

# Diagrams and algebraic expressions at order 4 in BMBPT

The ADG Dev Team

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Valid diagrams: 568  
2N valid diagrams: 568  
2N canonical diagrams for the energy: 82  
2N canonical diagrams for a generic operator only: 48  
2N non-canonical diagrams: 438

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## 1 Time-structure diagrams

### 1.1 Tree diagrams

Time-structure diagram T1:



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1)$$

Resummation power: 1

Number of related Feynman diagrams: 205.

Related Feynman diagrams: 568, 567, 566, 565, 564, 562, 561, 560, 559, 558, 555, 554, 553, 552, 551, 548, 547, 544, 542, 540, 536, 533, 530, 526, 525, 524, 523, 522, 519, 517, 516, 515, 509, 508, 504, 503, 502, 501, 491, 488, 481, 476, 475, 464, 460, 458, 452, 451, 450, 449, 447, 446, 445, 444, 434, 430, 429, 428, 416, 412, 410, 407, 405, 403, 398, 396, 394, 393, 392, 388, 385, 382, 380, 379, 378, 375, 373, 367, 363, 362, 361, 359, 358, 357, 350, 347, 346, 340, 338, 332, 331, 330, 329, 328, 313, 308, 302, 296, 293, 280, 279, 278, 276, 275, 263, 262, 254, 252, 251, 250, 246, 245, 242, 240, 219, 214, 209, 206, 201, 200, 199, 192, 187, 182, 173, 172, 168, 166, 165, 161, 159, 151, 147, 146, 144, 141, 139, 137, 135, 130, 129, 128, 127, 126, 125, 121, 119, 118, 117, 116, 115, 114, 113, 112, 111, 108, 106, 105, 104, 103, 102, 96, 94, 92, 91, 88, 87, 86, 82, 81, 80, 79, 76, 75, 74, 73, 70, 69, 68, 67, 66, 65, 64, 62, 59, 54, 53, 51, 50, 47, 46, 45, 39, 38, 37, 36, 32, 26, 25, 23, 17, 15, 11, 6, 3.

**Time-structure diagram T2:**



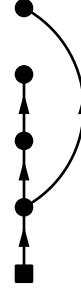
$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (2)$$

Resummation power: 2

Number of related Feynman diagrams: 44.

Related Feynman diagrams: 563, 550, 541, 537, 531, 527, 518, 477, 474, 462, 448, 420, 411, 387, 381, 377, 374, 368, 364, 360, 292, 261, 249, 247, 244, 215, 191, 188, 175, 171, 160, 149, 140, 136, 90, 85, 84, 35, 34, 31, 13, 10, 5, 2.

**Time-structure diagram T3:**



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (3)$$

Resummation power: 3

Number of related Feynman diagrams: 66.

Related Feynman diagrams: 549, 538, 535, 490, 480, 479, 461, 433, 423, 422, 415, 414, 404, 386, 384, 383, 376, 372, 370, 369, 366, 341, 314, 311, 309, 303, 299, 295, 264, 260, 253, 248, 243, 241, 221, 217, 208, 196, 195, 194, 190, 189, 186, 185, 184, 181, 179, 178, 177, 167, 163, 162, 158, 150, 148, 143, 142, 89, 83, 33, 30, 14, 12, 9, 4, 1.

**Time-structure diagram T4:**



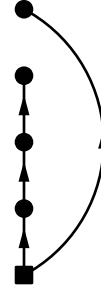
$$T4 = \frac{1}{(a_1 + a_2)a_2(a_3 + a_4)a_4} \quad (4)$$

Resummation power: 6

Number of related Feynman diagrams: 10.

Related Feynman diagrams: 546, 493, 486, 471, 467, 333, 283, 282, 211, 48.

**Time-structure diagram T5:**



$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (5)$$

Resummation power: 4

Number of related Feynman diagrams: 19.

Related Feynman diagrams: 534, 532, 529, 465, 463, 459, 426, 424, 418, 413, 409, 342, 339, 304, 301, 297, 222, 218, 213.

**Time-structure diagram T6:**




$$T6 = \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2a_3a_4} \quad (6)$$

Resummation power: 6

Number of related Feynman diagrams: 4.

Related Feynman diagrams: 478, 298, 193, 176.

**Time-structure diagram T7:**



$$T7 = \frac{1}{(a_1 + a_2 + a_3)a_2a_3a_4} \quad (7)$$

Resummation power: 8

Number of related Feynman diagrams: 4.

Related Feynman diagrams: 421, 300, 294, 220.

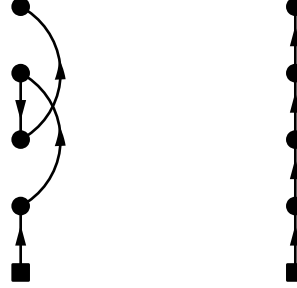
## 1.2 Non-tree diagrams

**Time-structure diagram T8:**



$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (8)$$

Equivalent tree diagrams: T1, T1.



Number of related Feynman diagrams: 40.

