k_6k_7k_8} \Omega^{13}_{k_9k_3k_4k_5} \Omega^{06}_{k_9k_6k_7k_8k_1k_2} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_3k_4k_5}}$$

$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{60}_{k_3k_4k_5k_6k_7k_8} \Omega^{13}_{k_9k_3k_4k_5} \Omega^{06}_{k_9k_6k_7k_8k_1k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_1k_2k_6k_7k_8}\ \epsilon_{k_1k_2k_6k_7k_8k_9}} \tag{506}$$

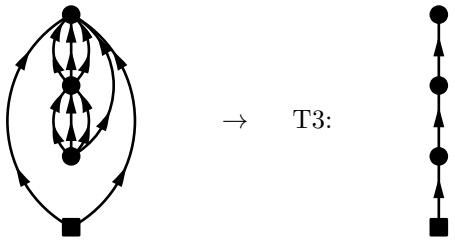
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{507}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9}_{k_3k_4k_5}$$
$$a_3 = \epsilon_{k_1k_2k_6k_7k_8k_9}$$

Diagram 252:

$$\text{PO3.252} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{40}_{k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_3k_4k_5} \Omega^{06}_{k_7k_8k_9k_6k_1k_2} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_3k_4k_5}}$$

$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{40}_{k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_3k_4k_5} \Omega^{06}_{k_7k_8k_9k_6k_1k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_1k_2k_6}\ \epsilon_{k_1k_2k_6k_7k_8k_9}} \tag{508}$$

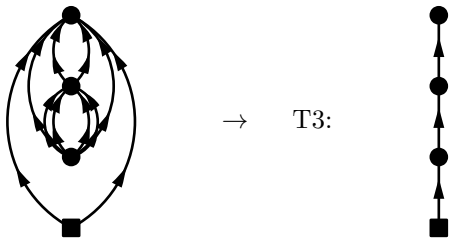


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{509}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}$$
$$a_2 = \epsilon^{k_7k_8k_9}_{k_3k_4k_5}$$
$$a_3 = \epsilon_{k_1k_2k_6k_7k_8k_9}$$

Diagram 253:

$$\mathrm{PO3.253} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{60}_{k_3k_4k_5k_6k_7k_8}\Omega^{24}_{k_9k_{10}k_3k_4k_5k_6}\Omega^{06}_{k_9k_{10}k_7k_8k_1k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon}$$
$$= \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{60}_{k_3k_4k_5k_6k_7k_8}\Omega^{24}_{k_9k_{10}k_3k_4k_5k_6}\Omega^{06}_{k_9k_{10}k_7k_8k_1k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6k_1k_2k_7k_8}\ \epsilon_{k_1k_2k_7k_8k_9k_{10}}} \tag{510}$$



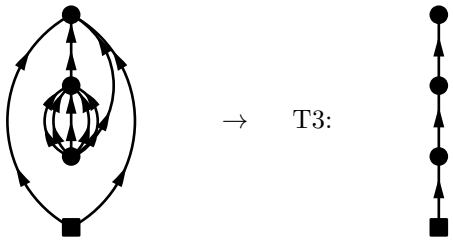
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{511}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9k_{10}}_{k_3k_4k_5k_6}$$
$$a_3 = \epsilon_{k_1k_2k_7k_8k_9k_{10}}$$

Diagram 254:

$$\mathrm{PO3.254} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(5!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{60}_{k_3k_4k_5k_6k_7k_8}\Omega^{15}_{k_9k_3k_4k_5k_6k_7}\Omega^{04}_{k_9k_8k_1k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5k}}$$
$$= \frac{(-1)^3}{(2!)(5!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{60}_{k_3k_4k_5k_6k_7k_8}\Omega^{15}_{k_9k_3k_4k_5k_6k_7}\Omega^{04}_{k_9k_8k_1k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6k_7k_1k_2k_8}\ \epsilon_{k_1k_2k_8k_9}} \tag{512}$$



$\rightarrow$ T3:

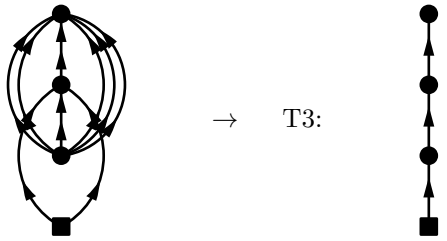
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{513}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9}_{k_3k_4k_5k_6k_7}$$
$$a_3 = \epsilon_{k_1k_2k_8k_9}$$

Diagram 255:

$$\text{PO3.255} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(5!)} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{60}_{k_3k_4k_5k_6k_7k_8} \Omega^{13}_{k_9k_3k_1k_2} \Omega^{06}_{k_9k_4k_5k_6k_7k_8} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5k}}$$

$$= \frac{(-1)^3}{(2!)(5!)} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{60}_{k_3k_4k_5k_6k_7k_8} \Omega^{13}_{k_9k_3k_1k_2} \Omega^{06}_{k_9k_4k_5k_6k_7k_8}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_2k_3k_4k_5k_6k_7k_8}\ \epsilon_{k_4k_5k_6k_7k_8k_9}} \tag{514}$$



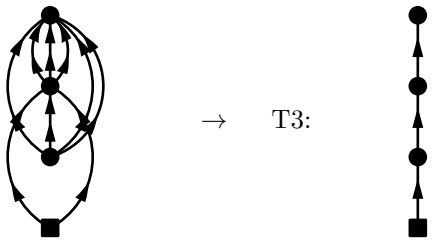
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{515}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9}_{k_1k_2k_3}$$
$$a_3 = \epsilon_{k_4k_5k_6k_7k_8k_9}$$

Diagram 256:

$$\text{PO3.256} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{40}_{k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_3k_1k_2} \Omega^{06}_{k_7k_8k_9k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5}}$$

$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{40}_{k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_3k_1k_2} \Omega^{06}_{k_7k_8k_9k_4k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_7k_8k_9}} \tag{516}$$



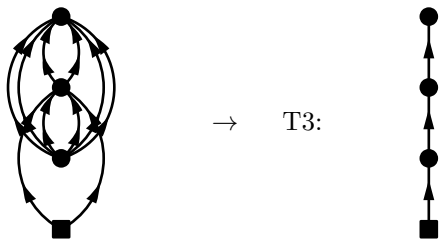
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{517}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}$$
$$a_2 = \epsilon^{k_7k_8k_9}_{k_1k_2k_3}$$
$$a_3 = \epsilon_{k_4k_5k_6k_7k_8k_9}$$

Diagram 257:

$$\text{PO3.257} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{60}_{k_3k_4k_5k_6k_7k_8} \Omega^{24}_{k_9k_{10}k_3k_4k_1k_2} \Omega^{06}_{k_9k_{10}k_5k_6k_7k_8} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon}$$

$$= \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{60}_{k_3k_4k_5k_6k_7k_8} \Omega^{24}_{k_9k_{10}k_3k_4k_1k_2} \Omega^{06}_{k_9k_{10}k_5k_6k_7k_8}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_2k_3k_4k_5k_6k_7k_8}\ \epsilon_{k_5k_6k_7k_8k_9k_{10}}} \tag{518}$$

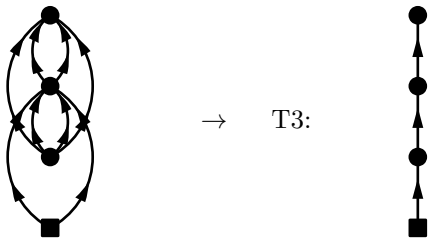


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{519}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9k_{10}}_{k_1k_2k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6k_7k_8k_9k_{10}}$$

Diagram 258:

$$\mathrm{PO3.258} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^4} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{40}_{k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_3k_4k_1k_2} \Omega^{04}_{k_7k_8k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5k_6}}e^{-\tau_2}$$
$$= \frac{(-1)^3}{(2!)^4} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{40}_{k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_3k_4k_1k_2} \Omega^{04}_{k_7k_8k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_5k_6k_7k_8}} \tag{520}$$

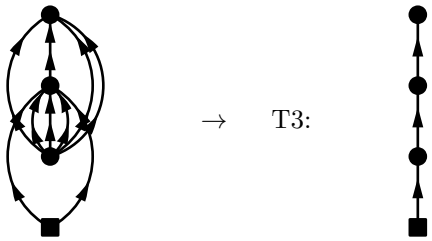


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{521}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}$$
$$a_2 = \epsilon^{k_7k_8}_{k_1k_2k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6k_7k_8}$$

Diagram 259:

$$\mathrm{PO3.259} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{60}_{k_3k_4k_5k_6k_7k_8} \Omega^{15}_{k_9k_3k_4k_5k_1k_2} \Omega^{04}_{k_9k_6k_7k_8} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5}}$$
$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{60}_{k_3k_4k_5k_6k_7k_8} \Omega^{15}_{k_9k_3k_4k_5k_1k_2} \Omega^{04}_{k_9k_6k_7k_8}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_2k_3k_4k_5k_6k_7k_8}\ \epsilon_{k_6k_7k_8k_9}} \tag{522}$$



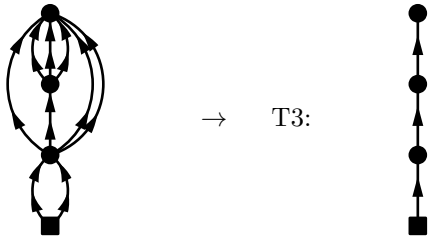
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{523}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7k_8}$$
$$a_2 = \epsilon^{k_9}_{k_1k_2k_3k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9}$$

Diagram 260:

$$\text{PO3.260} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{42}_{k_3k_4k_5k_6k_1k_2} \Omega^{31}_{k_7k_8k_9k_3} \Omega^{06}_{k_7k_8k_9k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_3k_4k_5}_{k_1k_2}}$$

$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{42}_{k_3k_4k_5k_6k_1k_2} \Omega^{31}_{k_7k_8k_9k_3} \Omega^{06}_{k_7k_8k_9k_4k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_7k_8k_9}} \tag{524}$$



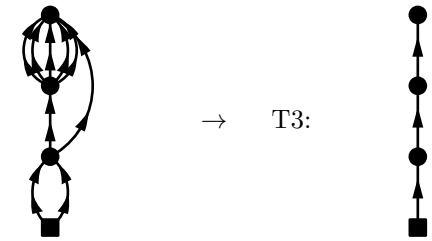
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{525}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}_{k_1k_2}$$
$$a_2 = \epsilon^{k_7k_8k_9}_{k_3}$$
$$a_3 = \epsilon_{k_4k_5k_6k_7k_8k_9}$$

Diagram 261:

$$\text{PO3.261} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(5!)} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{22}_{k_3k_4k_1k_2} \Omega^{51}_{k_5k_6k_7k_8k_9k_3} \Omega^{06}_{k_5k_6k_7k_8k_9k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_3k_4}_{k_1k_2}} e^{-}$$

$$= \frac{(-1)^3}{(2!)(5!)} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{22}_{k_3k_4k_1k_2} \Omega^{51}_{k_5k_6k_7k_8k_9k_3} \Omega^{06}_{k_5k_6k_7k_8k_9k_4}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4}\ \epsilon_{k_4k_5k_6k_7k_8k_9}} \tag{526}$$



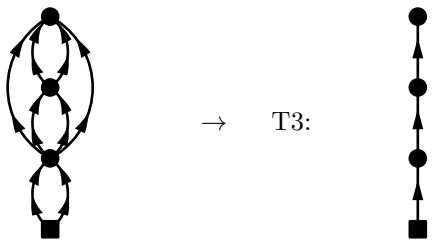
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{527}$$

$$a_1 = \epsilon^{k_3k_4}_{k_1k_2}$$
$$a_2 = \epsilon^{k_5k_6k_7k_8k_9}_{k_3}$$
$$a_3 = \epsilon_{k_4k_5k_6k_7k_8k_9}$$

Diagram 262:

$$\text{PO3.262} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^4} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{42}_{k_3k_4k_5k_6k_1k_2} \Omega^{22}_{k_7k_8k_3k_4} \Omega^{04}_{k_7k_8k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_3k_4k_5k_6}_{k_1k_2}} e^{-\tau_2}$$

$$= \frac{(-1)^3}{(2!)^4} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{42}_{k_3k_4k_5k_6k_1k_2} \Omega^{22}_{k_7k_8k_3k_4} \Omega^{04}_{k_7k_8k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_5k_6k_7k_8}} \tag{528}$$

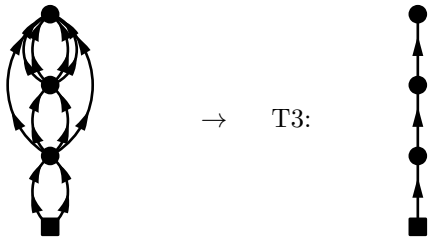


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{529}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}_{k_1k_2}$$
$$a_2 = \epsilon^{k_7k_8}_{k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6k_7k_8}$$

Diagram 263:

$$\mathrm{PO3.263} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{42}_{k_3k_4k_5k_6k_1k_2}\Omega^{42}_{k_7k_8k_9k_{10}k_3k_4}\Omega^{06}_{k_7k_8k_9k_{10}k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon}$$
$$= \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{42}_{k_3k_4k_5k_6k_1k_2}\Omega^{42}_{k_7k_8k_9k_{10}k_3k_4}\Omega^{06}_{k_7k_8k_9k_{10}k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_5k_6k_7k_8k_9k_{10}}} \tag{530}$$



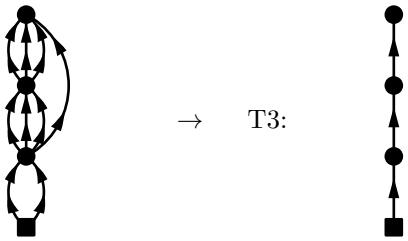
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{531}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}_{k_1k_2}$$
$$a_2 = \epsilon^{k_7k_8k_9k_{10}}_{k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6k_7k_8k_9k_{10}}$$

Diagram 264:

$$\mathrm{PO3.264} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{42}_{k_3k_4k_5k_6k_1k_2}\Omega^{33}_{k_7k_8k_9k_3k_4k_5}\Omega^{04}_{k_7k_8k_9k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5}_{k_1k_2}}$$
$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{42}_{k_3k_4k_5k_6k_1k_2}\Omega^{33}_{k_7k_8k_9k_3k_4k_5}\Omega^{04}_{k_7k_8k_9k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_6k_7k_8k_9}} \tag{532}$$



$\rightarrow$ T3:

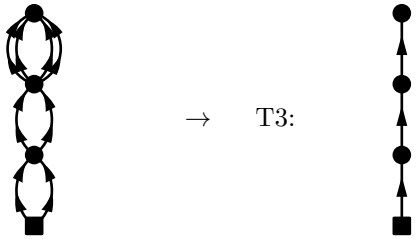
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{533}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}_{k_1k_2}$$
$$a_2 = \epsilon^{k_7k_8k_9}_{k_3k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9}$$

Diagram 265:

$$\mathrm{PO3.265} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{22}_{k_3k_4k_1k_2}\Omega^{42}_{k_5k_6k_7k_8k_3k_4}\Omega^{04}_{k_5k_6k_7k_8} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4}_{k_1k_2}}e^{-\tau_2\epsilon^{k_5k_6k_7k_8}_{k_3k_4}}e^{-}$$

$$= \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{22}_{k_3k_4k_1k_2}\Omega^{42}_{k_5k_6k_7k_8k_3k_4}\Omega^{04}_{k_5k_6k_7k_8}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4}\ \epsilon_{k_5k_6k_7k_8}} \tag{534}$$



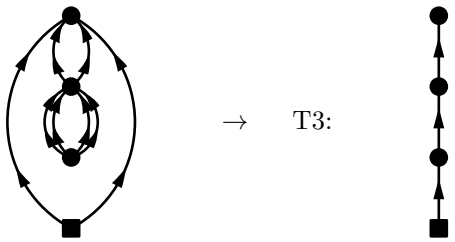
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{535}$$

$$a_1 = \epsilon^{k_3k_4}_{k_1k_2}$$
$$a_2 = \epsilon^{k_5k_6k_7k_8}_{k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6k_7k_8}$$

Diagram 266:

$$\mathrm{PO3.266} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{24}_{k_7k_8k_3k_4k_5k_6}\Omega^{04}_{k_7k_8k_1k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5k_6}}e^{-\tau_2\epsilon^{k_7k_8}_{k_3k_4k_5k_6}}$$

$$= \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{24}_{k_7k_8k_3k_4k_5k_6}\Omega^{04}_{k_7k_8k_1k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6k_1k_2}\ \epsilon_{k_1k_2k_7k_8}} \tag{536}$$



$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{537}$$

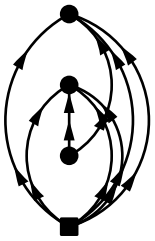
$$a_1 = \epsilon^{k_3k_4k_5k_6}$$
$$a_2 = \epsilon^{k_7k_8}_{k_3k_4k_5k_6}$$
$$a_3 = \epsilon_{k_1k_2k_7k_8}$$

3.3 Three-body non-canonical diagrams

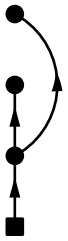
Diagram 267:

$$\mathrm{PO3.267} = \lim_{\tau\to\infty} \frac{-(-1)^3}{2(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{20}_{k_7k_8}\Omega^{04}_{k_7k_1k_2k_3}\Omega^{04}_{k_8k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon^{k_7k_8}}e^{-\tau_2\epsilon_{k_1k_2k_3k_7}}e^{-\tau}$$

$$= \frac{-(-1)^3}{2(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{20}_{k_7k_8}\Omega^{04}_{k_7k_1k_2k_3}\Omega^{04}_{k_8k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_2k_3k_7}\ \epsilon_{k_4k_5k_6k_8}} \tag{538}$$



$\rightarrow$ T4:



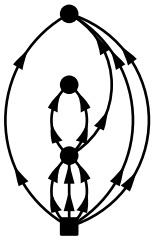
$$\text{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{539}$$

$$a_1 = \epsilon^{k_7k_8}$$
$$a_2 = \epsilon_{k_1k_2k_3k_7}$$
$$a_3 = \epsilon_{k_4k_5k_6k_8}$$

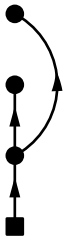
Diagram 268:

$$\text{PO3.268} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{02}_{k_7k_8} \Omega^{04}_{k_9k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon^{k_7k_8k_9}_{k_1k_2k_3}}e^{-\tau_2\epsilon_{k_7k_8}}\epsilon$$

$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{02}_{k_7k_8} \Omega^{04}_{k_9k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8}\ \epsilon_{k_4k_5k_6k_9}} \tag{540}$$



$\rightarrow$ T4:



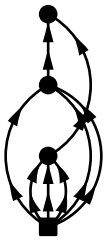
$$\text{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{541}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1k_2k_3}$$
$$a_2 = \epsilon_{k_7k_8}$$
$$a_3 = \epsilon_{k_4k_5k_6k_9}$$

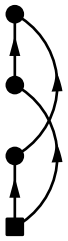
Diagram 269:

$$\text{PO3.269} = \lim_{\tau\to\infty} \frac{-(-1)^3}{2(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{13}_{k_8k_4k_5k_6} \Omega^{02}_{k_8k_7} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7}_{k_1k_2k_3}}e^{-\tau_2\epsilon^{k_8}_{k_4k_5k_6}}e^{-\tau}$$

$$= \frac{-(-1)^3}{2(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{13}_{k_8k_4k_5k_6} \Omega^{02}_{k_8k_7} \left[\frac{1}{\epsilon_{k_1k_2k_3k_8}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8}} + \frac{1}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_7}\ \epsilon_{k_7k_8}} \right] \tag{542}$$



$\rightarrow$ T5:



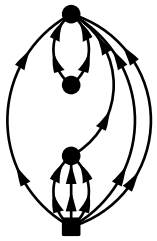
$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{543}$$

$$a_1 = \epsilon^{k_7}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_8}_{k_4k_5k_6}$$
$$a_3 = \epsilon_{k_7k_8}$$

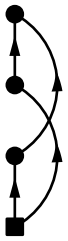
Diagram 270:

$$\mathrm{PO3.270} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{20}_{k_8k_9} \Omega^{06}_{k_8k_9k_7k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7}_{k_1k_2k_3}} e^{-\tau_2\epsilon^{k_8k_9}} \epsilon$$

$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{20}_{k_8k_9} \Omega^{06}_{k_8k_9k_7k_4k_5k_6} \left[\frac{1}{\epsilon_{k_1k_2k_3k_4k_5k_6k_8k_9}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_7k_8k_9}} + \frac{}{\epsilon_{k_1k_2k_3k_4k_5} \right. \tag{544}$$



$\rightarrow$ T5:



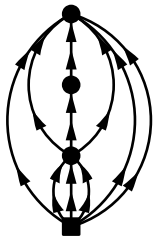
$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{545}$$

$$a_1 = \epsilon^{k_7}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_8k_9}$$
$$a_3 = \epsilon_{k_4k_5k_6k_7k_8k_9}$$

Diagram 271:

$$\mathrm{PO3.271} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{11}_{k_{10}k_7} \Omega^{06}_{k_{10}k_8k_9k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon}$$

$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{11}_{k_{10}k_7} \Omega^{06}_{k_{10}k_8k_9k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_4k_5k_6k_8k_9}\ \epsilon_{k_4k_5k_6k_8k_9k_{10}}} \tag{546}$$



$\rightarrow$ T3:

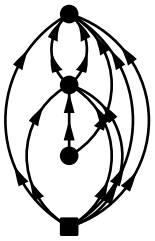
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{547}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_{10}}_{k_7}$$
$$a_3 = \epsilon_{k_4k_5k_6k_8k_9k_{10}}$$