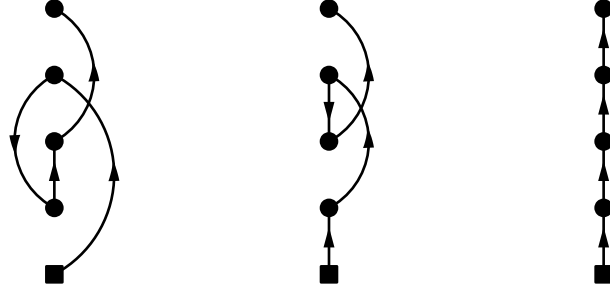
Related Feynman diagrams: 7, 16, 18, 27, 40, 52, 55, 71, 77, 93, 95, 97, 107, 120, 122, 138, 145, 164, 169, 202, 203, 204, 210, 216, 277, 281, 310, 351, 365, 371, 397, 399, 417, 431, 492, 520, 521, 528, 539, 545.

**Time-structure diagram T9:**



$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (9)$$

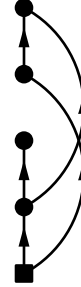
Equivalent tree diagrams: T1, T1, T1.



Number of related Feynman diagrams: 66.

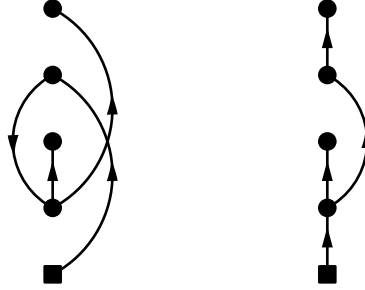
Related Feynman diagrams: 8, 20, 41, 42, 56, 60, 72, 98, 123, 153, 157, 170, 180, 197, 198, 205, 223, 224, 226, 228, 266, 267, 268, 272, 273, 274, 287, 305, 306, 312, 317, 319, 321, 322, 344, 348, 349, 352, 355, 389, 390, 391, 395, 402, 406, 408, 425, 427, 435, 436, 437, 439, 468, 470, 483, 484, 485, 487, 494, 495, 505, 506, 510, 511, 512, 543.

**Time-structure diagram T10:**



$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (10)$$

Equivalent tree diagrams: T2, T3.



Number of related Feynman diagrams: 40.

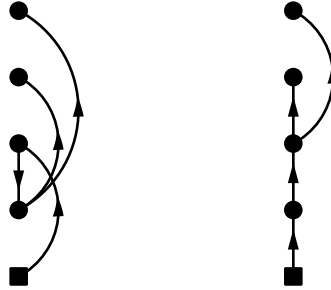
Related Feynman diagrams: 19, 21, 43, 99, 134, 152, 154, 174, 183, 207, 225, 227, 229, 233, 234, 237, 239, 255, 256, 258, 259, 284, 289, 290, 291, 307, 316, 318, 320, 343, 400, 401, 419, 432, 438, 455, 469, 489, 496, 500.

**Time-structure diagram T11:**



$$T11 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (11)$$

Equivalent tree diagrams: T2, T2.





Number of related Feynman diagrams: 18.

Related Feynman diagrams: 22, 24, 44, 49, 100, 101, 131, 133, 156, 212, 231, 286, 323, 326, 334, 443, 499, 556.

**Time-structure diagram T12:**



$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (12)$$

Equivalent tree diagrams: T1, T1.



Number of related Feynman diagrams: 44.

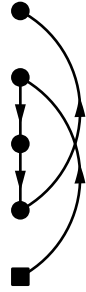
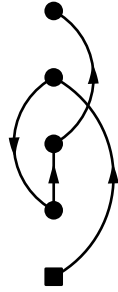
Related Feynman diagrams: 28, 29, 57, 58, 61, 63, 78, 109, 110, 124, 132, 155, 230, 232, 235, 236, 238, 257, 269, 270, 271, 285, 324, 325, 327, 335, 336, 345, 353, 354, 356, 440, 441, 442, 454, 456, 472, 473, 497, 498, 507, 513, 514, 557.

**Time-structure diagram T13:**



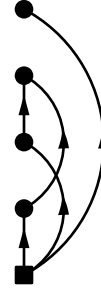
$$T13 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_4)(a_2 + a_1 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_1 + a_4)a_4} + \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} \quad (13)$$

Equivalent tree diagrams: T1, T1, T1, T1, T1, T1.



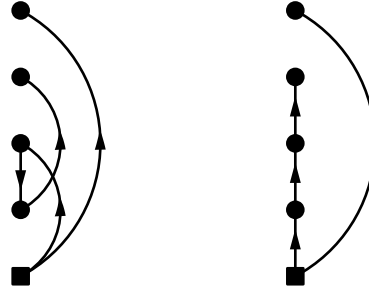
Number of related Feynman diagrams: 4.  
Related Feynman diagrams: 265, 315, 466, 482.

Time-structure diagram T14:



$$T14 = \frac{1}{(a_1 + a_3)(a_2 + a_1 + a_3)a_3a_4} + \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (14)$$

Equivalent tree diagrams: T5, T5.



Number of related Feynman diagrams: 4.

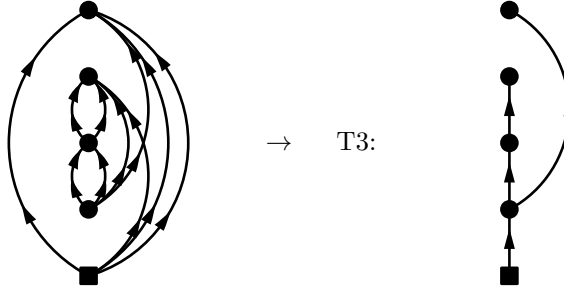
Related Feynman diagrams: 288, 337, 453, 457.

## 2 Two-body diagrams

### 2.1 Two-body energy canonical diagrams

Diagram 1:

$$\begin{aligned}
 \text{PO4.1} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_6}^{22} \Omega_{k_9 k_{10} k_7 k_1}^{04} \Omega_{k_8 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon^{k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_1 k_7 k_9 k_{10}}} \\
 &= \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_6}^{22} \Omega_{k_9 k_{10} k_7 k_1}^{04} \Omega_{k_8 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_8} \epsilon_{k_1 k_7 k_9 k_{10}} \epsilon_{k_2 k_3 k_4 k_8}}
 \end{aligned} \tag{15}$$



$$\begin{aligned}
 \text{T3} &= \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \\
 a_1 &= \epsilon^{k_5 k_6 k_7 k_8} \\
 a_2 &= \epsilon_{k_5 k_6}^{k_9 k_{10}} \\
 a_3 &= \epsilon_{k_1 k_7 k_9 k_{10}} \\
 a_4 &= \epsilon_{k_2 k_3 k_4 k_8}
 \end{aligned} \tag{16}$$

Diagram 2:

$$\begin{aligned}
 \text{PO4.2} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_6}^{22} \Omega_{k_9 k_7 k_8 k_1}^{04} \Omega_{k_{10} k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_1 k_7 k_8 k_{10}}} \\
 &= \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_6}^{22} \Omega_{k_9 k_7 k_8 k_1}^{04} \Omega_{k_{10} k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_1 k_7 k_8 k_2 k_3 k_4} \epsilon_{k_1 k_7 k_8 k_9} \epsilon_{k_2 k_3 k_4 k_{10}}}
 \end{aligned} \tag{17}$$

$\rightarrow \quad \text{T2:}$

$$\text{T2} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (18)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

$$a_2 = \epsilon^{k_9 k_{10}}$$

$$a_3 = \epsilon_{k_1 k_7 k_8 k_9}$$

$$a_4 = \epsilon_{k_2 k_3 k_4 k_{10}}$$

**Diagram 3:**

$$\begin{aligned}
 \text{PO4.3} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_7}^{13} \Omega_{k_{10} k_9 k_8 k_1}^{13} \Omega_{k_{10} k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) \\
 &\quad e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_5 k_6 k_7}^{k_9}} e^{-\tau_3 \epsilon_{k_1 k_8 k_9}^{k_{10}}} e^{-\tau_4 \epsilon_{k_1 k_2 k_3 k_4}^{k_{10}}} \\
 &= \frac{(-1)^4}{(3!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_7}^{13} \Omega_{k_{10} k_9 k_8 k_1}^{13} \Omega_{k_{10} k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_1 k_8 k_2 k_3 k_4} \epsilon_{k_1 k_8 k_9 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_{10}}}
 \end{aligned} \quad (19)$$

$\rightarrow \quad \text{T1:}$

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (20)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

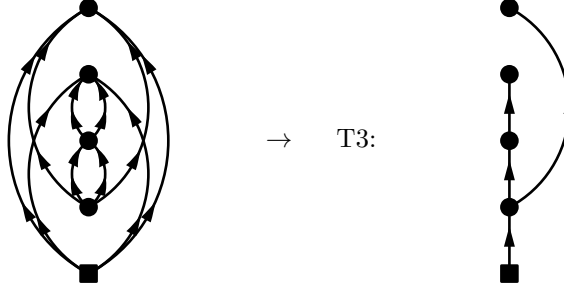
$$a_2 = \epsilon^{k_9 k_5 k_6 k_7}$$

$$a_3 = \epsilon^{k_{10} k_1 k_8 k_9}$$

$$a_4 = \epsilon^{k_2 k_3 k_4 k_{10}}$$

**Diagram 4:**

$$\begin{aligned} \text{PO4.4} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^5} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_6}^{22} \Omega_{k_9 k_{10} k_1 k_2}^{04} \Omega_{k_7 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon^{k_9 k_{10} k_5 k_6}} e^{-\tau_3 \epsilon_{k_1 k_2 k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)^5} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_6}^{22} \Omega_{k_9 k_{10} k_1 k_2}^{04} \Omega_{k_7 k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_8} \epsilon_{k_9 k_{10} k_5 k_6} \epsilon_{k_1 k_2 k_9 k_{10}} \epsilon_{k_3 k_4 k_7 k_8}} \end{aligned} \quad (21)$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \quad (22)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