Diagram 272:

$$\mathrm{PO3.272} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{20}_{k_7k_8} \Omega^{24}_{k_9k_{10}k_7k_1k_2k_3} \Omega^{06}_{k_9k_{10}k_8k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon}$$

$$= \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{20}_{k_7k_8} \Omega^{24}_{k_9k_{10}k_7k_1k_2k_3} \Omega^{06}_{k_9k_{10}k_8k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_2k_3k_7k_4k_5k_6k_8}\ \epsilon_{k_4k_5k_6k_8k_9k_{10}}} \tag{548}$$



→ T3:

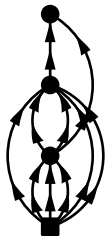
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{549}$$

$$a_1 = \epsilon^{k_7 k_8}$$
$$a_2 = \epsilon^{k_9 k_{10}}_{k_1 k_2 k_3 k_7}$$
$$a_3 = \epsilon_{k_4 k_5 k_6 k_8 k_9 k_{10}}$$

Diagram 273:

$$\mathrm{PO3.273} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{33}_{k_7 k_8 k_9 k_1 k_2 k_3} \Omega^{15}_{k_{10} k_7 k_8 k_4 k_5 k_6} \Omega^{02}_{k_{10} k_9} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon}$$

$$= \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{33}_{k_7 k_8 k_9 k_1 k_2 k_3} \Omega^{15}_{k_{10} k_7 k_8 k_4 k_5 k_6} \Omega^{02}_{k_{10} k_9}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_4 k_5 k_6 k_7 k_8 k_9}\ \epsilon_{k_9 k_{10}}} \tag{550}$$



→ T3:

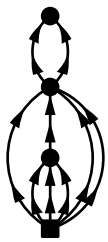
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{551}$$

$$a_1 = \epsilon^{k_7 k_8 k_9}_{k_1 k_2 k_3}$$
$$a_2 = \epsilon^{k_{10}}_{k_4 k_5 k_6 k_7 k_8}$$
$$a_3 = \epsilon_{k_9 k_{10}}$$

Diagram 274:

$$\mathrm{PO3.274} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{13}_{k_7 k_1 k_2 k_3} \Omega^{24}_{k_8 k_9 k_7 k_4 k_5 k_6} \Omega^{02}_{k_8 k_9} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_7}_{k_1 k_2 k_3}} e^{-\tau_2 \epsilon^{k_8 k_9}_{k_4 k_5 k}}$$

$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{13}_{k_7 k_1 k_2 k_3} \Omega^{24}_{k_8 k_9 k_7 k_4 k_5 k_6} \Omega^{02}_{k_8 k_9}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_4 k_5 k_6 k_7}\ \epsilon_{k_8 k_9}} \tag{552}$$



→ T3:

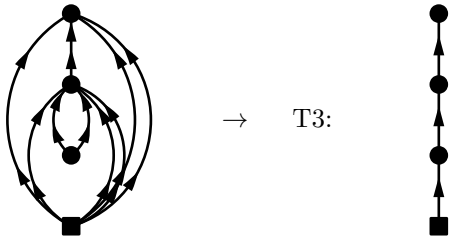
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{553}$$

$$a_1 = \epsilon^{k_7}_{k_1 k_2 k_3}$$
$$a_2 = \epsilon^{k_8 k_9}_{k_4 k_5 k_6 k_7}$$
$$a_3 = \epsilon_{k_8 k_9}$$

Diagram 275:

$$\text{PO3.275} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{20}_{k_7k_8} \Omega^{15}_{k_9k_7k_8k_1k_2k_3} \Omega^{04}_{k_9k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7k_8}} e^{-\tau_2\epsilon^{k_9}_{k_1k_2k_3k}}$$

$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{20}_{k_7k_8} \Omega^{15}_{k_9k_7k_8k_1k_2k_3} \Omega^{04}_{k_9k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_2k_3k_7k_8k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_9}} \tag{554}$$



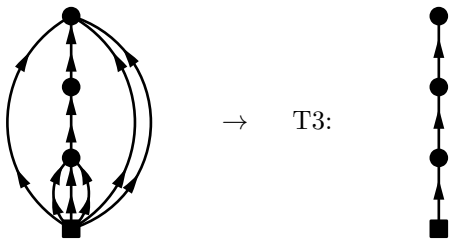
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{555}$$

$$a_1 = \epsilon^{k_7k_8}$$
$$a_2 = \epsilon^{k_9}_{k_1k_2k_3k_7k_8}$$
$$a_3 = \epsilon_{k_4k_5k_6k_9}$$

Diagram 276:

$$\text{PO3.276} = \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{11}_{k_8k_7} \Omega^{04}_{k_8k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7}_{k_1k_2k_3}} e^{-\tau_2\epsilon^{k_8}_{k_7}} e^{-\tau_3\epsilon_{k_4k_5}}$$

$$= \frac{(-1)^3}{(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{13}_{k_7k_1k_2k_3} \Omega^{11}_{k_8k_7} \Omega^{04}_{k_8k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_8}} \tag{556}$$



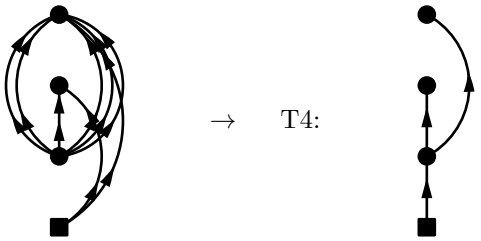
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{557}$$

$$a_1 = \epsilon^{k_7}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_8}_{k_7}$$
$$a_3 = \epsilon_{k_4k_5k_6k_8}$$

Diagram 277:

$$\text{PO3.277} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(5!)} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{60}_{k_3k_4k_5k_6k_7k_8} \Omega^{02}_{k_3k_1} \Omega^{06}_{k_4k_5k_6k_7k_8k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1\epsilon^{k_3k_4k_5k_6k_7k_8}} e^{-\tau_2\epsilon_{k_1k_3}}$$

$$= \frac{-(-1)^3}{(5!)} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{60}_{k_3k_4k_5k_6k_7k_8} \Omega^{02}_{k_3k_1} \Omega^{06}_{k_4k_5k_6k_7k_8k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_3}\ \epsilon_{k_2k_4k_5k_6k_7k_8}} \tag{558}$$

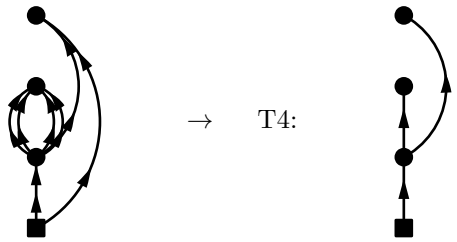


$$\mathrm{T4} = \frac{1}{(a_1 + a_2 + a_3)a_2 a_3} \tag{559}$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6 k_7 k_8}$$
$$a_2 = \epsilon_{k_1 k_3}$$
$$a_3 = \epsilon_{k_2 k_4 k_5 k_6 k_7 k_8}$$

Diagram 278:

$$\mathrm{PO3.278} = \lim_{\tau\to\infty} \frac{(-1)^3}{(4!)} \sum_{k_i} O^{20}_{k_1 k_2} \Omega^{51}_{k_3 k_4 k_5 k_6 k_7 k_1} \Omega^{04}_{k_3 k_4 k_5 k_6} \Omega^{02}_{k_7 k_2} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6 k_7}_{k_1}} e^{-\tau_2 \epsilon_{k_3 k_4 k_5 k_6}} e^{-\tau}$$
$$= \frac{(-1)^3}{(4!)} \sum_{k_i} \frac{O^{20}_{k_1 k_2} \Omega^{51}_{k_3 k_4 k_5 k_6 k_7 k_1} \Omega^{04}_{k_3 k_4 k_5 k_6} \Omega^{02}_{k_7 k_2}}{\epsilon_{k_1 k_2}\ \epsilon_{k_3 k_4 k_5 k_6}\ \epsilon_{k_2 k_7}} \tag{560}$$



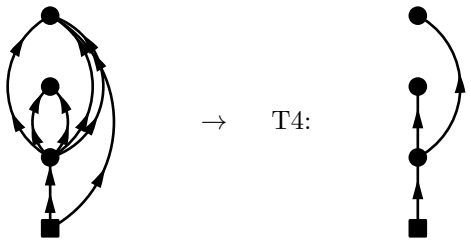
$\rightarrow$ T4:

$$\mathrm{T4} = \frac{1}{(a_1 + a_2 + a_3)a_2 a_3} \tag{561}$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6 k_7}_{k_1}$$
$$a_2 = \epsilon_{k_3 k_4 k_5 k_6}$$
$$a_3 = \epsilon_{k_2 k_7}$$

Diagram 279:

$$\mathrm{PO3.279} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{20}_{k_1 k_2} \Omega^{51}_{k_3 k_4 k_5 k_6 k_7 k_1} \Omega^{02}_{k_3 k_4} \Omega^{04}_{k_5 k_6 k_7 k_2} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6 k_7}_{k_1}} e^{-\tau_2 \epsilon_{k_3 k_4}} e^{-\tau_3 \epsilon_{k}}$$
$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{20}_{k_1 k_2} \Omega^{51}_{k_3 k_4 k_5 k_6 k_7 k_1} \Omega^{02}_{k_3 k_4} \Omega^{04}_{k_5 k_6 k_7 k_2}}{\epsilon_{k_1 k_2}\ \epsilon_{k_3 k_4}\ \epsilon_{k_2 k_5 k_6 k_7}} \tag{562}$$



$\rightarrow$ T4:

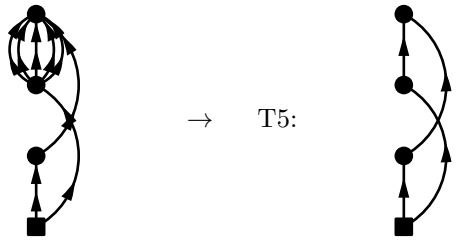
$$\mathrm{T4} = \frac{1}{(a_1 + a_2 + a_3)a_2 a_3} \tag{563}$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6 k_7}_{k_1}$$
$$a_2 = \epsilon_{k_3 k_4}$$
$$a_3 = \epsilon_{k_2 k_5 k_6 k_7}$$

Diagram 280:

$$\text{PO3.280} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(5!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{51}_{k_4k_5k_6k_7k_8k_2}\Omega^{06}_{k_4k_5k_6k_7k_8k_3} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3}_{k_1}}e^{-\tau_2\epsilon^{k_4k_5k_6k_7k_8}_{k_2}}e^{-\tau}$$

$$= \frac{-(-1)^3}{(5!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{51}_{k_4k_5k_6k_7k_8k_2}\Omega^{06}_{k_4k_5k_6k_7k_8k_3} \left[\frac{1}{\epsilon_{k_1k_4k_5k_6k_7k_8}\ \epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6k_7k_8}} + \frac{1}{\epsilon_{k_1k_2}\ \epsilon_{k_2k_3}\ \epsilon_{k_3k_4k_5k_6k_7k_8}}\right] \tag{564}$$



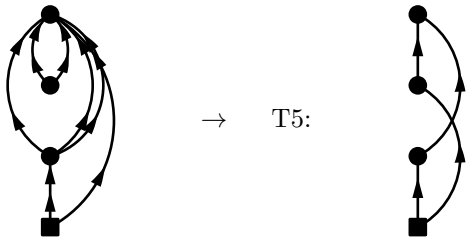
$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{565}$$

$$a_1 = \epsilon^{k_3}_{k_1}$$
$$a_2 = \epsilon^{k_4k_5k_6k_7k_8}_{k_2}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6k_7k_8}$$

Diagram 281:

$$\text{PO3.281} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{20}_{k_6k_7}\Omega^{06}_{k_6k_7k_3k_4k_5k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5}_{k_1}}e^{-\tau_2\epsilon^{k_6k_7}}e^{-\tau_3\epsilon_{k_2k_3k}}$$

$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{20}_{k_6k_7}\Omega^{06}_{k_6k_7k_3k_4k_5k_2} \left[\frac{1}{\epsilon_{k_1k_2k_6k_7}\ \epsilon_{k_1k_2}\ \epsilon_{k_2k_3k_4k_5k_6k_7}} + \frac{1}{\epsilon_{k_1k_2}\ \epsilon_{k_2k_3k_4k_5}\ \epsilon_{k_2k_3k_4k_5k_6k_7}}\right] \tag{566}$$



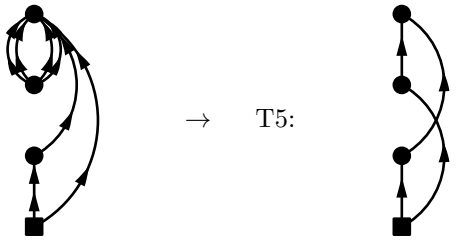
$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{567}$$

$$a_1 = \epsilon^{k_3k_4k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6k_7}$$
$$a_3 = \epsilon_{k_2k_3k_4k_5k_6k_7}$$

Diagram 282:

$$\text{PO3.282} = \lim_{\tau\to\infty} \frac{(-1)^3}{(4!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{40}_{k_4k_5k_6k_7}\Omega^{06}_{k_4k_5k_6k_7k_3k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3}_{k_1}}e^{-\tau_2\epsilon^{k_4k_5k_6k_7}}e^{-\tau_3\epsilon_{k_2k_3k_4}}$$

$$= \frac{(-1)^3}{(4!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{40}_{k_4k_5k_6k_7}\Omega^{06}_{k_4k_5k_6k_7k_3k_2} \left[\frac{1}{\epsilon_{k_1k_2k_4k_5k_6k_7}\ \epsilon_{k_1k_2}\ \epsilon_{k_2k_3k_4k_5k_6k_7}} + \frac{1}{\epsilon_{k_1k_2}\ \epsilon_{k_2k_3}\ \epsilon_{k_2k_3k_4k_5k_6k_7}}\right] \tag{568}$$



$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{569}$$

$$a_1 = \epsilon^{k_3}_{k_1}$$
$$a_2 = \epsilon^{k_4k_5k_6k_7}$$
$$a_3 = \epsilon_{k_2k_3k_4k_5k_6k_7}$$

Diagram 283:

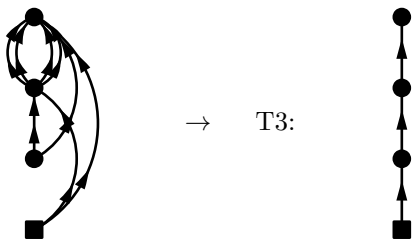
$$\text{PO3.283} = \lim_{\tau\to\infty} \frac{(-1)^3}{(4!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{51}_{k_3k_4k_5k_6k_7k_1}\Omega^{11}_{k_8k_3}\Omega^{06}_{k_8k_4k_5k_6k_7k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5k_6k_7}_{k_1}}e^{-}$$
$$= \frac{(-1)^3}{(4!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{51}_{k_3k_4k_5k_6k_7k_1}\Omega^{11}_{k_8k_3}\Omega^{06}_{k_8k_4k_5k_6k_7k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_2k_4k_5k_6k_7}\ \epsilon_{k_2k_4k_5k_6k_7k_8}} \tag{570}$$

$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{571}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8}_{k_3}$$
$$a_3 = \epsilon_{k_2k_4k_5k_6k_7k_8}$$

Diagram 284:

$$\text{PO3.284} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(4!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{42}_{k_5k_6k_7k_8k_3k_1}\Omega^{06}_{k_5k_6k_7k_8k_4k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4}}e^{-\tau_2\epsilon^{k}_{k}}$$
$$= \frac{-(-1)^3}{(4!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{42}_{k_5k_6k_7k_8k_3k_1}\Omega^{06}_{k_5k_6k_7k_8k_4k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_3k_2k_4}\ \epsilon_{k_2k_4k_5k_6k_7k_8}} \tag{572}$$



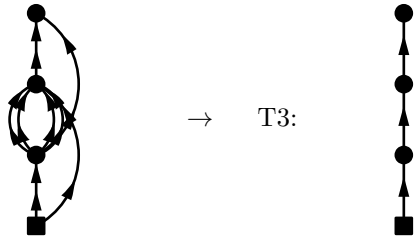
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{573}$$

$$a_1 = \epsilon^{k_3k_4}$$
$$a_2 = \epsilon^{k_5k_6k_7k_8}_{k_1k_3}$$
$$a_3 = \epsilon_{k_2k_4k_5k_6k_7k_8}$$

Diagram 285:

$$\text{PO3.285} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(4!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{51}_{k_3k_4k_5k_6k_7k_1}\Omega^{15}_{k_8k_3k_4k_5k_6k_2}\Omega^{02}_{k_8k_7} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5k_6k_7}_{k_1}}$$

$$= \frac{-(-1)^3}{(4!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{51}_{k_3k_4k_5k_6k_7k_1}\Omega^{15}_{k_8k_3k_4k_5k_6k_2}\Omega^{02}_{k_8k_7}}{\epsilon_{k_1k_2}\ \epsilon_{k_2k_3k_4k_5k_6k_7}\ \epsilon_{k_7k_8}} \tag{574}$$



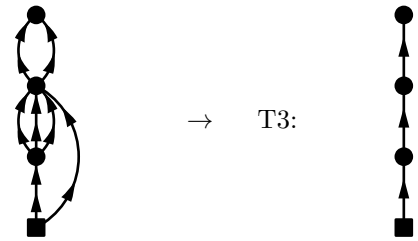
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{575}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8}_{k_2k_3k_4k_5k_6}$$
$$a_3 = \epsilon_{k_7k_8}$$

Diagram 286:

$$\text{PO3.286} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{24}_{k_6k_7k_3k_4k_5k_2}\Omega^{02}_{k_6k_7} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5}_{k_1}}e^{-\tau_2\epsilon^{k_6k_7}_{k_2k_3k_4k_5}}e^{-\tau_3\epsilon_k}$$

$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{31}_{k_3k_4k_5k_1}\Omega^{24}_{k_6k_7k_3k_4k_5k_2}\Omega^{02}_{k_6k_7}}{\epsilon_{k_1k_2}\ \epsilon_{k_2k_3k_4k_5}\ \epsilon_{k_6k_7}} \tag{576}$$



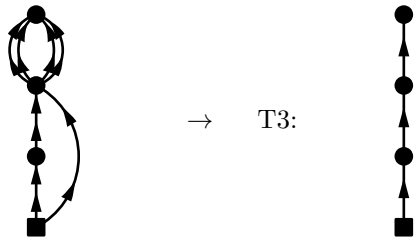
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{577}$$

$$a_1 = \epsilon^{k_3k_4k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6k_7}_{k_2k_3k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7}$$

Diagram 287:

$$\text{PO3.287} = \lim_{\tau\to\infty} \frac{(-1)^3}{(4!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{42}_{k_4k_5k_6k_7k_3k_2}\Omega^{04}_{k_4k_5k_6k_7} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3}_{k_1}}e^{-\tau_2\epsilon^{k_4k_5k_6k_7}_{k_2k_3}}e^{-\tau_3\epsilon_{k_4k_5k_6}}$$

$$= \frac{(-1)^3}{(4!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{42}_{k_4k_5k_6k_7k_3k_2}\Omega^{04}_{k_4k_5k_6k_7}}{\epsilon_{k_1k_2}\ \epsilon_{k_2k_3}\ \epsilon_{k_4k_5k_6k_7}} \tag{578}$$

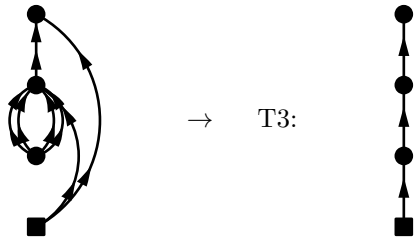


$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{579}$$

$$\begin{aligned} a_1 &= \epsilon^{k_3}_{k_1} \\ a_2 &= \epsilon^{k_4 k_5 k_6 k_7}_{k_2 k_3} \\ a_3 &= \epsilon_{k_4 k_5 k_6 k_7} \end{aligned}$$

Diagram 288:

$$\begin{aligned} \mathrm{PO3.288} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(4!)} \sum_{k_i} O^{20}_{k_1 k_2} \Omega^{40}_{k_3 k_4 k_5 k_6} \Omega^{15}_{k_7 k_3 k_4 k_5 k_6 k_1} \Omega^{02}_{k_7 k_2} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7}_{k_1 k_3 k_4 k_5 k_6}} e^{-\tau} \\ &= \frac{(-1)^3}{(4!)} \sum_{k_i} \frac{O^{20}_{k_1 k_2} \Omega^{40}_{k_3 k_4 k_5 k_6} \Omega^{15}_{k_7 k_3 k_4 k_5 k_6 k_1} \Omega^{02}_{k_7 k_2}}{\epsilon_{k_1 k_2}\ \epsilon_{k_1 k_3 k_4 k_5 k_6 k_2}\ \epsilon_{k_2 k_7}} \end{aligned} \tag{580}$$



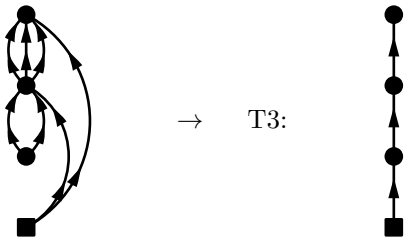
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{581}$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\ a_2 &= \epsilon^{k_7}_{k_1 k_3 k_4 k_5 k_6} \\ a_3 &= \epsilon_{k_2 k_7} \end{aligned}$$