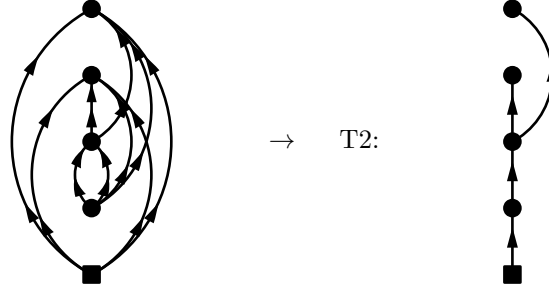
$$a_2 = \epsilon^{k_9 k_{10} k_5 k_6}$$

$$a_3 = \epsilon_{k_1 k_2 k_9 k_{10}}$$

$$a_4 = \epsilon_{k_3 k_4 k_7 k_8}$$

**Diagram 5:**

$$\begin{aligned}
\text{PO4.5} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_6}^{22} \Omega_{k_9 k_7 k_1 k_2}^{04} \Omega_{k_{10} k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_9 k_{10} k_5 k_6}} e^{-\tau_3 \epsilon_{k_9 k_7 k_1 k_2}} e^{-\tau_4 \epsilon_{k_{10} k_8 k_3 k_4}} \\
&= \frac{-(-1)^4}{2(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_6}^{22} \Omega_{k_9 k_7 k_1 k_2}^{04} \Omega_{k_{10} k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_1 k_2 k_7 k_3 k_4 k_8} \epsilon_{k_1 k_2 k_7 k_9} \epsilon_{k_3 k_4 k_8 k_{10}}}
\end{aligned} \tag{23}$$



$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \tag{24}$$

$$a_1 = \epsilon_{k_5 k_6 k_7 k_8}$$

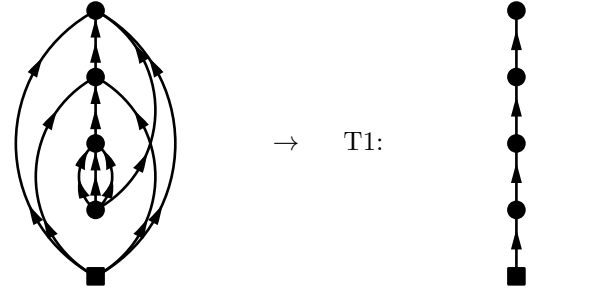

$$a_2 = \epsilon_{k_9 k_{10} k_5 k_6}$$

$$a_3 = \epsilon_{k_1 k_2 k_7 k_9}$$

$$a_4 = \epsilon_{k_3 k_4 k_8 k_{10}}$$

**Diagram 6:**

$$\begin{aligned}
\text{PO4.6} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_7}^{13} \Omega_{k_{10} k_9 k_1 k_2}^{13} \Omega_{k_{10} k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_9 k_{10} k_5 k_6}} e^{-\tau_3 \epsilon_{k_1 k_2 k_7 k_9}} e^{-\tau_4 \epsilon_{k_{10} k_8 k_3 k_4}} \\
&= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_7}^{13} \Omega_{k_{10} k_9 k_1 k_2}^{13} \Omega_{k_{10} k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_1 k_2 k_3 k_4 k_8} \epsilon_{k_1 k_2 k_9 k_3 k_4 k_8} \epsilon_{k_3 k_4 k_8 k_{10}}}
\end{aligned} \tag{25}$$

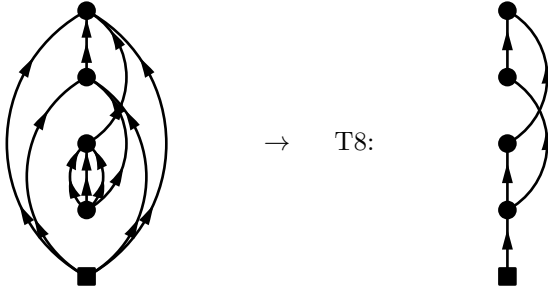

→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (26)$$

$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$   
 $a_2 = \epsilon^{k_9}_{k_5 k_6 k_7}$   
 $a_3 = \epsilon^{k_{10}}_{k_1 k_2 k_9}$   
 $a_4 = \epsilon_{k_3 k_4 k_8 k_{10}}$

**Diagram 7:**

$$\begin{aligned}
\text{PO4.7} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_7}^{13} \Omega_{k_{10} k_8 k_1 k_2}^{13} \Omega_{k_{10} k_9 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\
&\quad e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon^{k_9}_{k_5 k_6 k_7}} e^{-\tau_3 \epsilon^{k_{10}}_{k_1 k_2 k_9}} \\
&= \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_7}^{13} \Omega_{k_{10} k_8 k_1 k_2}^{13} \Omega_{k_{10} k_9 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_3 k_4 k_{10}} \epsilon_{k_5 k_6 k_7 k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_1 k_2 k_8 k_3 k_4} \epsilon_{k_1 k_2 k_8 k_3 k_4 k_9}} \right] \quad (27)
\end{aligned}$$





$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (28)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

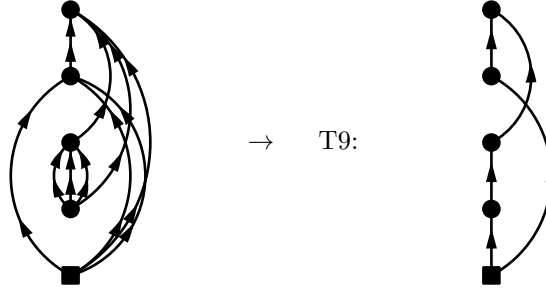
$$a_2 = \epsilon^{k_9}_{k_5 k_6 k_7}$$

$$a_3 = \epsilon^{k_{10}}_{k_1 k_2 k_8}$$

$$a_4 = \epsilon_{k_3 k_4 k_9 k_{10}}$$

**Diagram 8:**

$$\begin{aligned} \text{PO4.8} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_7}^{13} \Omega_{k_{10} k_1 k_2 k_3}^{13} \Omega_{k_{10} k_9 k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon^{k_9}_{k_5 k_6 k_7}} e^{-\tau_3 \epsilon^{k_{10}}_{k_1 k_2 k_3}} e^{-\tau_4 \epsilon_{k_3 k_4 k_9 k_{10}}} \\ &= \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_7}^{13} \Omega_{k_{10} k_1 k_2 k_3}^{13} \Omega_{k_{10} k_9 k_8 k_4}^{04} \left[ \frac{1}{\epsilon_{k_4 k_{10}} \epsilon_{k_5 k_6 k_7 k_4 k_8 k_{10}} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_8 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_4 k_8 k_{10}} \epsilon_{k_5 k_6 k_7 k_1 k_2 k_3 k_4 k_8} \epsilon_{k_4 k_8 k_9 k_{10}}} + \dots \right] \end{aligned} \quad (29)$$



$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (30)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

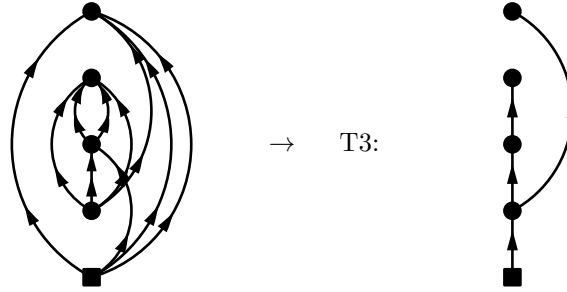
$$a_2 = \epsilon^{k_9 k_6 k_7}$$

$$a_3 = \epsilon^{k_{10} k_1 k_2 k_3}$$

$$a_4 = \epsilon_{k_4 k_8 k_9 k_{10}}$$

**Diagram 9:**

$$\begin{aligned} \text{PO4.9} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_1}^{22} \Omega_{k_9 k_{10} k_6 k_7}^{04} \Omega_{k_8 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5}^{k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_6 k_7 k_9 k_{10}}} \\ &= \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_1}^{22} \Omega_{k_9 k_{10} k_6 k_7}^{04} \Omega_{k_8 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_7} \epsilon_{k_6 k_7 k_9 k_{10}} \epsilon_{k_2 k_3 k_4 k_8}} \end{aligned} \quad (31)$$



$$\text{T3} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \quad (32)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

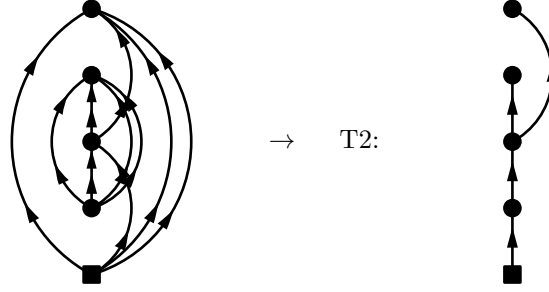
$$a_2 = \epsilon_{k_1 k_5}^{k_9 k_{10}}$$

$$a_3 = \epsilon_{k_6 k_7 k_9 k_{10}}$$

$$a_4 = \epsilon_{k_2 k_3 k_4 k_8}$$

**Diagram 10:**

$$\begin{aligned}
\text{PO4.10} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_1}^{22} \Omega_{k_9 k_6 k_7 k_8}^{04} \Omega_{k_{10} k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5}^{k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_6 k_7 k_8 k_9}} \\
&= \frac{(-1)^4}{(3!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_1}^{22} \Omega_{k_9 k_6 k_7 k_8}^{04} \Omega_{k_{10} k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_7 k_8 k_2 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_9} \epsilon_{k_2 k_3 k_4 k_{10}}}
\end{aligned} \tag{33}$$



$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \tag{34}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

$$a_2 = \epsilon_{k_1 k_5}^{k_9 k_{10}}$$

$$a_3 = \epsilon_{k_6 k_7 k_8 k_9}$$

$$a_4 = \epsilon_{k_2 k_3 k_4 k_{10}}$$

**Diagram 11:**

$$\begin{aligned}
\text{PO4.11} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2 (3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_{10} k_9 k_7 k_8}^{13} \Omega_{k_{10} k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5 k_6}^{k_9}} e^{-\tau_3 \epsilon_{k_7 k_8 k_9}^{k_{10}}} \\
&= \frac{(-1)^4}{(2!)^2 (3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_{10} k_9 k_7 k_8}^{13} \Omega_{k_{10} k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_7 k_8 k_2 k_3 k_4} \epsilon_{k_7 k_8 k_9 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_{10}}}
\end{aligned} \tag{35}$$

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (36)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