Diagram 289:

$$\begin{aligned} \mathrm{PO3.289} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{20}_{k_1 k_2} \Omega^{20}_{k_3 k_4} \Omega^{33}_{k_5 k_6 k_7 k_3 k_4 k_1} \Omega^{04}_{k_5 k_6 k_7 k_2} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6 k_7}_{k_1 k_3 k_4}} e^{-\tau_3 \epsilon_{k_2 k_5 k}} \\ &= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{20}_{k_1 k_2} \Omega^{20}_{k_3 k_4} \Omega^{33}_{k_5 k_6 k_7 k_3 k_4 k_1} \Omega^{04}_{k_5 k_6 k_7 k_2}}{\epsilon_{k_1 k_2}\ \epsilon_{k_1 k_3 k_4 k_2}\ \epsilon_{k_2 k_5 k_6 k_7}} \end{aligned} \tag{582}$$



$\rightarrow$ T3:

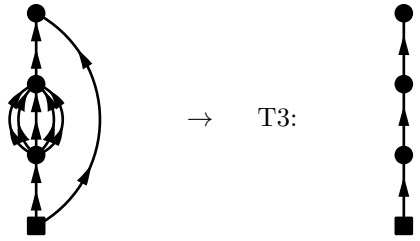
$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{583}$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon^{k_5 k_6 k_7}_{k_1 k_3 k_4} \\ a_3 &= \epsilon_{k_2 k_5 k_6 k_7} \end{aligned}$$

Diagram 290:

$$\text{PO3.290} = \lim_{\tau\to\infty} \frac{(-1)^3}{(5!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{51}_{k_3k_4k_5k_6k_7k_1}\Omega^{15}_{k_8k_3k_4k_5k_6k_7}\Omega^{02}_{k_8k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5k_6k_7}_{k_1}}e^{-\tau_2\epsilon^{k_8}_{k_3k_4k_5k_6}}$$

$$= \frac{(-1)^3}{(5!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{51}_{k_3k_4k_5k_6k_7k_1}\Omega^{15}_{k_8k_3k_4k_5k_6k_7}\Omega^{02}_{k_8k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6k_7k_2}\ \epsilon_{k_2k_8}} \tag{584}$$



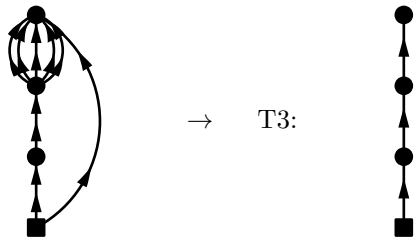
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{585}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8}_{k_3k_4k_5k_6k_7}$$
$$a_3 = \epsilon_{k_2k_8}$$

Diagram 291:

$$\text{PO3.291} = \lim_{\tau\to\infty} \frac{(-1)^3}{(5!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{51}_{k_4k_5k_6k_7k_8k_3}\Omega^{06}_{k_4k_5k_6k_7k_8k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3}_{k_1}}e^{-\tau_2\epsilon^{k_4k_5k_6k_7k_8}_{k_3}}e^{-\tau_3\epsilon}$$

$$= \frac{(-1)^3}{(5!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{11}_{k_3k_1}\Omega^{51}_{k_4k_5k_6k_7k_8k_3}\Omega^{06}_{k_4k_5k_6k_7k_8k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_2}\ \epsilon_{k_2k_4k_5k_6k_7k_8}} \tag{586}$$



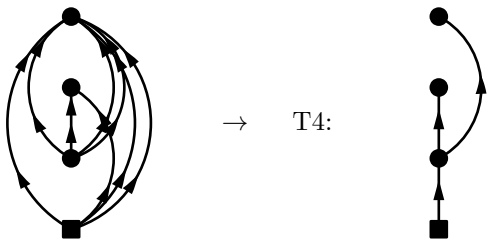
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{587}$$

$$a_1 = \epsilon^{k_3}_{k_1}$$
$$a_2 = \epsilon^{k_4k_5k_6k_7k_8}_{k_3}$$
$$a_3 = \epsilon_{k_2k_4k_5k_6k_7k_8}$$

Diagram 292:

$$\text{PO3.292} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{40}_{k_5k_6k_7k_8}\Omega^{02}_{k_5k_1}\Omega^{06}_{k_6k_7k_8k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon^{k_5k_6k_7k_8}}e^{-\tau_2\epsilon_{k_1k_5}}e^{-\tau}$$

$$= \frac{-(-1)^3}{(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4}\Omega^{40}_{k_5k_6k_7k_8}\Omega^{02}_{k_5k_1}\Omega^{06}_{k_6k_7k_8k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_5}\ \epsilon_{k_2k_3k_4k_6k_7k_8}} \tag{588}$$

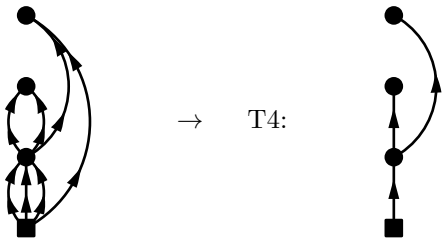


$$\mathrm{T4} = \frac{1}{(a_1 + a_2 + a_3)a_2 a_3} \tag{589}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$
$$a_2 = \epsilon_{k_1 k_5}$$
$$a_3 = \epsilon_{k_2 k_3 k_4 k_6 k_7 k_8}$$

Diagram 293:

$$\mathrm{PO3.293} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{33}_{k_5 k_6 k_7 k_1 k_2 k_3} \Omega^{02}_{k_5 k_6} \Omega^{02}_{k_7 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1) e^{-\tau_1 \epsilon^{k_5 k_6 k_7}_{k_1 k_2 k_3}} e^{-\tau_2 \epsilon_{k_5 k_6}} e^{-\tau_3 \epsilon_{k_4 k_7}}$$
$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{33}_{k_5 k_6 k_7 k_1 k_2 k_3} \Omega^{02}_{k_5 k_6} \Omega^{02}_{k_7 k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_5 k_6}\ \epsilon_{k_4 k_7}} \tag{590}$$



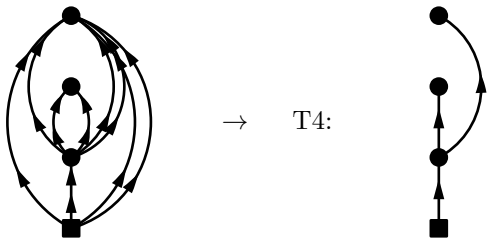
$\rightarrow$ T4:

$$\mathrm{T4} = \frac{1}{(a_1 + a_2 + a_3)a_2 a_3} \tag{591}$$

$$a_1 = \epsilon^{k_5 k_6 k_7}_{k_1 k_2 k_3}$$
$$a_2 = \epsilon_{k_5 k_6}$$
$$a_3 = \epsilon_{k_4 k_7}$$

Diagram 294:

$$\mathrm{PO3.294} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{51}_{k_5 k_6 k_7 k_8 k_9 k_1} \Omega^{02}_{k_5 k_6} \Omega^{06}_{k_7 k_8 k_9 k_2 k_3 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_1) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8 k_9}_{k_1}} e^{-\tau_2 \epsilon_{k}}$$
$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{51}_{k_5 k_6 k_7 k_8 k_9 k_1} \Omega^{02}_{k_5 k_6} \Omega^{06}_{k_7 k_8 k_9 k_2 k_3 k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_5 k_6}\ \epsilon_{k_2 k_3 k_4 k_7 k_8 k_9}} \tag{592}$$



$\rightarrow$ T4:

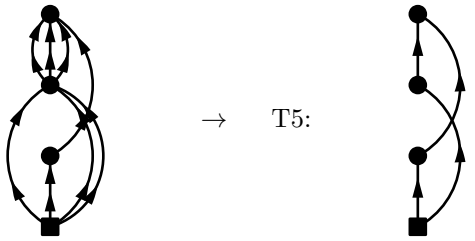
$$\mathrm{T4} = \frac{1}{(a_1 + a_2 + a_3)a_2 a_3} \tag{593}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8 k_9}_{k_1}$$
$$a_2 = \epsilon_{k_5 k_6}$$
$$a_3 = \epsilon_{k_2 k_3 k_4 k_7 k_8 k_9}$$

Diagram 295:

$$\mathrm{PO3.295} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{11}_{k_5k_1} \Omega^{33}_{k_6k_7k_8k_2k_3k_4} \Omega^{04}_{k_6k_7k_8k_5} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5}_{k_1}} e^{-\tau_2 \epsilon^{k_6k_7k_8}_{k_2k_3k_4}} e^{-\tau_3 \epsilon_{k_5}}$$

$$= \frac{-(-1)^3}{(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{11}_{k_5k_1} \Omega^{33}_{k_6k_7k_8k_2k_3k_4} \Omega^{04}_{k_6k_7k_8k_5} \left[\frac{1}{\epsilon_{k_1k_6k_7k_8}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_8}} + \frac{1}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_5}\ \epsilon_{k_5k_6k_7k_8}} \right. \tag{594}$$



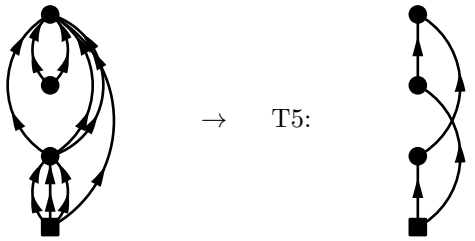
$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{595}$$

$$a_1 = \epsilon^{k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6k_7k_8}_{k_2k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6k_7k_8}$$

Diagram 296:

$$\mathrm{PO3.296} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{20}_{k_8k_9} \Omega^{06}_{k_8k_9k_5k_6k_7k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5k_6k_7}_{k_1k_2k_3}} e^{-\tau_2 \epsilon^{k_8k_9}} \epsilon$$

$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{20}_{k_8k_9} \Omega^{06}_{k_8k_9k_5k_6k_7k_4} \left[\frac{1}{\epsilon_{k_1k_2k_3k_4k_8k_9}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5k_6k_7k_8k_9}} + \frac{1}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5k_6k_7}} \right. \tag{596}$$



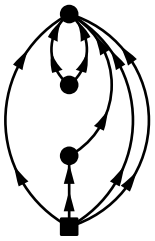
$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{597}$$

$$a_1 = \epsilon^{k_5k_6k_7}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_8k_9}$$
$$a_3 = \epsilon_{k_4k_5k_6k_7k_8k_9}$$

Diagram 297:

$$\mathrm{PO3.297} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{11}_{k_5k_1} \Omega^{20}_{k_6k_7} \Omega^{06}_{k_6k_7k_5k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5}_{k_1}} e^{-\tau_2 \epsilon^{k_6k_7}} e^{-\tau_3 \epsilon_{k_2k_3k_4k_5k}}$$

$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{11}_{k_5k_1} \Omega^{20}_{k_6k_7} \Omega^{06}_{k_6k_7k_5k_2k_3k_4} \left[\frac{1}{\epsilon_{k_1k_2k_3k_4k_6k_7}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_5k_6k_7}} + \frac{1}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_5}\ \epsilon_{k_2k_3k_4k_5}} \right. \tag{598}$$



$\rightarrow$ T5:

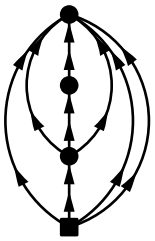
$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{599}$$

$$a_1 = \epsilon^{k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6 k_7}$$
$$a_3 = \epsilon_{k_2 k_3 k_4 k_5 k_6 k_7}$$

Diagram 298:

$$\text{PO3.298} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{31}_{k_5 k_6 k_7 k_1} \Omega^{11}_{k_8 k_5} \Omega^{06}_{k_8 k_6 k_7 k_2 k_3 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7}_{k_1}} e^{-\tau_2}$$

$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{31}_{k_5 k_6 k_7 k_1} \Omega^{11}_{k_8 k_5} \Omega^{06}_{k_8 k_6 k_7 k_2 k_3 k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_5 k_2 k_3 k_4 k_6 k_7}\ \epsilon_{k_2 k_3 k_4 k_6 k_7 k_8}} \tag{600}$$



$\rightarrow$ T3:

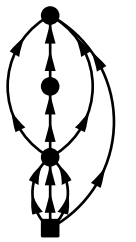
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{601}$$

$$a_1 = \epsilon^{k_5 k_6 k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8}_{k_5}$$
$$a_3 = \epsilon_{k_2 k_3 k_4 k_6 k_7 k_8}$$

Diagram 299:

$$\text{PO3.299} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{33}_{k_5 k_6 k_7 k_1 k_2 k_3} \Omega^{11}_{k_8 k_5} \Omega^{04}_{k_8 k_6 k_7 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7}_{k_1 k_2 k_3}} e^{-\tau_2}$$

$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{33}_{k_5 k_6 k_7 k_1 k_2 k_3} \Omega^{11}_{k_8 k_5} \Omega^{04}_{k_8 k_6 k_7 k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_5 k_4 k_6 k_7}\ \epsilon_{k_4 k_6 k_7 k_8}} \tag{602}$$



$\rightarrow$ T3:

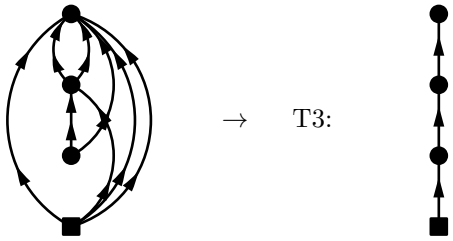
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{603}$$

$$a_1 = \epsilon^{k_5 k_6 k_7}_{k_1 k_2 k_3}$$
$$a_2 = \epsilon^{k_8}_{k_5}$$
$$a_3 = \epsilon_{k_4 k_6 k_7 k_8}$$

Diagram 300:

$$\text{PO3.300} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{20}_{k_5k_6} \Omega^{22}_{k_7k_8k_5k_1} \Omega^{06}_{k_7k_8k_6k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}} e^{-\tau_2\epsilon^{k}$$

$$= \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{20}_{k_5k_6} \Omega^{22}_{k_7k_8k_5k_1} \Omega^{06}_{k_7k_8k_6k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_5k_2k_3k_4k_6}\ \epsilon_{k_2k_3k_4k_6k_7k_8}} \tag{604}$$



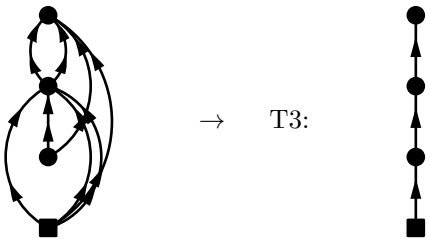
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{605}$$

$$a_1 = \epsilon^{k_5k_6}$$
$$a_2 = \epsilon^{k_7k_8}_{k_1k_5}$$
$$a_3 = \epsilon_{k_2k_3k_4k_6k_7k_8}$$

Diagram 301:

$$\text{PO3.301} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{20}_{k_5k_6} \Omega^{24}_{k_7k_8k_5k_1k_2k_3} \Omega^{04}_{k_7k_8k_6k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}} e^{-\tau_2\epsilon^{k}_{k}}$$

$$= \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{20}_{k_5k_6} \Omega^{24}_{k_7k_8k_5k_1k_2k_3} \Omega^{04}_{k_7k_8k_6k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_3k_5k_4k_6}\ \epsilon_{k_4k_6k_7k_8}} \tag{606}$$



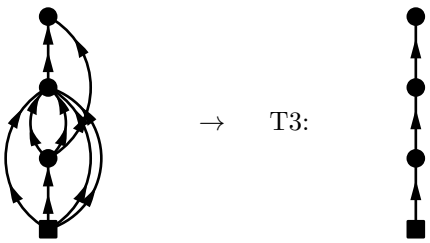
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{607}$$

$$a_1 = \epsilon^{k_5k_6}$$
$$a_2 = \epsilon^{k_7k_8}_{k_1k_2k_3k_5}$$
$$a_3 = \epsilon_{k_4k_6k_7k_8}$$

Diagram 302:

$$\text{PO3.302} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{15}_{k_8k_5k_6k_2k_3k_4} \Omega^{02}_{k_8k_7} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1}} e^{-\tau_2}$$

$$= \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{15}_{k_8k_5k_6k_2k_3k_4} \Omega^{02}_{k_8k_7}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_5k_6k_7}\ \epsilon_{k_7k_8}} \tag{608}$$

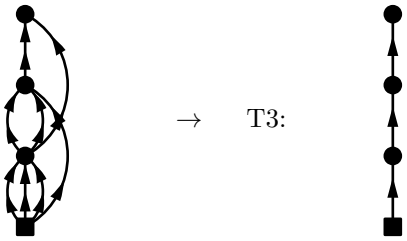


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{609}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6k_7}_{k_1} \\ a_2 &= \epsilon^{k_8}_{k_2k_3k_4k_5k_6} \\ a_3 &= \epsilon_{k_7k_8} \end{aligned}$$

Diagram 303:

$$\begin{aligned} \mathrm{PO3.303} &= \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{13}_{k_8k_5k_6k_4} \Omega^{02}_{k_8k_7} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1k_2k_3}} e^{-\tau_2} \\ &= \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{13}_{k_8k_5k_6k_4} \Omega^{02}_{k_8k_7}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5k_6k_7}\ \epsilon_{k_7k_8}} \end{aligned} \tag{610}$$

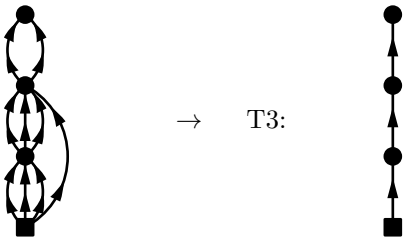


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{611}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6k_7}_{k_1k_2k_3} \\ a_2 &= \epsilon^{k_8}_{k_4k_5k_6} \\ a_3 &= \epsilon_{k_7k_8} \end{aligned}$$

Diagram 304:

$$\begin{aligned} \mathrm{PO3.304} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{24}_{k_8k_9k_5k_6k_7k_4} \Omega^{02}_{k_8k_9} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1k_2k_3}} e^{-\tau_2\epsilon^{k_8k_9}_{k_4k_5k}} \\ &= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{33}_{k_5k_6k_7k_1k_2k_3} \Omega^{24}_{k_8k_9k_5k_6k_7k_4} \Omega^{02}_{k_8k_9}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5k_6k_7}\ \epsilon_{k_8k_9}} \end{aligned} \tag{612}$$



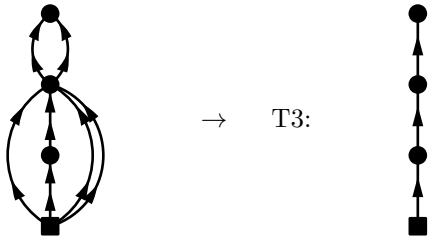
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{613}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5k_6k_7}_{k_1k_2k_3} \\ a_2 &= \epsilon^{k_8k_9}_{k_4k_5k_6k_7} \\ a_3 &= \epsilon_{k_8k_9} \end{aligned}$$

Diagram 305:

$$\text{PO3.305} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(3!)}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{11}_{k_5k_1}\Omega^{24}_{k_6k_7k_5k_2k_3k_4}\Omega^{02}_{k_6k_7}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5}_{k_1}}e^{-\tau_2\epsilon^{k_6k_7}_{k_2k_3k_4k_5}}e^{-\tau_3\epsilon_{k_6k_7}}$$

$$= \frac{(-1)^3}{(2!)(3!)}\sum_{k_i}\frac{O^{40}_{k_1k_2k_3k_4}\Omega^{11}_{k_5k_1}\Omega^{24}_{k_6k_7k_5k_2k_3k_4}\Omega^{02}_{k_6k_7}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_5}\ \epsilon_{k_6k_7}} \tag{614}$$



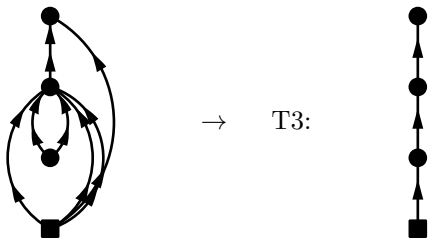
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{615}$$

$$a_1 = \epsilon^{k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6k_7}_{k_2k_3k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7}$$

Diagram 306:

$$\text{PO3.306} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(3!)}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{20}_{k_5k_6}\Omega^{15}_{k_7k_5k_6k_1k_2k_3}\Omega^{02}_{k_7k_4}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6}}e^{-\tau_2\epsilon^{k_7}_{k_1k_2k_3k_5k_6}}e^{-\tau_3\epsilon_k}$$

$$= \frac{(-1)^3}{(2!)(3!)}\sum_{k_i}\frac{O^{40}_{k_1k_2k_3k_4}\Omega^{20}_{k_5k_6}\Omega^{15}_{k_7k_5k_6k_1k_2k_3}\Omega^{02}_{k_7k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_3k_5k_6k_4}\ \epsilon_{k_4k_7}} \tag{616}$$



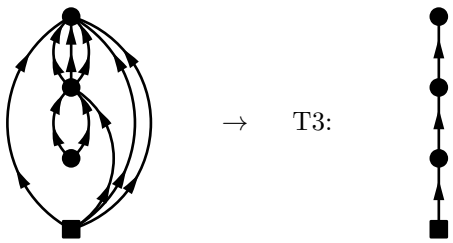
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{617}$$

$$a_1 = \epsilon^{k_5k_6}$$
$$a_2 = \epsilon^{k_7}_{k_1k_2k_3k_5k_6}$$
$$a_3 = \epsilon_{k_4k_7}$$