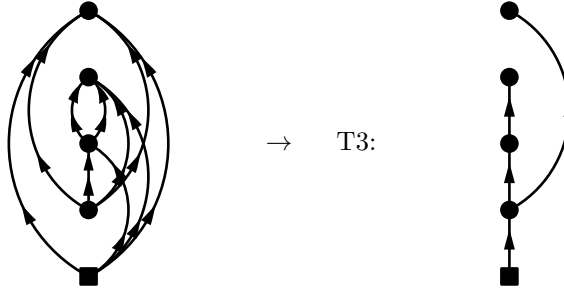
$$a_2 = \epsilon^{k_1 k_5 k_6}$$

$$a_3 = \epsilon^{k_7 k_8 k_9}$$

$$a_4 = \epsilon_{k_2 k_3 k_4 k_{10}}$$

**Diagram 12:**

$$\begin{aligned} \text{PO4.12} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_1}^{22} \Omega_{k_9 k_{10} k_6 k_2}^{04} \Omega_{k_7 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5}^{k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_2 k_6 k_9}^{k_7 k_8}} \\ &= \frac{-(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_1}^{22} \Omega_{k_9 k_{10} k_6 k_2}^{04} \Omega_{k_7 k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_3 k_4 k_7 k_8}^{k_9 k_{10}} \epsilon_{k_2 k_6 k_9 k_{10}} \epsilon_{k_3 k_4 k_7 k_8}} \end{aligned} \quad (37)$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (38)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

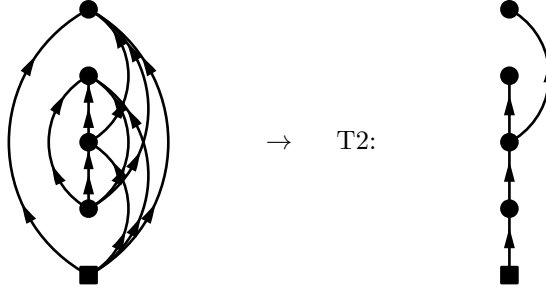
$$a_2 = \epsilon_{k_1 k_5}^{k_9 k_{10}}$$

$$a_3 = \epsilon_{k_3 k_4 k_7 k_8}$$

$$a_4 = \epsilon_{k_2 k_6 k_9 k_{10}}$$

**Diagram 13:**

$$\begin{aligned} \text{PO4.13} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_1}^{22} \Omega_{k_9 k_6 k_7 k_2}^{04} \Omega_{k_{10} k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5}^{k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_3 k_4 k_7 k_8}} e^{-\tau_4 \epsilon_{k_2 k_6 k_9 k_{10}}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_1}^{22} \Omega_{k_9 k_6 k_7 k_2}^{04} \Omega_{k_{10} k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_2 k_6 k_7 k_3 k_4 k_8} \epsilon_{k_2 k_6 k_7 k_9} \epsilon_{k_3 k_4 k_8 k_{10}}} \end{aligned} \quad (39)$$



$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (40)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

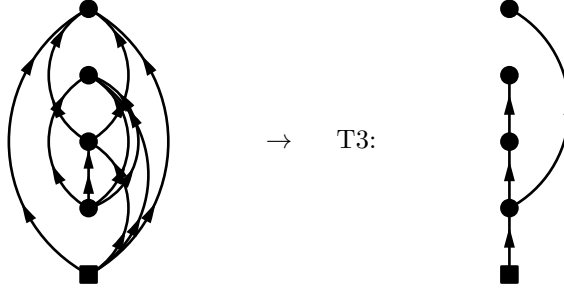
$$a_2 = \epsilon_{k_1 k_5}^{k_9 k_{10}}$$

$$a_3 = \epsilon_{k_2 k_6 k_7 k_9}$$

$$a_4 = \epsilon_{k_3 k_4 k_8 k_{10}}$$

**Diagram 14:**

$$\begin{aligned}
 \text{PO4.14} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_1}^{22} \Omega_{k_6 k_7 k_8 k_2}^{04} \Omega_{k_9 k_{10} k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5}^{k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_2 k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
 &= \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_5 k_1}^{22} \Omega_{k_6 k_7 k_8 k_2}^{04} \Omega_{k_9 k_{10} k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_3 k_4} \epsilon_{k_2 k_6 k_7 k_8} \epsilon_{k_3 k_4 k_9 k_{10}}}
 \end{aligned} \tag{41}$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \tag{42}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

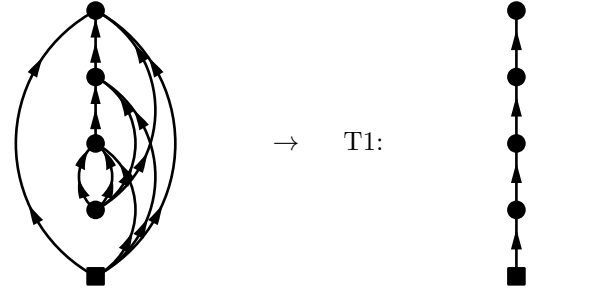
$$a_2 = \epsilon_{k_1 k_5}^{k_9 k_{10}}$$

$$a_3 = \epsilon_{k_3 k_4 k_9 k_{10}}$$

$$a_4 = \epsilon_{k_2 k_6 k_7 k_8}$$

**Diagram 15:**

$$\begin{aligned}
 \text{PO4.15} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_{10} k_9 k_7 k_2}^{13} \Omega_{k_{10} k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5 k_6}^{k_9}} \\
 &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_{10} k_9 k_7 k_2}^{13} \Omega_{k_{10} k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_2 k_7 k_3 k_4 k_8} \epsilon_{k_2 k_7 k_9 k_3 k_4 k_8} \epsilon_{k_3 k_4 k_8 k_{10}}}
 \end{aligned} \tag{43}$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (44)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

$$a_2 = \epsilon^{k_9}_{k_1 k_5 k_6}$$

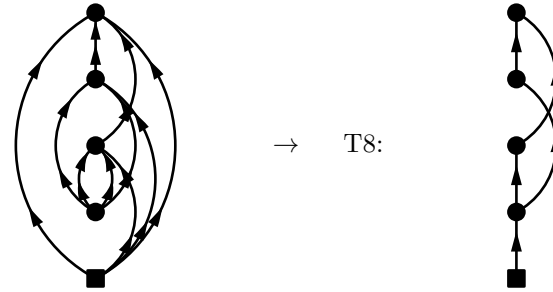
$$a_3 = \epsilon^{k_{10}}_{k_2 k_7 k_9}$$

$$a_4 = \epsilon_{k_3 k_4 k_8 k_{10}}$$

**Diagram 16:**

$$PO4.16 = \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_{10} k_7 k_8 k_2}^{13} \Omega_{k_{10} k_9 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon^{k_9}_{k_1 k_5 k_6}} e^{-\tau_3 \epsilon^{k_{10}}_{k_2 k_7 k_9}}$$

$$= \frac{-(-1)^4}{2(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_{10} k_7 k_8 k_2}^{13} \Omega_{k_{10} k_9 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_3 k_4 k_{10}} \epsilon_{k_1 k_5 k_6 k_2 k_7 k_8 k_3 k_4} \epsilon_{k_3 k_4 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_2 k_7 k_8 k_3 k_4} \epsilon_{k_2 k_7 k_8 k_3 k_4 k_9}} \right] \quad (45)$$



$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (46)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

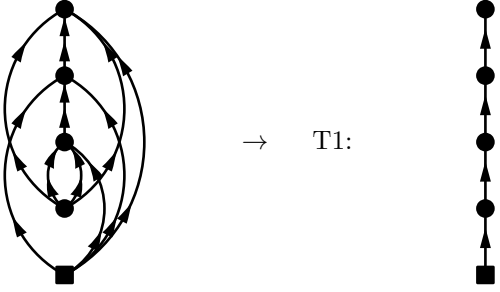
$$a_2 = \epsilon_{k_1 k_5 k_6}^{k_9}$$

$$a_3 = \epsilon_{k_2 k_7 k_8}^{k_{10}}$$

$$a_4 = \epsilon_{k_3 k_4 k_9 k_{10}}$$

**Diagram 17:**

$$\begin{aligned} \text{PO4.17} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_{10} k_9 k_2 k_3}^{13} \Omega_{k_{10} k_7 k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5 k_6}^{k_9}} e^{-\tau_3 \epsilon_{k_2 k_3 k_9}^{k_{10}}} e^{-\tau_4 \epsilon_{k_4 k_7 k_8 k_{10}}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_{10} k_9 k_2 k_3}^{13} \Omega_{k_{10} k_7 k_8 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_4 k_7 k_8} \epsilon_{k_2 k_3 k_9 k_4 k_7 k_8} \epsilon_{k_4 k_7 k_8 k_{10}}} \end{aligned} \quad (47)$$



$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (48)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

$$a_2 = \epsilon_{k_1 k_5 k_6}^{k_9}$$

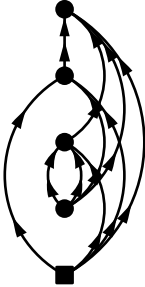

$$a_3 = \epsilon_{k_2 k_3 k_9}^{k_{10}}$$

$$a_4 = \epsilon_{k_4 k_7 k_8 k_{10}}$$



**Diagram 18:**

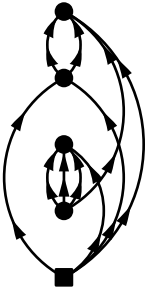
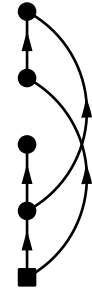
$$\begin{aligned}
\text{PO4.18} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_{10} k_7 k_2 k_3}^{13} \Omega_{k_{10} k_9 k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon^{k_9 k_{10} k_5 k_6}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_{10} k_7 k_2 k_3}^{13} \Omega_{k_{10} k_9 k_8 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_4 k_8 k_{10}} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_7 k_4 k_8} \epsilon_{k_4 k_8 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_7 k_4 k_8} \epsilon_{k_2 k_3 k_7 k_4 k_8 k_9}} \right] \\
&\quad (49)
\end{aligned}$$


→ T8:


$$\begin{aligned}
\text{T8} &= \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \\
&\quad (50) \\
a_1 &= \epsilon^{k_5 k_6 k_7 k_8} \\
a_2 &= \epsilon_{k_1 k_5 k_6}^{k_9} \\
a_3 &= \epsilon_{k_2 k_3 k_7}^{k_{10}} \\
a_4 &= \epsilon_{k_4 k_8 k_9 k_{10}}
\end{aligned}$$