Diagram 307:

$$\text{PO3.307} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(3!)^2}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{20}_{k_5k_6}\Omega^{33}_{k_7k_8k_9k_5k_6k_1}\Omega^{06}_{k_7k_8k_9k_2k_3k_4}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6}}e^{-\tau_2\epsilon^{k_7k_8k_9}_{k_1k_5k_6}}\epsilon$$

$$= \frac{(-1)^3}{(2!)(3!)^2}\sum_{k_i}\frac{O^{40}_{k_1k_2k_3k_4}\Omega^{20}_{k_5k_6}\Omega^{33}_{k_7k_8k_9k_5k_6k_1}\Omega^{06}_{k_7k_8k_9k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_5k_6k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_7k_8k_9}} \tag{618}$$

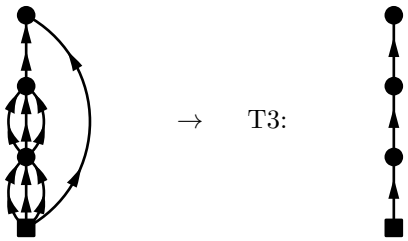


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{619}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon^{k_7 k_8 k_9}_{k_1 k_5 k_6} \\ a_3 &= \epsilon_{k_2 k_3 k_4 k_7 k_8 k_9} \end{aligned}$$

Diagram 308:

$$\begin{aligned} \mathrm{PO3.308} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)^2} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{33}_{k_5 k_6 k_7 k_1 k_2 k_3} \Omega^{13}_{k_8 k_5 k_6 k_7} \Omega^{02}_{k_8 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7}_{k_1 k_2 k_3}} e^{-\tau_2 \epsilon^{k_8}_{k_5 k_6 k_7}} e^{-\tau_3 \epsilon} \\ &= \frac{(-1)^3}{(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{33}_{k_5 k_6 k_7 k_1 k_2 k_3} \Omega^{13}_{k_8 k_5 k_6 k_7} \Omega^{02}_{k_8 k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_5 k_6 k_7 k_4}\ \epsilon_{k_4 k_8}} \end{aligned} \tag{620}$$



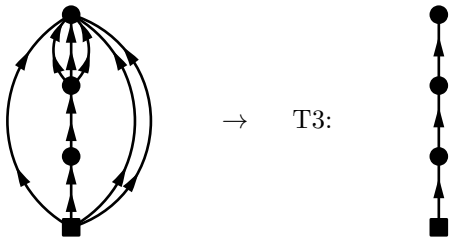
$\to$ T3:

$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{621}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6 k_7}_{k_1 k_2 k_3} \\ a_2 &= \epsilon^{k_8}_{k_5 k_6 k_7} \\ a_3 &= \epsilon_{k_4 k_8} \end{aligned}$$

Diagram 309:

$$\begin{aligned} \mathrm{PO3.309} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(3!)^2} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{11}_{k_5 k_1} \Omega^{31}_{k_6 k_7 k_8 k_5} \Omega^{06}_{k_6 k_7 k_8 k_2 k_3 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5}_{k_1}} e^{-\tau_2 \epsilon^{k_6 k_7 k_8}_{k_5}} e^{-\tau_3 \epsilon_{k_2 k_3}} \\ &= \frac{(-1)^3}{(3!)^2} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{11}_{k_5 k_1} \Omega^{31}_{k_6 k_7 k_8 k_5} \Omega^{06}_{k_6 k_7 k_8 k_2 k_3 k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_5 k_2 k_3 k_4}\ \epsilon_{k_2 k_3 k_4 k_6 k_7 k_8}} \end{aligned} \tag{622}$$



$\to$ T3:

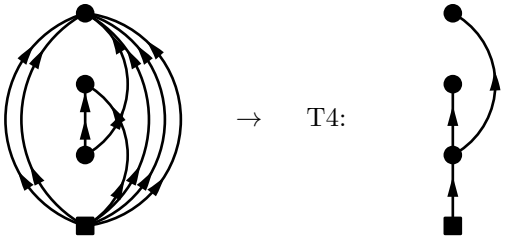
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{623}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5}_{k_1} \\ a_2 &= \epsilon^{k_6 k_7 k_8}_{k_5} \\ a_3 &= \epsilon_{k_2 k_3 k_4 k_6 k_7 k_8} \end{aligned}$$

Diagram 310:

$$\text{PO3.310} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{20}_{k_7k_8} \Omega^{02}_{k_7k_1} \Omega^{06}_{k_8k_2k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1\epsilon^{k_7k_8}} e^{-\tau_2\epsilon_{k_1k_7}} e^{-\tau_3\epsilon_{k_2}}$$

$$= \frac{-(-1)^3}{(5!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{20}_{k_7k_8} \Omega^{02}_{k_7k_1} \Omega^{06}_{k_8k_2k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_7}\ \epsilon_{k_2k_3k_4k_5k_6k_8}} \tag{624}$$



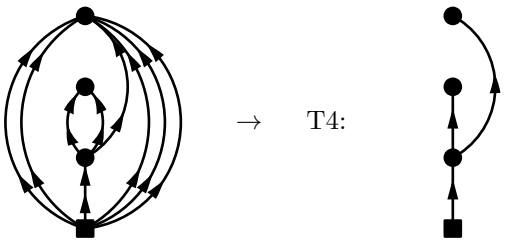
$$\text{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{625}$$

$$a_1 = \epsilon^{k_7k_8}$$
$$a_2 = \epsilon_{k_1k_7}$$
$$a_3 = \epsilon_{k_2k_3k_4k_5k_6k_8}$$

Diagram 311:

$$\text{PO3.311} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{02}_{k_7k_8} \Omega^{06}_{k_9k_2k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1\epsilon_{k_1}^{k_7k_8k_9}} e^{-\tau_2\epsilon_{k_7k_8}} e^{-}$$

$$= \frac{(-1)^3}{(2!)(5!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{31}_{k_7k_8k_9k_1} \Omega^{02}_{k_7k_8} \Omega^{06}_{k_9k_2k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8}\ \epsilon_{k_2k_3k_4k_5k_6k_9}} \tag{626}$$



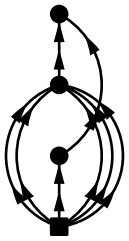
$$\text{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{627}$$

$$a_1 = \epsilon_{k_1}^{k_7k_8k_9}$$
$$a_2 = \epsilon_{k_7k_8}$$
$$a_3 = \epsilon_{k_2k_3k_4k_5k_6k_9}$$

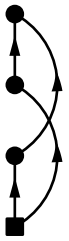
Diagram 312:

$$\text{PO3.312} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{11}_{k_7k_1} \Omega^{15}_{k_8k_2k_3k_4k_5k_6} \Omega^{02}_{k_8k_7} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1}^{k_7}} e^{-\tau_2\epsilon_{k_2k_3k_4k_5k_6}^{k_8}} e^{-\tau}$$

$$= \frac{-(-1)^3}{(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{11}_{k_7k_1} \Omega^{15}_{k_8k_2k_3k_4k_5k_6} \Omega^{02}_{k_8k_7} \left[\frac{1}{\epsilon_{k_1k_8}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8}} + \frac{1}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_4k_5k_6k_7}\ \epsilon_{k_7k_8}} \right] \tag{628}$$



$\rightarrow$ T5:

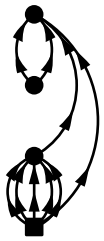


$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{629}$$

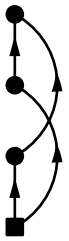
$$\begin{aligned} a_1 &= \epsilon^{k_7}_{k_1} \\ a_2 &= \epsilon^{k_8}_{k_2k_3k_4k_5k_6} \\ a_3 &= \epsilon_{k_7k_8} \end{aligned}$$

Diagram 313:

$$\begin{aligned} \text{PO3.313} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{15}_{k_7k_1k_2k_3k_4k_5} \Omega^{20}_{k_8k_9} \Omega^{04}_{k_8k_9k_7k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7}_{k_1k_2k_3k_4k_5}} e^{-\tau_2\epsilon^{k_8}} \\ &= \frac{(-1)^3}{(2!)(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{15}_{k_7k_1k_2k_3k_4k_5} \Omega^{20}_{k_8k_9} \Omega^{04}_{k_8k_9k_7k_6} \left[\frac{1}{\epsilon_{k_1k_2k_3k_4k_5k_6k_8k_9}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_6k_7k_8k_9}} + \frac{1}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k} \right. \end{aligned} \tag{630}$$



$\rightarrow$ T5:

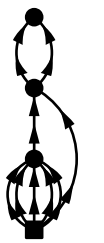


$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{631}$$

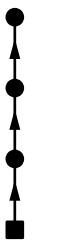
$$\begin{aligned} a_1 &= \epsilon^{k_7}_{k_1k_2k_3k_4k_5} \\ a_2 &= \epsilon^{k_8k_9} \\ a_3 &= \epsilon_{k_6k_7k_8k_9} \end{aligned}$$

Diagram 314:

$$\begin{aligned} \text{PO3.314} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{15}_{k_7k_1k_2k_3k_4k_5} \Omega^{22}_{k_8k_9k_7k_6} \Omega^{02}_{k_8k_9} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7}_{k_1k_2k_3k_4k_5}} e^{-\tau_2\epsilon^{k_8}_{k_6}} \\ &= \frac{(-1)^3}{(2!)(5!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{15}_{k_7k_1k_2k_3k_4k_5} \Omega^{22}_{k_8k_9k_7k_6} \Omega^{02}_{k_8k_9}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_6k_7}\ \epsilon_{k_8k_9}} \end{aligned} \tag{632}$$



$\rightarrow$ T3:

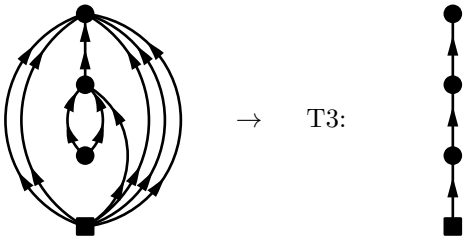


$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{633}$$

$$a_1 = \epsilon^{k_7}_{k_1k_2k_3k_4k_5}$$
$$a_2 = \epsilon^{k_8k_9}_{k_6k_7}$$
$$a_3 = \epsilon_{k_8k_9}$$

Diagram 315:

$$\text{PO3.315} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{20}_{k_7k_8} \Omega^{13}_{k_9k_7k_8k_1} \Omega^{06}_{k_9k_2k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7k_8}} e^{-\tau_2\epsilon^{k_9}_{k_1k_7k_8}} e^{-}$$
$$= \frac{(-1)^3}{(2!)(5!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{20}_{k_7k_8} \Omega^{13}_{k_9k_7k_8k_1} \Omega^{06}_{k_9k_2k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_7k_8k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_4k_5k_6k_9}} \tag{634}$$

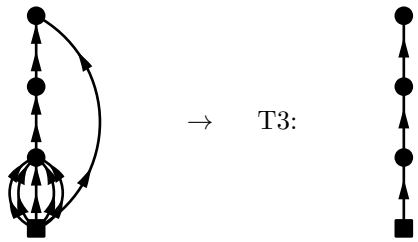


$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{635}$$

$$a_1 = \epsilon^{k_7k_8}$$
$$a_2 = \epsilon^{k_9}_{k_1k_7k_8}$$
$$a_3 = \epsilon_{k_2k_3k_4k_5k_6k_9}$$

Diagram 316:

$$\text{PO3.316} = \lim_{\tau\to\infty} \frac{(-1)^3}{(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{15}_{k_7k_1k_2k_3k_4k_5} \Omega^{11}_{k_8k_7} \Omega^{02}_{k_8k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7}_{k_1k_2k_3k_4k_5}} e^{-\tau_2\epsilon^{k_8}_{k_7}} e^{-\tau_3\epsilon}$$
$$= \frac{(-1)^3}{(5!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{15}_{k_7k_1k_2k_3k_4k_5} \Omega^{11}_{k_8k_7} \Omega^{02}_{k_8k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_6}\ \epsilon_{k_6k_8}} \tag{636}$$

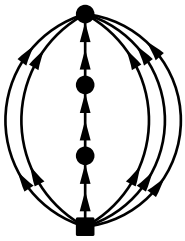


$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{637}$$

$$a_1 = \epsilon^{k_7}_{k_1k_2k_3k_4k_5}$$
$$a_2 = \epsilon^{k_8}_{k_7}$$
$$a_3 = \epsilon_{k_6k_8}$$

Diagram 317:

$$\text{PO3.317} = \lim_{\tau\to\infty} \frac{(-1)^3}{(5!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{11}_{k_7k_1} \Omega^{11}_{k_8k_7} \Omega^{06}_{k_8k_2k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7}_{k_1}} e^{-\tau_2\epsilon^{k_8}_{k_7}} e^{-\tau_3\epsilon_{k_2k_3k_4k_5}}$$
$$= \frac{(-1)^3}{(5!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{11}_{k_7k_1} \Omega^{11}_{k_8k_7} \Omega^{06}_{k_8k_2k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_4k_5k_6k_8}} \tag{638}$$



→ T3:

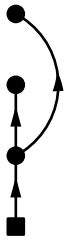
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{639}$$

$$a_1 = \epsilon^{k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8}_{k_7}$$
$$a_3 = \epsilon_{k_2k_3k_4k_5k_6k_8}$$

Diagram 318:

$$\mathrm{PO3.318} = \lim_{\tau\to\infty} \frac{(-1)^3}{2(2!)^3} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{42}_{k_3k_4k_5k_6k_1k_2} \Omega^{02}_{k_3k_4} \Omega^{02}_{k_5k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1 \epsilon^{k_3k_4k_5k_6}_{k_1k_2}} e^{-\tau_2 \epsilon_{k_3k_4}} e^{-\tau_3 \epsilon_{k_5k_6}}$$
$$= \frac{(-1)^3}{2(2!)^3} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{42}_{k_3k_4k_5k_6k_1k_2} \Omega^{02}_{k_3k_4} \Omega^{02}_{k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4}\ \epsilon_{k_5k_6}} \tag{640}$$

→ T4:

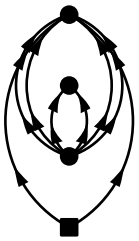


$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{641}$$

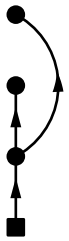
$$a_1 = \epsilon^{k_3k_4k_5k_6}_{k_1k_2}$$
$$a_2 = \epsilon_{k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6}$$

Diagram 319:

$$\mathrm{PO3.319} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{60}_{k_3k_4k_5k_6k_7k_8} \Omega^{02}_{k_3k_4} \Omega^{06}_{k_5k_6k_7k_8k_1k_2} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1 \epsilon^{k_3k_4k_5k_6k_7k_8}} e^{-\tau_2 \epsilon_{k_3k_4}}$$
$$= \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{60}_{k_3k_4k_5k_6k_7k_8} \Omega^{02}_{k_3k_4} \Omega^{06}_{k_5k_6k_7k_8k_1k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4}\ \epsilon_{k_1k_2k_5k_6k_7k_8}} \tag{642}$$



→ T4:



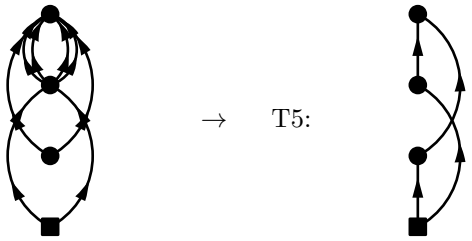
$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{643}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6k_7k_8}$$
$$a_2 = \epsilon_{k_3k_4}$$
$$a_3 = \epsilon_{k_1k_2k_5k_6k_7k_8}$$

Diagram 320:

$$\text{PO3.320} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{42}_{k_5k_6k_7k_8k_1k_2}\Omega^{06}_{k_5k_6k_7k_8k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4}}e^{-\tau_2\epsilon^{k_5k_6k_7k_8}_{k_1k_2}}e^{-}$$

$$= \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{42}_{k_5k_6k_7k_8k_1k_2}\Omega^{06}_{k_5k_6k_7k_8k_3k_4} \left[\frac{1}{\epsilon_{k_5k_6k_7k_8}\ \epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6k_7k_8}} + \frac{1}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6k_7k_8}}\right] \tag{644}$$



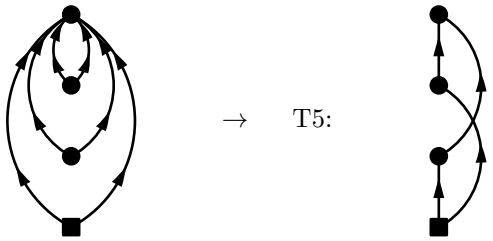
$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{645}$$

$$a_1 = \epsilon^{k_3k_4}$$
$$a_2 = \epsilon^{k_5k_6k_7k_8}_{k_1k_2}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6k_7k_8}$$

Diagram 321:

$$\text{PO3.321} = \lim_{\tau\to\infty} \frac{(-1)^3}{2(2!)^3} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{20}_{k_5k_6}\Omega^{06}_{k_5k_6k_3k_4k_1k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4}}e^{-\tau_2\epsilon^{k_5k_6}}e^{-\tau_3\epsilon_{k_1k_2k_3k_4k_5k_6}}$$

$$= \frac{(-1)^3}{2(2!)^3} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{20}_{k_5k_6}\Omega^{06}_{k_5k_6k_3k_4k_1k_2} \left[\frac{1}{\epsilon_{k_1k_2k_5k_6}\ \epsilon_{k_1k_2}\ \epsilon_{k_1k_2k_3k_4k_5k_6}} + \frac{1}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_3k_4k_5k_6}}\right] \tag{646}$$



$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{647}$$

$$a_1 = \epsilon^{k_3k_4}$$
$$a_2 = \epsilon^{k_5k_6}$$
$$a_3 = \epsilon_{k_1k_2k_3k_4k_5k_6}$$

Diagram 322:

$$\text{PO3.322} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{11}_{k_7k_3}\Omega^{06}_{k_7k_4k_5k_6k_1k_2} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5k_6}}e^{-\tau_2\epsilon^{k_7}_{k_3}}$$

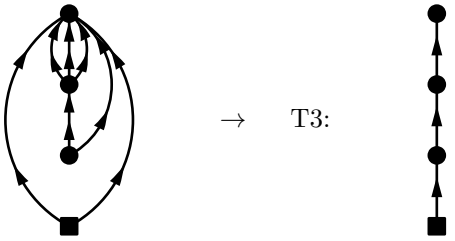
$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{40}_{k_3k_4k_5k_6}\Omega^{11}_{k_7k_3}\Omega^{06}_{k_7k_4k_5k_6k_1k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_1k_2k_4k_5k_6}\ \epsilon_{k_1k_2k_4k_5k_6k_7}} \tag{648}$$

$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{649}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}$$
$$a_2 = \epsilon^{k_7}_{k_3}$$
$$a_3 = \epsilon_{k_1k_2k_4k_5k_6k_7}$$

Diagram 323:

$$\text{PO3.323} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(3!)}\sum_{k_i} O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{31}_{k_5k_6k_7k_3}\Omega^{06}_{k_5k_6k_7k_4k_1k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4}}e^{-\tau_2\epsilon^{k_5k_6k_7}_{k_3}}$$
$$= \frac{(-1)^3}{(2!)(3!)}\sum_{k_i}\frac{O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{31}_{k_5k_6k_7k_3}\Omega^{06}_{k_5k_6k_7k_4k_1k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_1k_2k_4}\ \epsilon_{k_1k_2k_4k_5k_6k_7}} \tag{650}$$

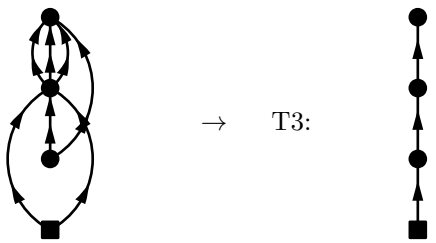


$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{651}$$

$$a_1 = \epsilon^{k_3k_4}$$
$$a_2 = \epsilon^{k_5k_6k_7}_{k_3}$$
$$a_3 = \epsilon_{k_1k_2k_4k_5k_6k_7}$$

Diagram 324:

$$\text{PO3.324} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(3!)}\sum_{k_i} O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{33}_{k_5k_6k_7k_3k_1k_2}\Omega^{04}_{k_5k_6k_7k_4}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4}}e^{-\tau_2\epsilon^{k_5k_6k_7}_{k_1k_2k_3}}$$
$$= \frac{(-1)^3}{(2!)(3!)}\sum_{k_i}\frac{O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{33}_{k_5k_6k_7k_3k_1k_2}\Omega^{04}_{k_5k_6k_7k_4}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5k_6k_7}} \tag{652}$$



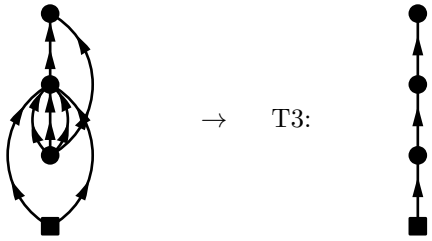
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{653}$$

$$a_1 = \epsilon^{k_3k_4}$$
$$a_2 = \epsilon^{k_5k_6k_7}_{k_1k_2k_3}$$
$$a_3 = \epsilon_{k_4k_5k_6k_7}$$

Diagram 325:

$$\text{PO3.325} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{40}_{k_3k_4k_5k_6} \Omega^{15}_{k_7k_3k_4k_5k_1k_2} \Omega^{02}_{k_7k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_3k_4k_5k_6}} e^{-\tau_2\epsilon^{k_7}_{k_1}}$$

$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{40}_{k_3k_4k_5k_6} \Omega^{15}_{k_7k_3k_4k_5k_1k_2} \Omega^{02}_{k_7k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_6k_7}} \tag{654}$$



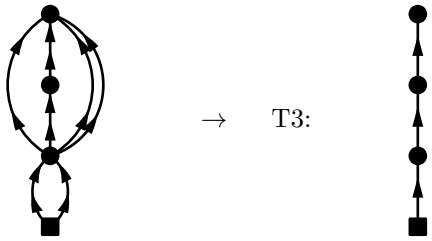
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{655}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}$$
$$a_2 = \epsilon^{k_7}_{k_1k_2k_3k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7}$$

Diagram 326:

$$\text{PO3.326} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{42}_{k_3k_4k_5k_6k_1k_2} \Omega^{11}_{k_7k_3} \Omega^{04}_{k_7k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_3k_4k_5k_6}_{k_1k_2}} e^{-\tau_2\epsilon^{k_7}_{k_3}}$$

$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{42}_{k_3k_4k_5k_6k_1k_2} \Omega^{11}_{k_7k_3} \Omega^{04}_{k_7k_4k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_7}} \tag{656}$$



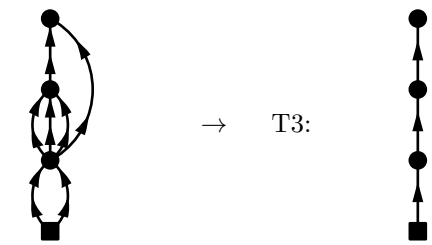
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{657}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}_{k_1k_2}$$
$$a_2 = \epsilon^{k_7}_{k_3}$$
$$a_3 = \epsilon_{k_4k_5k_6k_7}$$

Diagram 327:

$$\text{PO3.327} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{20}_{k_1k_2} \Omega^{42}_{k_3k_4k_5k_6k_1k_2} \Omega^{13}_{k_7k_3k_4k_5} \Omega^{02}_{k_7k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_3k_4k_5k_6}_{k_1k_2}} e^{-\tau_2\epsilon^{k_7}_{k_3}}$$

$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{20}_{k_1k_2} \Omega^{42}_{k_3k_4k_5k_6k_1k_2} \Omega^{13}_{k_7k_3k_4k_5} \Omega^{02}_{k_7k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_6k_7}} \tag{658}$$

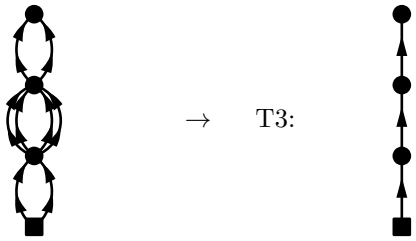


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{659}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}_{k_1k_2}$$
$$a_2 = \epsilon^{k_7}_{k_3k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7}$$

Diagram 328:

$$\mathrm{PO3.328} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{42}_{k_3k_4k_5k_6k_1k_2}\Omega^{24}_{k_7k_8k_3k_4k_5k_6}\Omega^{02}_{k_7k_8}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4k_5k_6}_{k_1k_2}}e^{-\tau_2\epsilon^{k_7k_8}_{k_3k_4k_5k_6}}$$
$$= \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{42}_{k_3k_4k_5k_6k_1k_2}\Omega^{24}_{k_7k_8k_3k_4k_5k_6}\Omega^{02}_{k_7k_8}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_7k_8}} \tag{660}$$

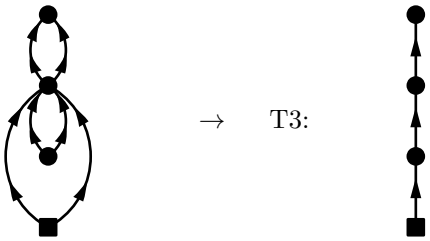


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{661}$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}_{k_1k_2}$$
$$a_2 = \epsilon^{k_7k_8}_{k_3k_4k_5k_6}$$
$$a_3 = \epsilon_{k_7k_8}$$

Diagram 329:

$$\mathrm{PO3.329} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3} \sum_{k_i} O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{24}_{k_5k_6k_3k_4k_1k_2}\Omega^{02}_{k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4}}e^{-\tau_2\epsilon^{k_5k_6}_{k_1k_2k_3k_4}}e^{-\tau_3\epsilon_{k_5k_6}}$$
$$= \frac{(-1)^3}{(2!)^3} \sum_{k_i} \frac{O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{24}_{k_5k_6k_3k_4k_1k_2}\Omega^{02}_{k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}} \tag{662}$$

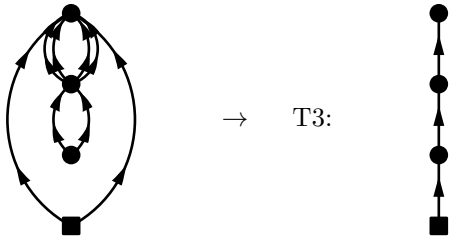


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{663}$$

$$a_1 = \epsilon^{k_3k_4}$$
$$a_2 = \epsilon^{k_5k_6}_{k_1k_2k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6}$$

Diagram 330:

$$\begin{aligned}\text{PO3.330} &= \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)^2(4!)}\sum_{k_i} O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{42}_{k_5k_6k_7k_8k_3k_4}\Omega^{06}_{k_5k_6k_7k_8k_1k_2}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_3k_4}}e^{-\tau_2\epsilon^{k_5k_6k_7k_8}_{k_3k_4}}e^{-}\\ &= \frac{(-1)^3}{(2!)^2(4!)}\sum_{k_i}\frac{O^{20}_{k_1k_2}\Omega^{20}_{k_3k_4}\Omega^{42}_{k_5k_6k_7k_8k_3k_4}\Omega^{06}_{k_5k_6k_7k_8k_1k_2}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_1k_2}\ \epsilon_{k_1k_2k_5k_6k_7k_8}}\end{aligned} \tag{664}$$

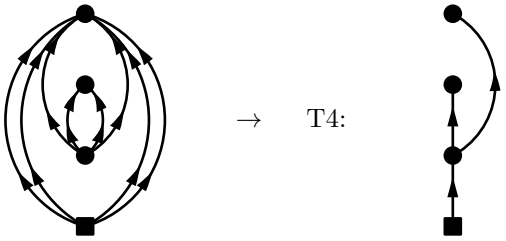


$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{665}$$

$$\begin{aligned}a_1 &= \epsilon^{k_3k_4}\\ a_2 &= \epsilon^{k_5k_6k_7k_8}_{k_3k_4}\\ a_3 &= \epsilon_{k_1k_2k_5k_6k_7k_8}\end{aligned}$$

Diagram 331:

$$\begin{aligned}\text{PO3.331} &= \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)^2(4!)}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{40}_{k_5k_6k_7k_8}\Omega^{02}_{k_5k_6}\Omega^{06}_{k_7k_8k_1k_2k_3k_4}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon^{k_5k_6k_7k_8}}e^{-\tau_2\epsilon_{k_5k_6}}e^{-}\\ &= \frac{(-1)^3}{(2!)^2(4!)}\sum_{k_i}\frac{O^{40}_{k_1k_2k_3k_4}\Omega^{40}_{k_5k_6k_7k_8}\Omega^{02}_{k_5k_6}\Omega^{06}_{k_7k_8k_1k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}\ \epsilon_{k_1k_2k_3k_4k_7k_8}}\end{aligned} \tag{666}$$

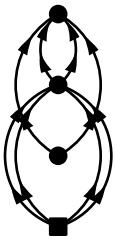


$$\text{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{667}$$

$$\begin{aligned}a_1 &= \epsilon^{k_5k_6k_7k_8}\\ a_2 &= \epsilon_{k_5k_6}\\ a_3 &= \epsilon_{k_1k_2k_3k_4k_7k_8}\end{aligned}$$

Diagram 332:

$$\begin{aligned}\text{PO3.332} &= \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)^2(4!)}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{20}_{k_5k_6}\Omega^{24}_{k_7k_8k_1k_2k_3k_4}\Omega^{04}_{k_7k_8k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6}}e^{-\tau_2\epsilon^{k_7k_8}_{k_1k_2k_3k_4}}e^{-}\\ &= \frac{(-1)^3}{(2!)^2(4!)}\sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{20}_{k_5k_6}\Omega^{24}_{k_7k_8k_1k_2k_3k_4}\Omega^{04}_{k_7k_8k_5k_6}\left[\frac{1}{\epsilon_{k_7k_8}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_7k_8}}+\frac{1}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_5k_6k_7k_8}}\right.\end{aligned} \tag{668}$$



$\rightarrow$ T5:

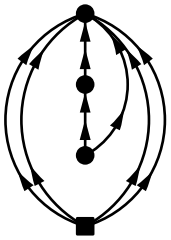
$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{669}$$

$$a_1 = \epsilon^{k_5k_6}$$
$$a_2 = \epsilon^{k_7k_8}_{k_1k_2k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6k_7k_8}$$

Diagram 333:

$$\text{PO3.333} = \lim_{\tau\to\infty} \frac{(-1)^3}{(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{20}_{k_5k_6} \Omega^{11}_{k_7k_5} \Omega^{06}_{k_7k_6k_1k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}} e^{-\tau_2\epsilon^{k_7}_{k_5}} e^{-\tau_3}$$

$$= \frac{(-1)^3}{(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{20}_{k_5k_6} \Omega^{11}_{k_7k_5} \Omega^{06}_{k_7k_6k_1k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_1k_2k_3k_4k_6}\ \epsilon_{k_1k_2k_3k_4k_6k_7}} \tag{670}$$



$\rightarrow$ T3:

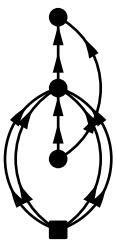
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{671}$$

$$a_1 = \epsilon^{k_5k_6}$$
$$a_2 = \epsilon^{k_7}_{k_5}$$
$$a_3 = \epsilon_{k_1k_2k_3k_4k_6k_7}$$

Diagram 334:

$$\text{PO3.334} = \lim_{\tau\to\infty} \frac{(-1)^3}{(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{20}_{k_5k_6} \Omega^{15}_{k_7k_5k_1k_2k_3k_4} \Omega^{02}_{k_7k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}} e^{-\tau_2\epsilon^{k_7}_{k_1k_2k_3k}}$$

$$= \frac{(-1)^3}{(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{20}_{k_5k_6} \Omega^{15}_{k_7k_5k_1k_2k_3k_4} \Omega^{02}_{k_7k_6}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_6k_7}} \tag{672}$$



$\rightarrow$ T3:

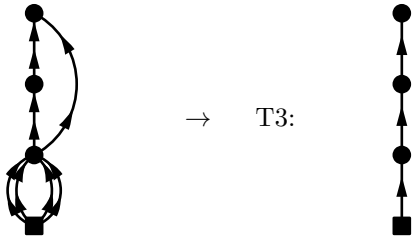
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{673}$$

$$a_1 = \epsilon^{k_5k_6}$$
$$a_2 = \epsilon^{k_7}_{k_1k_2k_3k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7}$$

Diagram 335:

$$\text{PO3.335} = \lim_{\tau\to\infty} \frac{(-1)^3}{(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{24}_{k_5k_6k_1k_2k_3k_4} \Omega^{11}_{k_7k_5} \Omega^{02}_{k_7k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5k_6}_{k_1k_2k_3k_4}} e^{-\tau_2 \epsilon^{k_7}_{k_5}} \epsilon$$

$$= \frac{(-1)^3}{(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{24}_{k_5k_6k_1k_2k_3k_4} \Omega^{11}_{k_7k_5} \Omega^{02}_{k_7k_6}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}\ \epsilon_{k_6k_7}} \tag{674}$$



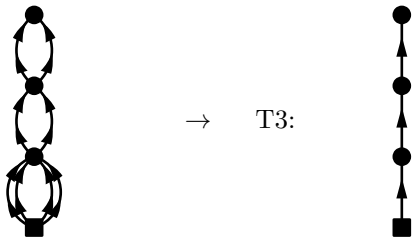
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{675}$$

$$a_1 = \epsilon^{k_5k_6}_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_7}_{k_5}$$
$$a_3 = \epsilon_{k_6k_7}$$

Diagram 336:

$$\text{PO3.336} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{24}_{k_5k_6k_1k_2k_3k_4} \Omega^{22}_{k_7k_8k_5k_6} \Omega^{02}_{k_7k_8} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5k_6}_{k_1k_2k_3k_4}} e^{-\tau_2 \epsilon^{k_7k_8}_{k_5k_6}} e^{-}$$

$$= \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{24}_{k_5k_6k_1k_2k_3k_4} \Omega^{22}_{k_7k_8k_5k_6} \Omega^{02}_{k_7k_8}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}\ \epsilon_{k_7k_8}} \tag{676}$$



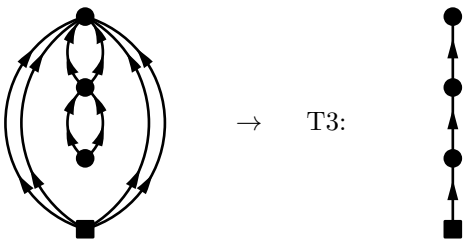
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{677}$$

$$a_1 = \epsilon^{k_5k_6}_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_7k_8}_{k_5k_6}$$
$$a_3 = \epsilon_{k_7k_8}$$

Diagram 337:

$$\text{PO3.337} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{20}_{k_5k_6} \Omega^{22}_{k_7k_8k_5k_6} \Omega^{06}_{k_7k_8k_1k_2k_3k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5k_6}} e^{-\tau_2 \epsilon^{k_7k_8}_{k_5k_6}} e^{-\tau_3 \epsilon_{k}}$$

$$= \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{20}_{k_5k_6} \Omega^{22}_{k_7k_8k_5k_6} \Omega^{06}_{k_7k_8k_1k_2k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_3k_4k_7k_8}} \tag{678}$$

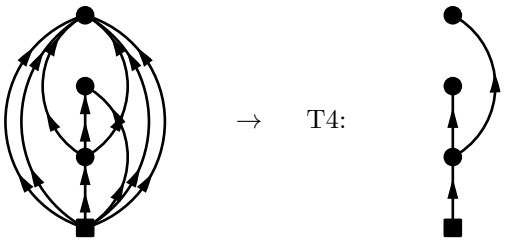


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{679}$$

$$a_1 = \epsilon^{k_5 k_6}$$
$$a_2 = \epsilon^{k_7 k_8}_{k_5 k_6}$$
$$a_3 = \epsilon_{k_1 k_2 k_3 k_4 k_7 k_8}$$

Diagram 338:

$$\mathrm{PO3.338} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{31}_{k_7 k_8 k_9 k_1} \Omega^{02}_{k_7 k_2} \Omega^{06}_{k_8 k_9 k_3 k_4 k_5 k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1 \epsilon^{k_7 k_8 k_9}_{k_1}} e^{-\tau_2 \epsilon_{k_2 k_7}} e^{-}$$
$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{31}_{k_7 k_8 k_9 k_1} \Omega^{02}_{k_7 k_2} \Omega^{06}_{k_8 k_9 k_3 k_4 k_5 k_6}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_2 k_7}\ \epsilon_{k_3 k_4 k_5 k_6 k_8 k_9}} \tag{680}$$



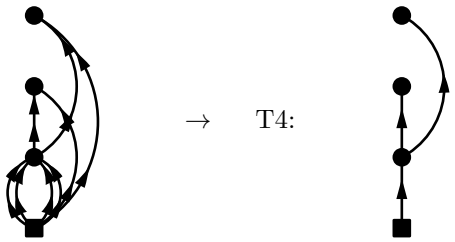
$\rightarrow$ T4:

$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2 a_3} \tag{681}$$

$$a_1 = \epsilon^{k_7 k_8 k_9}_{k_1}$$
$$a_2 = \epsilon_{k_2 k_7}$$
$$a_3 = \epsilon_{k_3 k_4 k_5 k_6 k_8 k_9}$$

Diagram 339:

$$\mathrm{PO3.339} = \lim_{\tau\to\infty} \frac{-(-1)^3}{2(4!)} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{24}_{k_7 k_8 k_1 k_2 k_3 k_4} \Omega^{02}_{k_7 k_5} \Omega^{02}_{k_8 k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1 \epsilon^{k_7 k_8}_{k_1 k_2 k_3 k_4}} e^{-\tau_2 \epsilon_{k_5 k_7}} e^{-\tau}$$
$$= \frac{-(-1)^3}{2(4!)} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{24}_{k_7 k_8 k_1 k_2 k_3 k_4} \Omega^{02}_{k_7 k_5} \Omega^{02}_{k_8 k_6}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_5 k_7}\ \epsilon_{k_6 k_8}} \tag{682}$$



$\rightarrow$ T4:

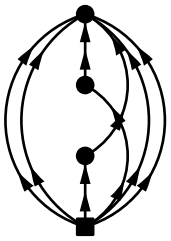
$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2 a_3} \tag{683}$$

$$a_1 = \epsilon^{k_7 k_8}_{k_1 k_2 k_3 k_4}$$
$$a_2 = \epsilon_{k_5 k_7}$$
$$a_3 = \epsilon_{k_6 k_8}$$

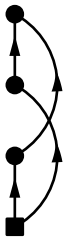
Diagram 340:

$$\text{PO3.340} = \lim_{\tau\to\infty} \frac{-(-1)^3}{2(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{11}_{k_7k_1} \Omega^{11}_{k_8k_2} \Omega^{06}_{k_8k_7k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7}_{k_1}} e^{-\tau_2\epsilon^{k_8}_{k_2}} e^{-\tau_3\epsilon_{k_3k_4k_5}}$$

$$= \frac{-(-1)^3}{2(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{11}_{k_7k_1} \Omega^{11}_{k_8k_2} \Omega^{06}_{k_8k_7k_3k_4k_5k_6} \left[\frac{1}{\epsilon_{k_1k_3k_4k_5k_6k_8}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_5k_6k_7k_8}} + \frac{}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k} \right. \tag{684}$$



$\rightarrow$ T5:



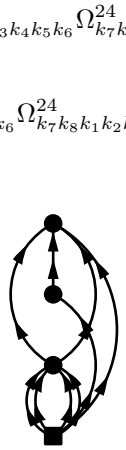
$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{685}$$

$$a_1 = \epsilon^{k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8}_{k_2}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6k_7k_8}$$

Diagram 341:

$$\text{PO3.341} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{11}_{k_9k_5} \Omega^{04}_{k_9k_7k_8k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7k_8}_{k_1k_2k_3k_4}} e^{-\tau_2\epsilon^{k_9}_{k_5}} e^{-}$$

$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{11}_{k_9k_5} \Omega^{04}_{k_9k_7k_8k_6} \left[\frac{1}{\epsilon_{k_1k_2k_3k_4k_6k_9}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_6k_7k_8k_9}} + \frac{1}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_5k_6k_7} \right. \tag{686}$$



$\rightarrow$ T5:

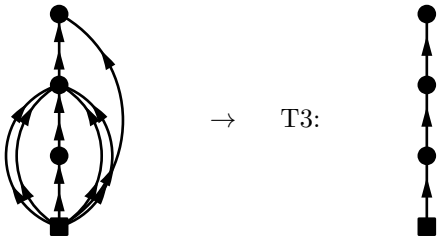
$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{687}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_9}_{k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9}$$

Diagram 342:

$$\text{PO3.342} = \lim_{\tau\to\infty} \frac{(-1)^3}{(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{11}_{k_7k_1} \Omega^{15}_{k_8k_7k_2k_3k_4k_5} \Omega^{02}_{k_8k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7}_{k_1}} e^{-\tau_2\epsilon^{k_8}_{k_2k_3k_4k_5k_7}} e^{-\tau_3\epsilon}$$

$$= \frac{(-1)^3}{(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{11}_{k_7k_1} \Omega^{15}_{k_8k_7k_2k_3k_4k_5} \Omega^{02}_{k_8k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_4k_5k_7k_6}\ \epsilon_{k_6k_8}} \tag{688}$$



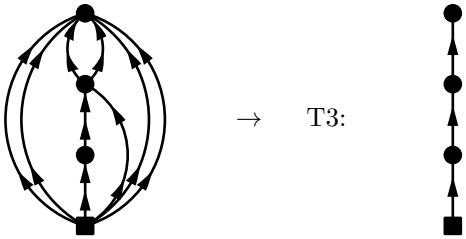
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{689}$$

$$a_1 = \epsilon^{k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8}_{k_2k_3k_4k_5k_7}$$
$$a_3 = \epsilon_{k_6k_8}$$

Diagram 343:

$$\text{PO3.343} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(4!)}\sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{11}_{k_7k_1}\Omega^{22}_{k_8k_9k_7k_2}\Omega^{06}_{k_8k_9k_3k_4k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7}_{k_1}}e^{-\tau_2\epsilon^{k_8k_9}_{k_2k_7}}e^{-\tau_3\epsilon_{}}$$

$$= \frac{(-1)^3}{(2!)(4!)}\sum_{k_i}\frac{O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{11}_{k_7k_1}\Omega^{22}_{k_8k_9k_7k_2}\Omega^{06}_{k_8k_9k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_7k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_5k_6k_8k_9}} \tag{690}$$



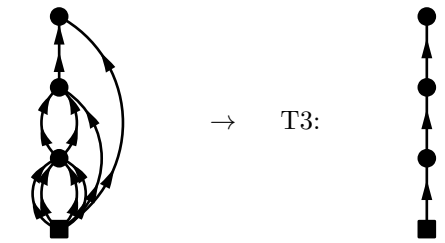
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{691}$$

$$a_1 = \epsilon^{k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8k_9}_{k_2k_7}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6k_8k_9}$$

Diagram 344:

$$\text{PO3.344} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(4!)}\sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{24}_{k_7k_8k_1k_2k_3k_4}\Omega^{13}_{k_9k_7k_8k_5}\Omega^{02}_{k_9k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7k_8}_{k_1k_2k_3k_4}}e^{-\tau_2\epsilon^{k_9}_{k_5k_7}}$$

$$= \frac{(-1)^3}{(2!)(4!)}\sum_{k_i}\frac{O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{24}_{k_7k_8k_1k_2k_3k_4}\Omega^{13}_{k_9k_7k_8k_5}\Omega^{02}_{k_9k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_5k_7k_8k_6}\ \epsilon_{k_6k_9}} \tag{692}$$



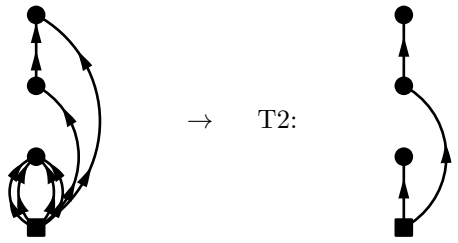
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{693}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_9}_{k_5k_7k_8}$$
$$a_3 = \epsilon_{k_6k_9}$$

Diagram 345:

$$\text{PO3.345} = \lim_{\tau\to\infty} \frac{(-1)^3}{(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{04}_{k_1k_2k_3k_4} \Omega^{11}_{k_7k_5} \Omega^{02}_{k_7k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon_{k_1k_2k_3k_4}} e^{-\tau_2 \epsilon^{k_7}_{k_5}} e^{-\tau_3 \epsilon_{k_6k_7}}$$

$$= \frac{(-1)^3}{(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{04}_{k_1k_2k_3k_4} \Omega^{11}_{k_7k_5} \Omega^{02}_{k_7k_6}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}\ \epsilon_{k_6k_7}} \tag{694}$$



$\rightarrow$ T2:

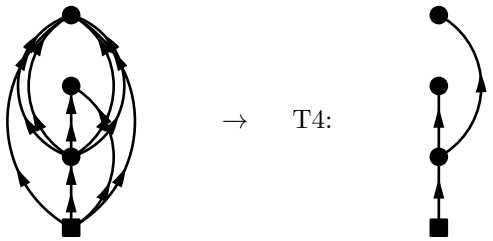
$$\text{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{695}$$

$$a_1 = \epsilon_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_7}_{k_5}$$
$$a_3 = \epsilon_{k_6k_7}$$

Diagram 346:

$$\text{PO3.346} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{02}_{k_5k_2} \Omega^{06}_{k_6k_7k_8k_9k_3k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1 \epsilon^{k_5k_6k_7k_8k_9}_{k_1}} e^{-\tau_2 \epsilon_{k_2}}$$

$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{51}_{k_5k_6k_7k_8k_9k_1} \Omega^{02}_{k_5k_2} \Omega^{06}_{k_6k_7k_8k_9k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_5}\ \epsilon_{k_3k_4k_6k_7k_8k_9}} \tag{696}$$



$\rightarrow$ T4:

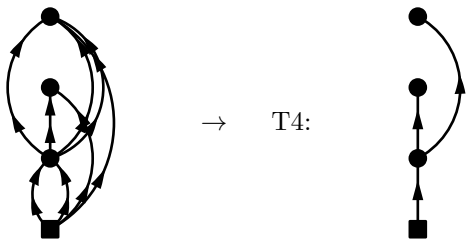
$$\text{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{697}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8k_9}_{k_1}$$
$$a_2 = \epsilon_{k_2k_5}$$
$$a_3 = \epsilon_{k_3k_4k_6k_7k_8k_9}$$

Diagram 347:

$$\text{PO3.347} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{02}_{k_5k_3} \Omega^{04}_{k_6k_7k_8k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1 \epsilon^{k_5k_6k_7k_8}_{k_1k_2}} e^{-\tau_2 \epsilon_{k_3k_5}} e^{-\tau}$$

$$= \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{02}_{k_5k_3} \Omega^{04}_{k_6k_7k_8k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_5}\ \epsilon_{k_4k_6k_7k_8}} \tag{698}$$



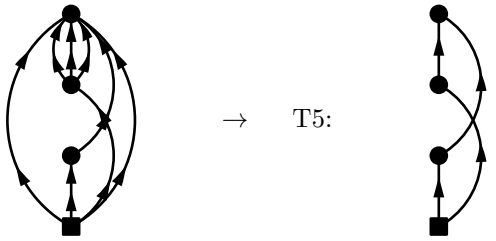
$\rightarrow$ T4:

$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{699}$$

$$a_1 = \epsilon_{k_1k_2}^{k_5k_6k_7k_8}$$
$$a_2 = \epsilon_{k_3k_5}$$
$$a_3 = \epsilon_{k_4k_6k_7k_8}$$

Diagram 348:

$$\mathrm{PO3.348} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{11}_{k_5k_1}\Omega^{31}_{k_6k_7k_8k_2}\Omega^{06}_{k_6k_7k_8k_5k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5}_{k_1}}e^{-\tau_2\epsilon^{k_6k_7k_8}_{k_2}}e^{-\tau_3\epsilon_{k_3}}$$
$$= \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{11}_{k_5k_1}\Omega^{31}_{k_6k_7k_8k_2}\Omega^{06}_{k_6k_7k_8k_5k_3k_4} \left[\frac{1}{\epsilon_{k_1k_3k_4k_6k_7k_8}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6k_7k_8}} + \frac{1}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_4k_5}\ \epsilon_{k_3k}}\right. \tag{700}$$

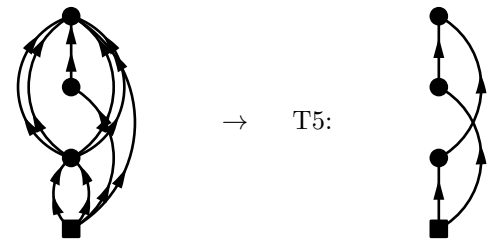


$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{701}$$

$$a_1 = \epsilon_{k_1}^{k_5}$$
$$a_2 = \epsilon_{k_2}^{k_6k_7k_8}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6k_7k_8}$$

Diagram 349:

$$\mathrm{PO3.349} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{42}_{k_5k_6k_7k_8k_1k_2}\Omega^{11}_{k_9k_3}\Omega^{06}_{k_9k_5k_6k_7k_8k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_5k_6k_7k_8}_{k_1k_2}}e^{-\tau_2\epsilon^{k_9}_{k_3}}e^{-}$$
$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4}\Omega^{42}_{k_5k_6k_7k_8k_1k_2}\Omega^{11}_{k_9k_3}\Omega^{06}_{k_9k_5k_6k_7k_8k_4} \left[\frac{1}{\epsilon_{k_1k_2k_4k_9}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_4k_5k_6k_7k_8k_9}} + \frac{1}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6k_7k_8}\ \epsilon}\right. \tag{702}$$



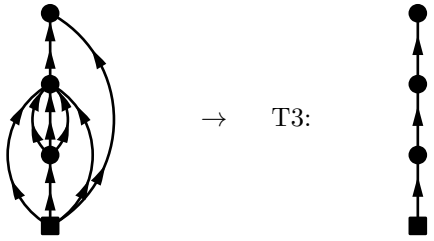
$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{703}$$

$$a_1 = \epsilon_{k_1k_2}^{k_5k_6k_7k_8}$$
$$a_2 = \epsilon_{k_3}^{k_9}$$
$$a_3 = \epsilon_{k_4k_5k_6k_7k_8k_9}$$

Diagram 350:

$$\text{PO3.350} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{15}_{k_8k_5k_6k_7k_2k_3} \Omega^{02}_{k_8k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1}} e^{-\tau_2\epsilon^{k_8}_{k_2k_3k_5k_6k_7}}$$

$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{31}_{k_5k_6k_7k_1} \Omega^{15}_{k_8k_5k_6k_7k_2k_3} \Omega^{02}_{k_8k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_5k_6k_7k_4}\ \epsilon_{k_4k_8}} \tag{704}$$



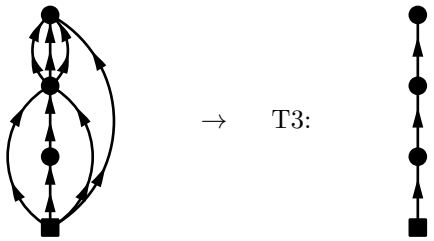
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{705}$$

$$a_1 = \epsilon^{k_5k_6k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8}_{k_2k_3k_5k_6k_7}$$
$$a_3 = \epsilon_{k_4k_8}$$

Diagram 351:

$$\text{PO3.351} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{11}_{k_5k_1} \Omega^{33}_{k_6k_7k_8k_5k_2k_3} \Omega^{04}_{k_6k_7k_8k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5}_{k_1}} e^{-\tau_2\epsilon^{k_6k_7k_8}_{k_2k_3k_5}} e^{-\tau_3\epsilon_{k_4k}}$$

$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{11}_{k_5k_1} \Omega^{33}_{k_6k_7k_8k_5k_2k_3} \Omega^{04}_{k_6k_7k_8k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_3k_5k_4}\ \epsilon_{k_4k_6k_7k_8}} \tag{706}$$



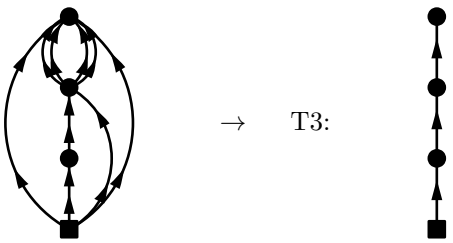
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{707}$$

$$a_1 = \epsilon^{k_5}_{k_1}$$
$$a_2 = \epsilon^{k_6k_7k_8}_{k_2k_3k_5}$$
$$a_3 = \epsilon_{k_4k_6k_7k_8}$$

Diagram 352:

$$\text{PO3.352} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{11}_{k_5k_1} \Omega^{42}_{k_6k_7k_8k_9k_5k_2} \Omega^{06}_{k_6k_7k_8k_9k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5}_{k_1}} e^{-\tau_2\epsilon^{k_6k_7k_8k_9}_{k_2k_5}} e^{-}$$

$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{11}_{k_5k_1} \Omega^{42}_{k_6k_7k_8k_9k_5k_2} \Omega^{06}_{k_6k_7k_8k_9k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_2k_5k_3k_4}\ \epsilon_{k_3k_4k_6k_7k_8k_9}} \tag{708}$$

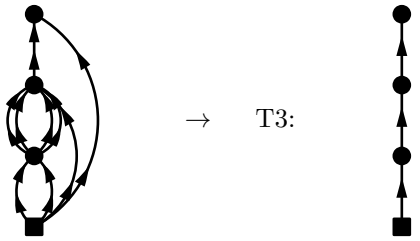


$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{709}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5}_{k_1} \\ a_2 &= \epsilon^{k_6 k_7 k_8 k_9}_{k_2 k_5} \\ a_3 &= \epsilon_{k_3 k_4 k_6 k_7 k_8 k_9} \end{aligned}$$

Diagram 353:

$$\begin{aligned} \mathrm{PO3.353} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{42}_{k_5 k_6 k_7 k_8 k_1 k_2} \Omega^{15}_{k_9 k_5 k_6 k_7 k_8 k_3} \Omega^{02}_{k_9 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2 - \tau_1)\theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}_{k_1 k_2}} e^{-\tau_2 \epsilon^{k_9}_{k_3 k_5}} \\ &= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{42}_{k_5 k_6 k_7 k_8 k_1 k_2} \Omega^{15}_{k_9 k_5 k_6 k_7 k_8 k_3} \Omega^{02}_{k_9 k_4}}{\epsilon_{k_1 k_2 k_3 k_4}\ \epsilon_{k_3 k_5 k_6 k_7 k_8 k_4}\ \epsilon_{k_4 k_9}} \end{aligned} \tag{710}$$



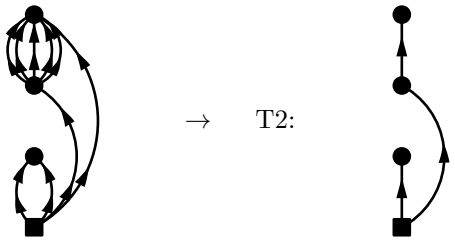
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3} \tag{711}$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6 k_7 k_8}_{k_1 k_2} \\ a_2 &= \epsilon^{k_9}_{k_3 k_5 k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_4 k_9} \end{aligned}$$

Diagram 354:

$$\begin{aligned} \mathrm{PO3.354} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(5!)} \sum_{k_i} O^{40}_{k_1 k_2 k_3 k_4} \Omega^{02}_{k_1 k_2} \Omega^{51}_{k_5 k_6 k_7 k_8 k_9 k_3} \Omega^{06}_{k_5 k_6 k_7 k_8 k_9 k_4} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1 k_2}} e^{-\tau_2 \epsilon^{k_5 k_6 k_7 k_8 k_9}_{k_3}} \\ &= \frac{(-1)^3}{(2!)(5!)} \sum_{k_i} \frac{O^{40}_{k_1 k_2 k_3 k_4} \Omega^{02}_{k_1 k_2} \Omega^{51}_{k_5 k_6 k_7 k_8 k_9 k_3} \Omega^{06}_{k_5 k_6 k_7 k_8 k_9 k_4}}{\epsilon_{k_1 k_2}\ \epsilon_{k_3 k_4}\ \epsilon_{k_4 k_5 k_6 k_7 k_8 k_9}} \end{aligned} \tag{712}$$



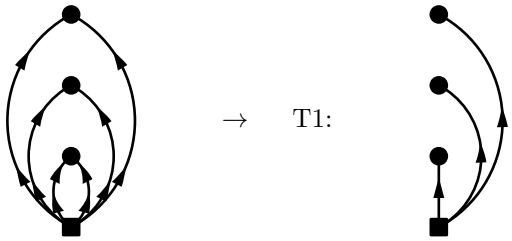
$\rightarrow$ T2:

$$\mathrm{T2} = \frac{1}{a_1(a_2 + a_3)a_3} \tag{713}$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2} \\ a_2 &= \epsilon^{k_5 k_6 k_7 k_8 k_9}_{k_3} \\ a_3 &= \epsilon_{k_4 k_5 k_6 k_7 k_8 k_9} \end{aligned}$$

Diagram 355:

$$\begin{aligned}\text{PO3.355} &= \lim_{\tau\to\infty}\frac{(-1)^3}{6(2!)^3}\sum_{k_i}O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{02}_{k_1k_2}\Omega^{02}_{k_3k_4}\Omega^{02}_{k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 e^{-\tau_1\epsilon_{k_1k_2}}e^{-\tau_2\epsilon_{k_3k_4}}e^{-\tau_3\epsilon_{k_5k_6}}\\ &= \frac{(-1)^3}{6(2!)^3}\sum_{k_i}\frac{O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{02}_{k_1k_2}\Omega^{02}_{k_3k_4}\Omega^{02}_{k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4}\ \epsilon_{k_5k_6}}\end{aligned} \tag{714}$$

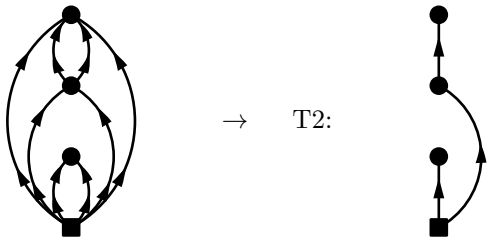


$$\text{T1} = \frac{1}{a_1a_2a_3} \tag{715}$$

$$\begin{aligned}a_1 &= \epsilon_{k_1k_2}\\ a_2 &= \epsilon_{k_3k_4}\\ a_3 &= \epsilon_{k_5k_6}\end{aligned}$$

Diagram 356:

$$\begin{aligned}\text{PO3.356} &= \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)^4}\sum_{k_i}O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{02}_{k_1k_2}\Omega^{22}_{k_7k_8k_3k_4}\Omega^{04}_{k_7k_8k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon_{k_1k_2}}e^{-\tau_2\epsilon^{k_7k_8}_{k_3k_4}}e^{-\tau_3\epsilon_{k_5k_6k_7k_8}}\\ &= \frac{(-1)^3}{(2!)^4}\sum_{k_i}\frac{O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{02}_{k_1k_2}\Omega^{22}_{k_7k_8k_3k_4}\Omega^{04}_{k_7k_8k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_5k_6k_7k_8}}\end{aligned} \tag{716}$$

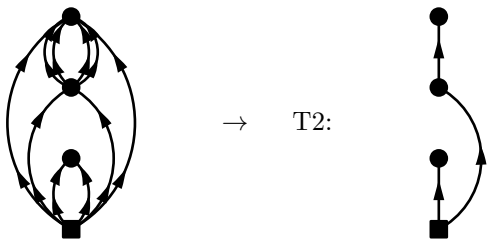


$$\text{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{717}$$

$$\begin{aligned}a_1 &= \epsilon_{k_1k_2}\\ a_2 &= \epsilon^{k_7k_8}_{k_3k_4}\\ a_3 &= \epsilon_{k_5k_6k_7k_8}\end{aligned}$$

Diagram 357:

$$\begin{aligned}\text{PO3.357} &= \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)^3(4!)}\sum_{k_i}O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{02}_{k_1k_2}\Omega^{42}_{k_7k_8k_9k_{10}k_3k_4}\Omega^{06}_{k_7k_8k_9k_{10}k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon_{k_1k_2}}e^{-\tau_2\epsilon^{k_7k_8k_9k_{10}}_{k_3k_4}}e^{-}\\ &= \frac{(-1)^3}{(2!)^3(4!)}\sum_{k_i}\frac{O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{02}_{k_1k_2}\Omega^{42}_{k_7k_8k_9k_{10}k_3k_4}\Omega^{06}_{k_7k_8k_9k_{10}k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_5k_6k_7k_8k_9k_{10}}}\end{aligned} \tag{718}$$

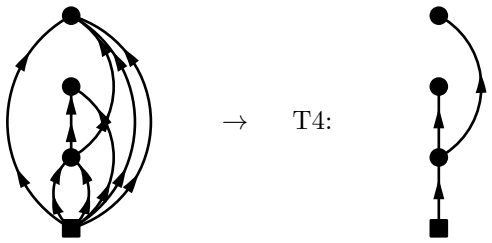


$$\mathrm{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{719}$$

$$\begin{aligned} a_1 &= \epsilon_{k_1k_2} \\ a_2 &= \epsilon^{k_7k_8k_9k_{10}}_{k_3k_4} \\ a_3 &= \epsilon_{k_5k_6k_7k_8k_9k_{10}} \end{aligned}$$

Diagram 358:

$$\begin{aligned} \mathrm{PO3.358} &= \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{02}_{k_7k_3} \Omega^{04}_{k_8k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1 \epsilon^{k_7k_8}_{k_1k_2}} e^{-\tau_2 \epsilon_{k_3k_7}} e^{-\tau_3 \epsilon_{k_4} \\ &= \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{02}_{k_7k_3} \Omega^{04}_{k_8k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_7}\ \epsilon_{k_4k_5k_6k_8}} \end{aligned} \tag{720}$$

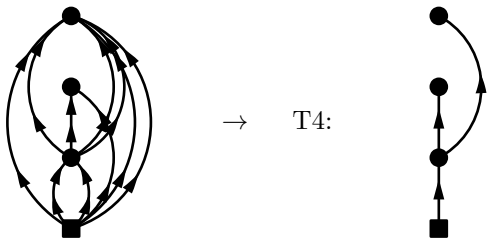


$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{721}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7k_8}_{k_1k_2} \\ a_2 &= \epsilon_{k_3k_7} \\ a_3 &= \epsilon_{k_4k_5k_6k_8} \end{aligned}$$

Diagram 359:

$$\begin{aligned} \mathrm{PO3.359} &= \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{02}_{k_7k_3} \Omega^{06}_{k_8k_9k_{10}k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1 \epsilon^{k_7k_8k_9k_{10}}_{k_1k_2}} e^{-} \\ &= \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{42}_{k_7k_8k_9k_{10}k_1k_2} \Omega^{02}_{k_7k_3} \Omega^{06}_{k_8k_9k_{10}k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_7}\ \epsilon_{k_4k_5k_6k_8k_9k_{10}}} \end{aligned} \tag{722}$$



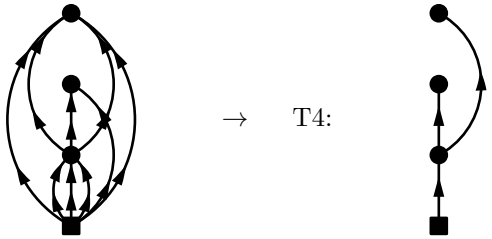
$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{723}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7k_8k_9k_{10}}_{k_1k_2} \\ a_2 &= \epsilon_{k_3k_7} \\ a_3 &= \epsilon_{k_4k_5k_6k_8k_9k_{10}} \end{aligned}$$

Diagram 360:

$$\text{PO3.360} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{02}_{k_7k_4} \Omega^{04}_{k_8k_9k_5k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1 \epsilon^{k_7k_8k_9}_{k_1k_2k_3}} e^{-\tau_2 \epsilon_{k_4k_7}} \epsilon$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{02}_{k_7k_4} \Omega^{04}_{k_8k_9k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_7}\ \epsilon_{k_5k_6k_8k_9}} \tag{724}$$



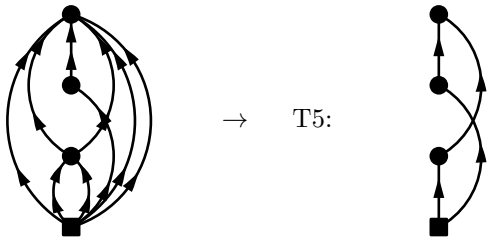
$$\text{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{725}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1k_2k_3}$$
$$a_2 = \epsilon_{k_4k_7}$$
$$a_3 = \epsilon_{k_5k_6k_8k_9}$$

Diagram 361:

$$\text{PO3.361} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{11}_{k_9k_3} \Omega^{06}_{k_9k_7k_8k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_7k_8}_{k_1k_2}} e^{-\tau_2 \epsilon^{k_9}_{k_3}} e^{-\tau_3}$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{11}_{k_9k_3} \Omega^{06}_{k_9k_7k_8k_4k_5k_6} \left[\frac{1}{\epsilon_{k_1k_2k_4k_5k_6k_9}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_7k_8k_9}} + \frac{}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon} \right. \tag{726}$$



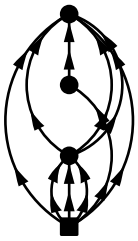
$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{727}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2}$$
$$a_2 = \epsilon^{k_9}_{k_3}$$
$$a_3 = \epsilon_{k_4k_5k_6k_7k_8k_9}$$

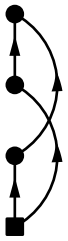
Diagram 362:

$$\text{PO3.362} = \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{11}_{k_{10}k_4} \Omega^{06}_{k_{10}k_7k_8k_9k_5k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_7k_8k_9}_{k_1k_2k_3}} e^{-\tau_2}$$

$$= \frac{-(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{33}_{k_7k_8k_9k_1k_2k_3} \Omega^{11}_{k_{10}k_4} \Omega^{06}_{k_{10}k_7k_8k_9k_5k_6} \left[\frac{1}{\epsilon_{k_1k_2k_3k_5k_6k_{10}}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_5k_6k_7k_8k_9k_{10}}} + \frac{}{\epsilon_{k_1k_2k_3k} \right. \tag{728}$$



$\rightarrow$ T5:

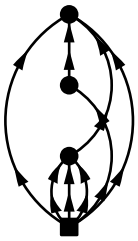


$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{729}$$

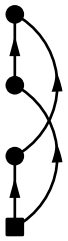
$$\begin{aligned} a_1 &= \epsilon^{k_7 k_8 k_9}_{k_1 k_2 k_3} \\ a_2 &= \epsilon^{k_{10}}_{k_4} \\ a_3 &= \epsilon_{k_5 k_6 k_7 k_8 k_9 k_{10}} \end{aligned}$$

Diagram 363:

$$\begin{aligned} \text{PO3.363} &= \lim_{\tau\to\infty} \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{13}_{k_7 k_1 k_2 k_3} \Omega^{11}_{k_8 k_4} \Omega^{04}_{k_8 k_7 k_5 k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_7}_{k_1 k_2 k_3}} e^{-\tau_2 \epsilon^{k_8}_{k_4}} e^{-\tau_3 \epsilon_{k_5} \\ &= \frac{-(-1)^3}{(2!)(3!)} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{13}_{k_7 k_1 k_2 k_3} \Omega^{11}_{k_8 k_4} \Omega^{04}_{k_8 k_7 k_5 k_6} \left[\frac{1}{\epsilon_{k_1 k_2 k_3 k_5 k_6 k_8}\ \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_4 k_5 k_6 k_7}} \right. \end{aligned} \tag{730}$$



$\rightarrow$ T5:

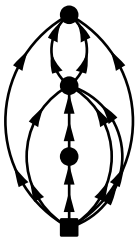


$$\text{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{731}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7}_{k_1 k_2 k_3} \\ a_2 &= \epsilon^{k_8}_{k_4} \\ a_3 &= \epsilon_{k_5 k_6 k_7 k_8} \end{aligned}$$

Diagram 364:

$$\begin{aligned} \text{PO3.364} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{11}_{k_7 k_1} \Omega^{24}_{k_8 k_9 k_7 k_2 k_3 k_4} \Omega^{04}_{k_8 k_9 k_5 k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_7}_{k_1}} e^{-\tau_2 \epsilon^{k_8 k_9}_{k_2 k_3 k_4 k_7}} \epsilon \\ &= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{60}_{k_1 k_2 k_3 k_4 k_5 k_6} \Omega^{11}_{k_7 k_1} \Omega^{24}_{k_8 k_9 k_7 k_2 k_3 k_4} \Omega^{04}_{k_8 k_9 k_5 k_6}}{\epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}\ \epsilon_{k_2 k_3 k_4 k_7 k_5 k_6}\ \epsilon_{k_5 k_6 k_8 k_9}} \end{aligned} \tag{732}$$



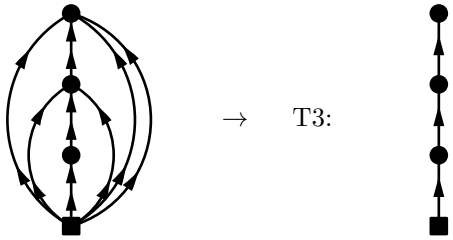
$\rightarrow$ T3:

$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{733}$$

$$a_1 = \epsilon^{k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8 k_9}_{k_2 k_3 k_4 k_7}$$
$$a_3 = \epsilon_{k_5 k_6 k_8 k_9}$$

Diagram 365:

$$\text{PO3.365} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{11}_{k_7k_1} \Omega^{13}_{k_8k_7k_2k_3} \Omega^{04}_{k_8k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_7}_{k_1}} e^{-\tau_2 \epsilon^{k_8}_{k_2k_3k_7}} e^{-\tau_3 \epsilon_{k_4 k}}$$
$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{11}_{k_7k_1} \Omega^{13}_{k_8k_7k_2k_3} \Omega^{04}_{k_8k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_7k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_8}} \tag{734}$$

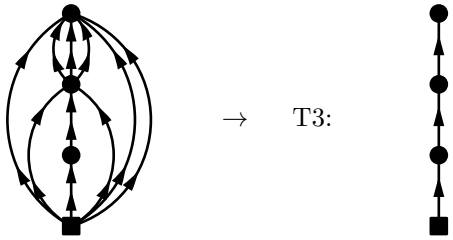


$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{735}$$

$$a_1 = \epsilon^{k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8}_{k_2k_3k_7}$$
$$a_3 = \epsilon_{k_4k_5k_6k_8}$$

Diagram 366:

$$\text{PO3.366} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{11}_{k_7k_1} \Omega^{33}_{k_8k_9k_{10}k_7k_2k_3} \Omega^{06}_{k_8k_9k_{10}k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_7}_{k_1}} e^{-\tau_2 \epsilon^{k_8 k}_{k_2 k}}$$
$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{11}_{k_7k_1} \Omega^{33}_{k_8k_9k_{10}k_7k_2k_3} \Omega^{06}_{k_8k_9k_{10}k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_2k_3k_7k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_8k_9k_{10}}} \tag{736}$$

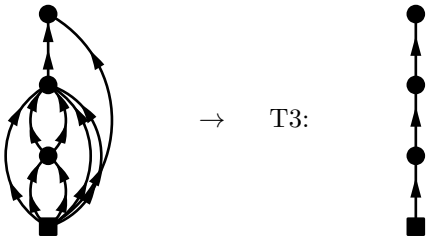


$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{737}$$

$$a_1 = \epsilon^{k_7}_{k_1}$$
$$a_2 = \epsilon^{k_8k_9k_{10}}_{k_2k_3k_7}$$
$$a_3 = \epsilon_{k_4k_5k_6k_8k_9k_{10}}$$

Diagram 367:

$$\text{PO3.367} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{15}_{k_9k_7k_8k_3k_4k_5} \Omega^{02}_{k_9k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_7k_8}_{k_1k_2}} e^{-\tau_2 \epsilon^{k_9}_{k_3k_4k_5k}}$$
$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{15}_{k_9k_7k_8k_3k_4k_5} \Omega^{02}_{k_9k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_5k_7k_8k_6}\ \epsilon_{k_6k_9}} \tag{738}$$

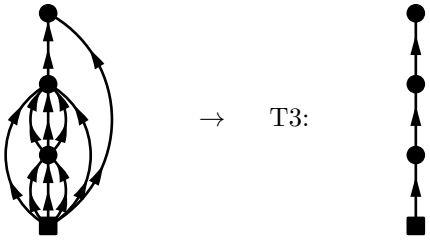


$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{739}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2}$$
$$a_2 = \epsilon^{k_9}_{k_3k_4k_5k_7k_8}$$
$$a_3 = \epsilon_{k_6k_9}$$

Diagram 368:

$$\text{PO3.368} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(3!)^2}\sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{33}_{k_7k_8k_9k_1k_2k_3}\Omega^{15}_{k_{10}k_7k_8k_9k_4k_5}\Omega^{02}_{k_{10}k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7k_8k_9}_{k_1k_2k_3}}e^{-\tau_2}$$
$$= \frac{(-1)^3}{(2!)(3!)^2}\sum_{k_i}\frac{O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{33}_{k_7k_8k_9k_1k_2k_3}\Omega^{15}_{k_{10}k_7k_8k_9k_4k_5}\Omega^{02}_{k_{10}k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_7k_8k_9k_6}\ \epsilon_{k_6k_{10}}} \tag{740}$$

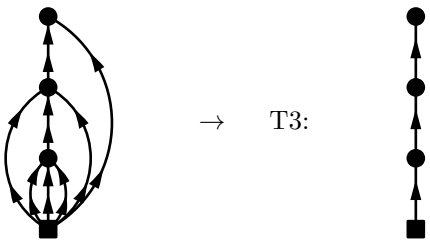


$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{741}$$

$$a_1 = \epsilon^{k_7k_8k_9}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_{10}}_{k_4k_5k_7k_8k_9}$$
$$a_3 = \epsilon_{k_6k_{10}}$$

Diagram 369:

$$\text{PO3.369} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)(3!)}\sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{13}_{k_7k_1k_2k_3}\Omega^{13}_{k_8k_7k_4k_5}\Omega^{02}_{k_8k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7}_{k_1k_2k_3}}e^{-\tau_2\epsilon^{k_8}_{k_4k_5k_7}}e^{-\tau_3}$$
$$= \frac{(-1)^3}{(2!)(3!)}\sum_{k_i}\frac{O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{13}_{k_7k_1k_2k_3}\Omega^{13}_{k_8k_7k_4k_5}\Omega^{02}_{k_8k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_7k_6}\ \epsilon_{k_6k_8}} \tag{742}$$



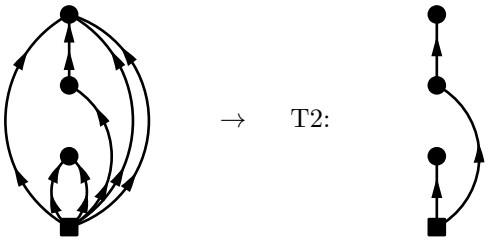
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{743}$$

$$a_1 = \epsilon^{k_7}_{k_1k_2k_3}$$
$$a_2 = \epsilon^{k_8}_{k_4k_5k_7}$$
$$a_3 = \epsilon_{k_6k_8}$$

Diagram 370:

$$\mathrm{PO3.370} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{02}_{k_1k_2} \Omega^{11}_{k_7k_3} \Omega^{04}_{k_7k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1k_2}} e^{-\tau_2\epsilon^{k_7}_{k_3}} e^{-\tau_3\epsilon_{k_4k_5k_6k_7}}$$

$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{02}_{k_1k_2} \Omega^{11}_{k_7k_3} \Omega^{04}_{k_7k_4k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_7}} \tag{744}$$



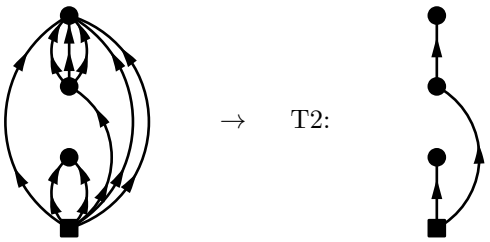
$$\mathrm{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{745}$$

$$a_1 = \epsilon_{k_1k_2}$$
$$a_2 = \epsilon^{k_7}_{k_3}$$
$$a_3 = \epsilon_{k_4k_5k_6k_7}$$

Diagram 371:

$$\mathrm{PO3.371} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{02}_{k_1k_2} \Omega^{31}_{k_7k_8k_9k_3} \Omega^{06}_{k_7k_8k_9k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1k_2}} e^{-\tau_2\epsilon^{k_7k_8k_9}_{k_3}} e^{-\tau_3\epsilon_{k_4k_5k_6}}$$

$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{02}_{k_1k_2} \Omega^{31}_{k_7k_8k_9k_3} \Omega^{06}_{k_7k_8k_9k_4k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_4k_5k_6k_7k_8k_9}} \tag{746}$$



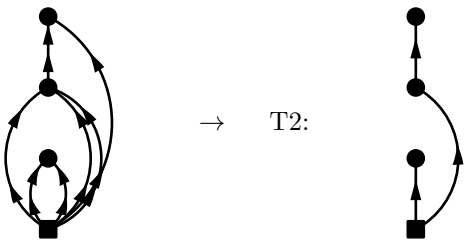
$$\mathrm{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{747}$$

$$a_1 = \epsilon_{k_1k_2}$$
$$a_2 = \epsilon^{k_7k_8k_9}_{k_3}$$
$$a_3 = \epsilon_{k_4k_5k_6k_7k_8k_9}$$

Diagram 372:

$$\mathrm{PO3.372} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{02}_{k_1k_2} \Omega^{13}_{k_7k_3k_4k_5} \Omega^{02}_{k_7k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1k_2}} e^{-\tau_2\epsilon^{k_7}_{k_3k_4k_5}} e^{-\tau_3\epsilon_{k_6k_7}}$$

$$= \frac{(-1)^3}{(2!)(3!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{02}_{k_1k_2} \Omega^{13}_{k_7k_3k_4k_5} \Omega^{02}_{k_7k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_6k_7}} \tag{748}$$

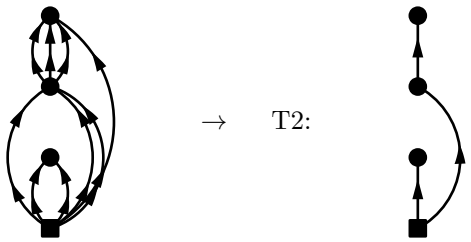


$$\mathrm{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{749}$$

$$a_1 = \epsilon_{k_1k_2}$$
$$a_2 = \epsilon^{k_7}_{k_3k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7}$$

Diagram 373:

$$\mathrm{PO3.373} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{02}_{k_1k_2} \Omega^{33}_{k_7k_8k_9k_3k_4k_5} \Omega^{04}_{k_7k_8k_9k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1k_2}} e^{-\tau_2\epsilon^{k_7k_8k_9}_{k_3k_4k_5}} e^{-\tau_3\epsilon_{k_6k_7k_8}}$$
$$= \frac{(-1)^3}{(2!)(3!)^2} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{02}_{k_1k_2} \Omega^{33}_{k_7k_8k_9k_3k_4k_5} \Omega^{04}_{k_7k_8k_9k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_6k_7k_8k_9}} \tag{750}$$

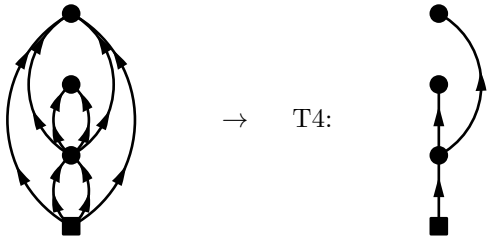


$$\mathrm{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{751}$$

$$a_1 = \epsilon_{k_1k_2}$$
$$a_2 = \epsilon^{k_7k_8k_9}_{k_3k_4k_5}$$
$$a_3 = \epsilon_{k_6k_7k_8k_9}$$

Diagram 374:

$$\mathrm{PO3.374} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^4} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{02}_{k_5k_6} \Omega^{04}_{k_7k_8k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1) e^{-\tau_1\epsilon^{k_5k_6k_7k_8}_{k_1k_2}} e^{-\tau_2\epsilon_{k_5k_6}} e^{-\tau_3\epsilon}$$
$$= \frac{(-1)^3}{(2!)^4} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{02}_{k_5k_6} \Omega^{04}_{k_7k_8k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}\ \epsilon_{k_3k_4k_7k_8}} \tag{752}$$



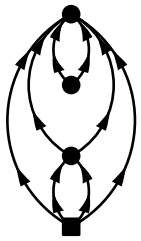
$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{753}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}_{k_1k_2}$$
$$a_2 = \epsilon_{k_5k_6}$$
$$a_3 = \epsilon_{k_3k_4k_7k_8}$$

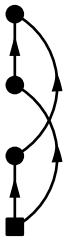
Diagram 375:

$$\mathrm{PO3.375} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^4} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{20}_{k_7k_8} \Omega^{06}_{k_7k_8k_5k_6k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}_{k_1k_2}} e^{-\tau_2\epsilon^{k_7k_8}} e^{-\tau_3\epsilon_{k_3k_4}}$$

$$= \frac{(-1)^3}{(2!)^4} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{20}_{k_7k_8} \Omega^{06}_{k_7k_8k_5k_6k_3k_4} \left[\frac{1}{\epsilon_{k_1k_2k_3k_4k_7k_8}\ \epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6k_7k_8}} + \frac{1}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_3k_4k} \right. \tag{754}$$



$\rightarrow$ T5:



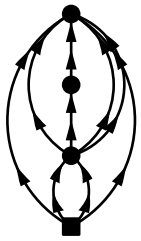
$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{755}$$

$$a_1 = \epsilon^{k_5k_6}_{k_1k_2}$$
$$a_2 = \epsilon^{k_7k_8}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6k_7k_8}$$

Diagram 376:

$$\mathrm{PO3.376} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{11}_{k_9k_5} \Omega^{06}_{k_9k_6k_7k_8k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6k_7}_{k_1k_2}}$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{11}_{k_9k_5} \Omega^{06}_{k_9k_6k_7k_8k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_3k_4k_6k_7k_8}\ \epsilon_{k_3k_4k_6k_7k_8k_9}} \tag{756}$$



$\rightarrow$ T3:

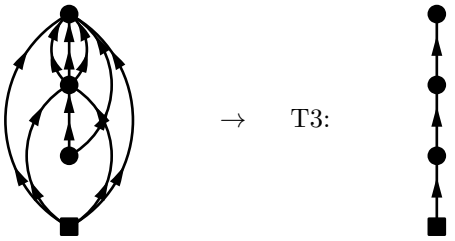
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{757}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}_{k_1k_2}$$
$$a_2 = \epsilon^{k_9}_{k_5}$$
$$a_3 = \epsilon_{k_3k_4k_6k_7k_8k_9}$$

Diagram 377:

$$\mathrm{PO3.377} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{20}_{k_5k_6} \Omega^{33}_{k_7k_8k_9k_5k_1k_2} \Omega^{06}_{k_7k_8k_9k_6k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}} e$$

$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{20}_{k_5k_6} \Omega^{33}_{k_7k_8k_9k_5k_1k_2} \Omega^{06}_{k_7k_8k_9k_6k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_5k_3k_4k_6}\ \epsilon_{k_3k_4k_6k_7k_8k_9}} \tag{758}$$

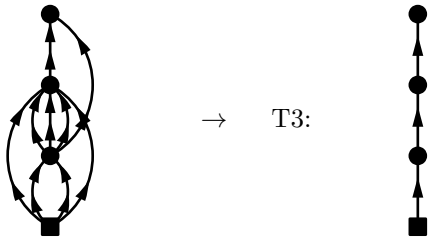


$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{759}$$

$$a_1 = \epsilon^{k_5 k_6}$$
$$a_2 = \epsilon^{k_7 k_8 k_9}_{k_1 k_2 k_5}$$
$$a_3 = \epsilon_{k_3 k_4 k_6 k_7 k_8 k_9}$$

Diagram 378:

$$\text{PO3.378} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{15}_{k_9k_5k_6k_7k_3k_4} \Omega^{02}_{k_9k_8} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5k_6k_7}_{k_1k_2}}$$
$$= \frac{(-1)^3}{(2!)^2(3!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{42}_{k_5k_6k_7k_8k_1k_2} \Omega^{15}_{k_9k_5k_6k_7k_3k_4} \Omega^{02}_{k_9k_8}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6k_7k_8}\ \epsilon_{k_8k_9}} \tag{760}$$

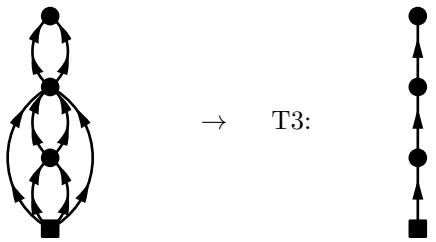


$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{761}$$

$$a_1 = \epsilon^{k_5k_6k_7k_8}_{k_1k_2}$$
$$a_2 = \epsilon^{k_9}_{k_3k_4k_5k_6k_7}$$
$$a_3 = \epsilon_{k_8k_9}$$

Diagram 379:

$$\text{PO3.379} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^4} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{24}_{k_7k_8k_5k_6k_3k_4} \Omega^{02}_{k_7k_8} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_5k_6}_{k_1k_2}} e^{-\tau_2 \epsilon^{k_7k_8}_{k_3k_4k_5k_6}} e^{-\tau_3 \epsilon}$$
$$= \frac{(-1)^3}{(2!)^4} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{22}_{k_5k_6k_1k_2} \Omega^{24}_{k_7k_8k_5k_6k_3k_4} \Omega^{02}_{k_7k_8}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_7k_8}} \tag{762}$$



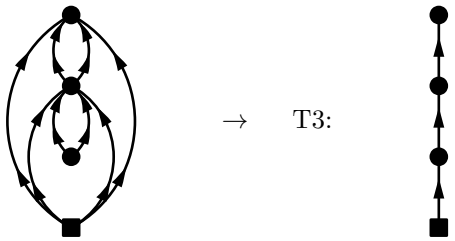
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{763}$$

$$a_1 = \epsilon^{k_5k_6}_{k_1k_2}$$
$$a_2 = \epsilon^{k_7k_8}_{k_3k_4k_5k_6}$$
$$a_3 = \epsilon_{k_7k_8}$$

Diagram 380:

$$\text{PO3.380} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^4} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{20}_{k_5k_6} \Omega^{24}_{k_7k_8k_5k_6k_1k_2} \Omega^{04}_{k_7k_8k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_5k_6}} e^{-\tau_2\epsilon^{k_7k_8}_{k_1k_2k_5k_6}} e^{-\tau_3\epsilon$$

$$= \frac{(-1)^3}{(2!)^4} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{20}_{k_5k_6} \Omega^{24}_{k_7k_8k_5k_6k_1k_2} \Omega^{04}_{k_7k_8k_3k_4}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_1k_2k_5k_6k_3k_4}\ \epsilon_{k_3k_4k_7k_8}} \tag{764}$$



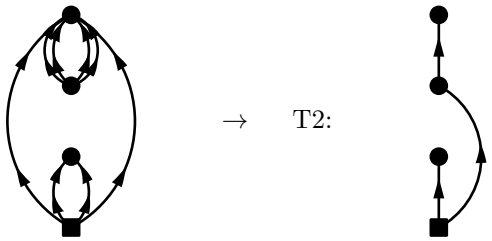
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{765}$$

$$a_1 = \epsilon^{k_5k_6}$$
$$a_2 = \epsilon^{k_7k_8}_{k_1k_2k_5k_6}$$
$$a_3 = \epsilon_{k_3k_4k_7k_8}$$

Diagram 381:

$$\text{PO3.381} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{02}_{k_1k_2} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{06}_{k_5k_6k_7k_8k_3k_4} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1k_2}} e^{-\tau_2\epsilon^{k_5k_6k_7k_8}} e^{-\tau_3\epsilon_{k_3k_4k_5k_6}}$$

$$= \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{02}_{k_1k_2} \Omega^{40}_{k_5k_6k_7k_8} \Omega^{06}_{k_5k_6k_7k_8k_3k_4}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4}\ \epsilon_{k_3k_4k_5k_6k_7k_8}} \tag{766}$$



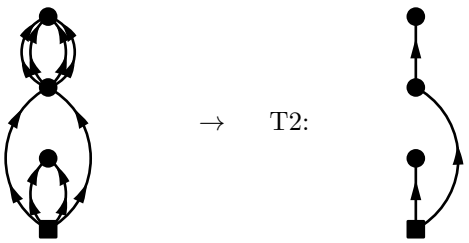
$$\text{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{767}$$

$$a_1 = \epsilon_{k_1k_2}$$
$$a_2 = \epsilon^{k_5k_6k_7k_8}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6k_7k_8}$$

Diagram 382:

$$\text{PO3.382} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} O^{40}_{k_1k_2k_3k_4} \Omega^{02}_{k_1k_2} \Omega^{42}_{k_5k_6k_7k_8k_3k_4} \Omega^{04}_{k_5k_6k_7k_8} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1k_2}} e^{-\tau_2\epsilon^{k_5k_6k_7k_8}_{k_3k_4}} e^{-\tau_3\epsilon_{k_5k_6k_7k_8}}$$

$$= \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} \frac{O^{40}_{k_1k_2k_3k_4} \Omega^{02}_{k_1k_2} \Omega^{42}_{k_5k_6k_7k_8k_3k_4} \Omega^{04}_{k_5k_6k_7k_8}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4}\ \epsilon_{k_5k_6k_7k_8}} \tag{768}$$

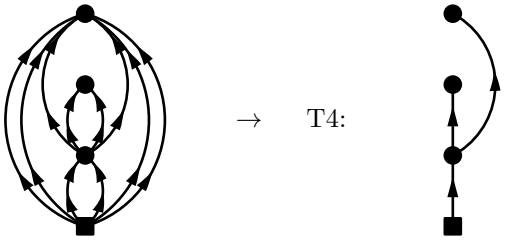


$$\mathrm{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{769}$$

$$a_1 = \epsilon_{k_1k_2}$$
$$a_2 = \epsilon^{k_5k_6k_7k_8}_{k_3k_4}$$
$$a_3 = \epsilon_{k_5k_6k_7k_8}$$

Diagram 383:

$$\mathrm{PO3.383} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)^3(4!)}\sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{42}_{k_7k_8k_9k_{10}k_1k_2}\Omega^{02}_{k_7k_8}\Omega^{06}_{k_9k_{10}k_3k_4k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)e^{-\tau_1\epsilon^{k_7k_8k_9k_{10}}_{k_1k_2}}e^{-}$$
$$= \frac{(-1)^3}{(2!)^3(4!)}\sum_{k_i}\frac{O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{42}_{k_7k_8k_9k_{10}k_1k_2}\Omega^{02}_{k_7k_8}\Omega^{06}_{k_9k_{10}k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_8}\ \epsilon_{k_3k_4k_5k_6k_9k_{10}}} \tag{770}$$

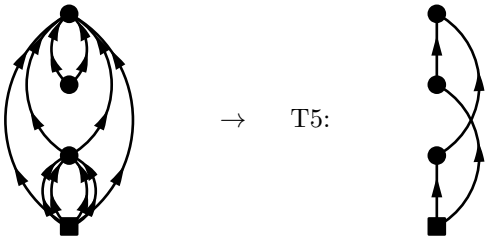


$$\mathrm{T4} = \frac{1}{(a_1+a_2+a_3)a_2a_3} \tag{771}$$

$$a_1 = \epsilon^{k_7k_8k_9k_{10}}_{k_1k_2}$$
$$a_2 = \epsilon_{k_7k_8}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6k_9k_{10}}$$

Diagram 384:

$$\mathrm{PO3.384} = \lim_{\tau\to\infty}\frac{(-1)^3}{(2!)^3(4!)}\sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{24}_{k_7k_8k_1k_2k_3k_4}\Omega^{20}_{k_9k_{10}}\Omega^{06}_{k_9k_{10}k_7k_8k_5k_6}\int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2)e^{-\tau_1\epsilon^{k_7k_8}_{k_1k_2k_3k_4}}e^{-}$$
$$= \frac{(-1)^3}{(2!)^3(4!)}\sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6}\Omega^{24}_{k_7k_8k_1k_2k_3k_4}\Omega^{20}_{k_9k_{10}}\Omega^{06}_{k_9k_{10}k_7k_8k_5k_6}\left[\frac{1}{\epsilon_{k_1k_2k_3k_4k_5k_6k_9k_{10}}\ \epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_5k_6k_7k_8k_9k_{10}}} + \frac{}{\epsilon_{k_1k} \right. \tag{772}$$



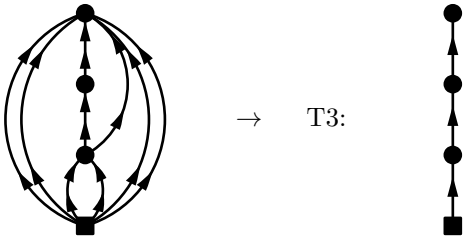
$$\mathrm{T5} = \frac{1}{(a_1+a_3)(a_2+a_1+a_3)a_3} + \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{773}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_9k_{10}}$$
$$a_3 = \epsilon_{k_5k_6k_7k_8k_9k_{10}}$$

Diagram 385:

$$\text{PO3.385} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{11}_{k_9k_7} \Omega^{06}_{k_9k_8k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7k_8}_{k_1k_2}} e^-$$

$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{11}_{k_9k_7} \Omega^{06}_{k_9k_8k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_3k_4k_5k_6k_8}\ \epsilon_{k_3k_4k_5k_6k_8k_9}} \tag{774}$$



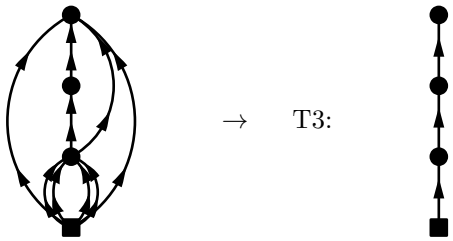
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{775}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2}$$
$$a_2 = \epsilon^{k_9}_{k_7}$$
$$a_3 = \epsilon_{k_3k_4k_5k_6k_8k_9}$$

Diagram 386:

$$\text{PO3.386} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{11}_{k_9k_7} \Omega^{04}_{k_9k_8k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7k_8}_{k_1k_2k_3k}}$$

$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{11}_{k_9k_7} \Omega^{04}_{k_9k_8k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_7k_5k_6k_8}\ \epsilon_{k_5k_6k_8k_9}} \tag{776}$$



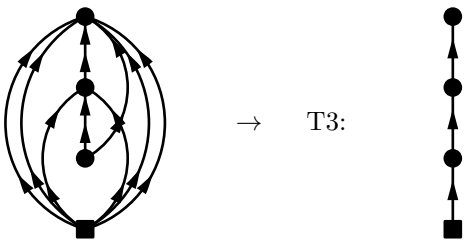
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{777}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_9}_{k_7}$$
$$a_3 = \epsilon_{k_5k_6k_8k_9}$$

Diagram 387:

$$\text{PO3.387} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{20}_{k_7k_8} \Omega^{13}_{k_9k_7k_1k_2} \Omega^{06}_{k_9k_8k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7k_8}} e^-$$

$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{20}_{k_7k_8} \Omega^{13}_{k_9k_7k_1k_2} \Omega^{06}_{k_9k_8k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_2k_7k_3k_4k_5k_6k_8}\ \epsilon_{k_3k_4k_5k_6k_8k_9}} \tag{778}$$

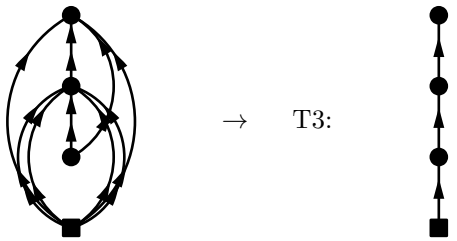


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{779}$$

$$a_1 = \epsilon^{k_7 k_8}$$
$$a_2 = \epsilon^{k_9}_{k_1 k_2 k_7}$$
$$a_3 = \epsilon_{k_3 k_4 k_5 k_6 k_8 k_9}$$

Diagram 388:

$$\mathrm{PO3.388} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{20}_{k_7k_8} \Omega^{15}_{k_9k_7k_1k_2k_3k_4} \Omega^{04}_{k_9k_8k_5k_6} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_7k_8}} e^{-}$$
$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{20}_{k_7k_8} \Omega^{15}_{k_9k_7k_1k_2k_3k_4} \Omega^{04}_{k_9k_8k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_2k_3k_4k_7k_5k_6k_8}\ \epsilon_{k_5k_6k_8k_9}} \tag{780}$$



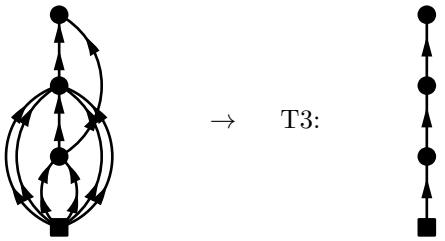
$\rightarrow$ T3:

$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{781}$$

$$a_1 = \epsilon^{k_7 k_8}$$
$$a_2 = \epsilon^{k_9}_{k_1 k_2 k_3 k_4 k_7}$$
$$a_3 = \epsilon_{k_5 k_6 k_8 k_9}$$

Diagram 389:

$$\mathrm{PO3.389} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{15}_{k_9k_7k_3k_4k_5k_6} \Omega^{02}_{k_9k_8} \int_0^\tau \mathrm{d}\tau_1 \mathrm{d}\tau_2 \mathrm{d}\tau_3 \theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1 \epsilon^{k_7k_8}_{k_1k_2}} e^{-}$$
$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{22}_{k_7k_8k_1k_2} \Omega^{15}_{k_9k_7k_3k_4k_5k_6} \Omega^{02}_{k_9k_8}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_5k_6k_7k_8}\ \epsilon_{k_8k_9}} \tag{782}$$



$\rightarrow$ T3:

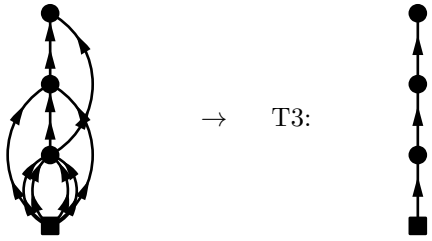
$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{783}$$

$$a_1 = \epsilon^{k_7 k_8}_{k_1 k_2}$$
$$a_2 = \epsilon^{k_9}_{k_3 k_4 k_5 k_6 k_7}$$
$$a_3 = \epsilon_{k_8 k_9}$$

Diagram 390:

$$\text{PO3.390} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{13}_{k_9k_7k_5k_6} \Omega^{02}_{k_9k_8} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7k_8}_{k_1k_2k_3k}}$$

$$= \frac{(-1)^3}{(2!)(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{13}_{k_9k_7k_5k_6} \Omega^{02}_{k_9k_8}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_5k_6k_7k_8}\ \epsilon_{k_8k_9}} \tag{784}$$



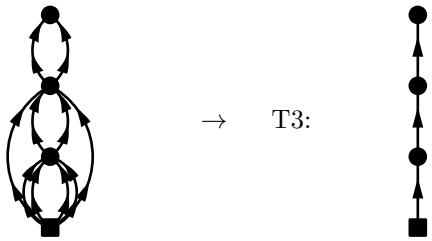
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{785}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_9}_{k_5k_6k_7}$$
$$a_3 = \epsilon_{k_8k_9}$$

Diagram 391:

$$\text{PO3.391} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{24}_{k_9k_{10}k_7k_8k_5k_6} \Omega^{02}_{k_9k_{10}} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7k_8}_{k_1k_2k_3k_4}} e^{-}$$

$$= \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{24}_{k_7k_8k_1k_2k_3k_4} \Omega^{24}_{k_9k_{10}k_7k_8k_5k_6} \Omega^{02}_{k_9k_{10}}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_5k_6k_7k_8}\ \epsilon_{k_9k_{10}}} \tag{786}$$



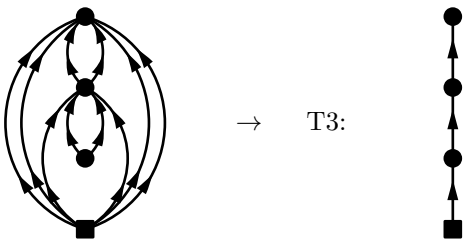
$$\text{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{787}$$

$$a_1 = \epsilon^{k_7k_8}_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_9k_{10}}_{k_5k_6k_7k_8}$$
$$a_3 = \epsilon_{k_9k_{10}}$$

Diagram 392:

$$\text{PO3.392} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{20}_{k_7k_8} \Omega^{24}_{k_9k_{10}k_7k_8k_1k_2} \Omega^{06}_{k_9k_{10}k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_2-\tau_1)\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon^{k_7k_8}} e^{-\tau_2\epsilon^{k}_{k}}$$

$$= \frac{(-1)^3}{(2!)^3(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{20}_{k_7k_8} \Omega^{24}_{k_9k_{10}k_7k_8k_1k_2} \Omega^{06}_{k_9k_{10}k_3k_4k_5k_6}}{\epsilon_{k_1k_2k_3k_4k_5k_6}\ \epsilon_{k_1k_2k_7k_8k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_5k_6k_9k_{10}}} \tag{788}$$

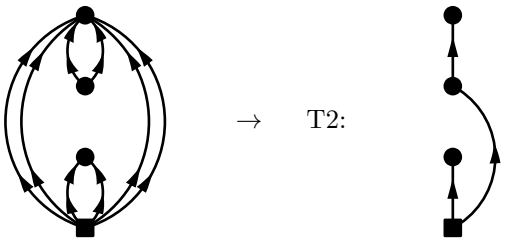


$$\mathrm{T3} = \frac{1}{(a_1+a_2+a_3)(a_2+a_3)a_3} \tag{789}$$

$$\begin{aligned} a_1 &= \epsilon^{k_7k_8} \\ a_2 &= \epsilon^{k_9k_{10}}_{k_1k_2k_7k_8} \\ a_3 &= \epsilon_{k_3k_4k_5k_6k_9k_{10}} \end{aligned}$$

Diagram 393:

$$\begin{aligned} \mathrm{PO3.393} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{02}_{k_1k_2} \Omega^{20}_{k_7k_8} \Omega^{06}_{k_7k_8k_3k_4k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1k_2}} e^{-\tau_2\epsilon^{k_7k_8}} e^{-\tau_3\epsilon_{k_3k_4k_5k_6k_7k_8}} \\ &= \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{02}_{k_1k_2} \Omega^{20}_{k_7k_8} \Omega^{06}_{k_7k_8k_3k_4k_5k_6}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_3k_4k_5k_6k_7k_8}} \end{aligned} \tag{790}$$

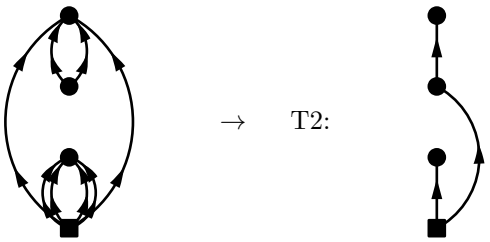


$$\mathrm{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{791}$$

$$\begin{aligned} a_1 &= \epsilon_{k_1k_2} \\ a_2 &= \epsilon^{k_7k_8} \\ a_3 &= \epsilon_{k_3k_4k_5k_6k_7k_8} \end{aligned}$$

Diagram 394:

$$\begin{aligned} \mathrm{PO3.394} &= \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{04}_{k_1k_2k_3k_4} \Omega^{20}_{k_7k_8} \Omega^{04}_{k_7k_8k_5k_6} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1k_2k_3k_4}} e^{-\tau_2\epsilon^{k_7k_8}} e^{-\tau_3\epsilon_{k_5k_6k_7k_8}} \\ &= \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{04}_{k_1k_2k_3k_4} \Omega^{20}_{k_7k_8} \Omega^{04}_{k_7k_8k_5k_6}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}\ \epsilon_{k_5k_6k_7k_8}} \end{aligned} \tag{792}$$



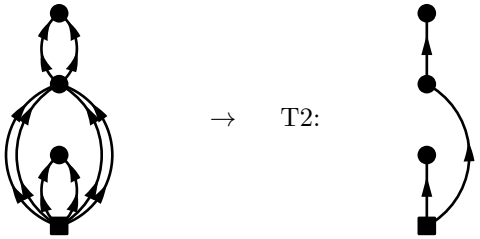
$$\mathrm{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{793}$$

$$\begin{aligned} a_1 &= \epsilon_{k_1k_2k_3k_4} \\ a_2 &= \epsilon^{k_7k_8} \\ a_3 &= \epsilon_{k_5k_6k_7k_8} \end{aligned}$$

Diagram 395:

$$\text{PO3.395} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{02}_{k_1k_2} \Omega^{24}_{k_7k_8k_3k_4k_5k_6} \Omega^{02}_{k_7k_8} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1k_2}} e^{-\tau_2\epsilon^{k_7k_8}_{k_3k_4k_5k_6}} e^{-\tau_3\epsilon_{k_7k_8}}$$

$$= \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{02}_{k_1k_2} \Omega^{24}_{k_7k_8k_3k_4k_5k_6} \Omega^{02}_{k_7k_8}}{\epsilon_{k_1k_2}\ \epsilon_{k_3k_4k_5k_6}\ \epsilon_{k_7k_8}} \tag{794}$$



$\to$ T2:

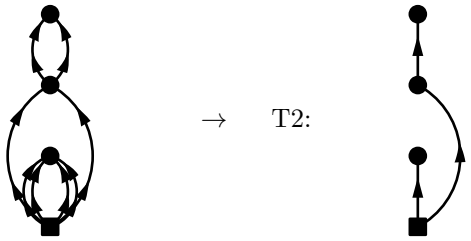
$$\text{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{795}$$

$$a_1 = \epsilon_{k_1k_2}$$
$$a_2 = \epsilon^{k_7k_8}_{k_3k_4k_5k_6}$$
$$a_3 = \epsilon_{k_7k_8}$$

Diagram 396:

$$\text{PO3.396} = \lim_{\tau\to\infty} \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{04}_{k_1k_2k_3k_4} \Omega^{22}_{k_7k_8k_5k_6} \Omega^{02}_{k_7k_8} \int_0^\tau \mathrm{d}\tau_1\mathrm{d}\tau_2\mathrm{d}\tau_3\theta(\tau_3-\tau_2) e^{-\tau_1\epsilon_{k_1k_2k_3k_4}} e^{-\tau_2\epsilon^{k_7k_8}_{k_5k_6}} e^{-\tau_3\epsilon_{k_7k_8}}$$

$$= \frac{(-1)^3}{(2!)^2(4!)} \sum_{k_i} \frac{O^{60}_{k_1k_2k_3k_4k_5k_6} \Omega^{04}_{k_1k_2k_3k_4} \Omega^{22}_{k_7k_8k_5k_6} \Omega^{02}_{k_7k_8}}{\epsilon_{k_1k_2k_3k_4}\ \epsilon_{k_5k_6}\ \epsilon_{k_7k_8}} \tag{796}$$



$\to$ T2:

$$\text{T2} = \frac{1}{a_1(a_2+a_3)a_3} \tag{797}$$

$$a_1 = \epsilon_{k_1k_2k_3k_4}$$
$$a_2 = \epsilon^{k_7k_8}_{k_5k_6}$$
$$a_3 = \epsilon_{k_7k_8}$$