**Diagram 19:**

$$\begin{aligned}
\text{PO4.19} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2 (3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6 k_7 k_1}^{04} \Omega_{k_9 k_{10} k_2 k_3}^{22} \Omega_{k_9 k_{10} k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_2 k_3}^{k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_4 k_8 k_9 k_{10}}} \\
&= \frac{-(-1)^4}{(2!)^2 (3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6 k_7 k_1}^{04} \Omega_{k_9 k_{10} k_2 k_3}^{22} \Omega_{k_9 k_{10} k_8 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_4 k_9 k_{10}} \epsilon_{k_1 k_5 k_6 k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_8 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_7} \epsilon_{k_2 k_3 k_4 k_8} \epsilon_{k_4 k_8 k_9 k_{10}}} \right] \\
&\quad (51)
\end{aligned}$$

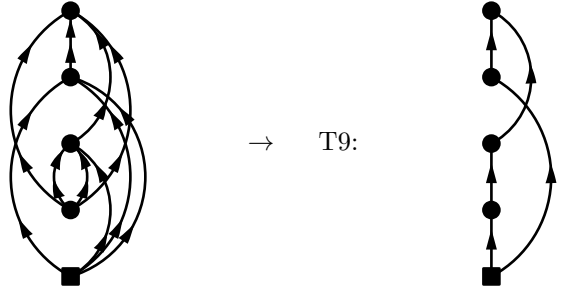

→ T10:


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (52)$$

$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$   
 $a_2 = \epsilon_{k_1 k_5 k_6 k_7}$   
 $a_3 = \epsilon_{k_2 k_3}^{k_9 k_{10}}$   
 $a_4 = \epsilon_{k_4 k_8 k_9 k_{10}}$

**Diagram 20:**

$$\begin{aligned}
 PO4.20 &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_{10} k_2 k_3 k_4}^{13} \Omega_{k_{10} k_9 k_7 k_8}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\
 &\quad e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5 k_6}^{k_9}} e^{-\tau_3 \epsilon_{k_2 k_3}^{k_{10}}} \\
 &= \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_{10} k_2 k_3 k_4}^{13} \Omega_{k_{10} k_9 k_7 k_8}^{04} \left[ \frac{1}{\epsilon_{k_1 k_{10}} \epsilon_{k_1 k_5 k_6 k_7 k_8 k_{10}} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_7 k_8 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_7 k_8 k_{10}} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_4 k_7 k_8} \epsilon_{k_7 k_8 k_9 k_{10}}} \right] \quad (53)
 \end{aligned}$$



$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (54)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

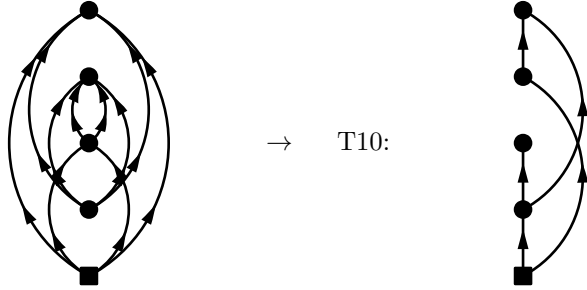
$$a_2 = \epsilon_{k_1 k_5 k_6}^{k_9}$$

$$a_3 = \epsilon_{k_2 k_3 k_4}^{k_{10}}$$

$$a_4 = \epsilon_{k_7 k_8 k_9 k_{10}}$$

**Diagram 21:**

$$\begin{aligned} \text{PO4.21} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^5} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_1 k_2}^{22} \Omega_{k_9 k_{10} k_5 k_6}^{04} \Omega_{k_7 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_5 k_6 k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\ &= \frac{(-1)^4}{(2!)^5} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_1 k_2}^{22} \Omega_{k_9 k_{10} k_5 k_6}^{04} \Omega_{k_7 k_8 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_9 k_{10} k_3 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_9 k_{10}} \epsilon_{k_3 k_4 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_6} \epsilon_{k_5 k_6 k_9 k_{10}} \epsilon_{k_3 k_4 k_7 k_8}} \right] \end{aligned} \quad (55)$$



$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (56)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

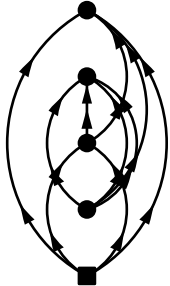
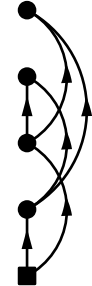
$$a_2 = \epsilon_{k_3 k_4 k_7 k_8}$$

$$a_3 = \epsilon_{k_1 k_2}^{k_9 k_{10}}$$

$$a_4 = \epsilon_{k_5 k_6 k_9 k_{10}}$$

**Diagram 22:**

$$\begin{aligned} \text{PO4.22} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_1 k_2}^{22} \Omega_{k_9 k_5 k_6 k_7}^{04} \Omega_{k_{10} k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_5 k_6 k_9 k_{10}}} \\ &= \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_1 k_2}^{22} \Omega_{k_9 k_5 k_6 k_7}^{04} \Omega_{k_{10} k_8 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_9 k_3 k_4 k_{10}} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_9} \epsilon_{k_3 k_4 k_8 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_6 k_7 k_3 k_4 k_8} \epsilon_{k_5 k_6 k_7 k_9} \epsilon_{k_3 k_4 k_8 k_{10}}} \right] \end{aligned} \quad (57)$$


→ T11:


$$\text{T11} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3 a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \quad (58)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

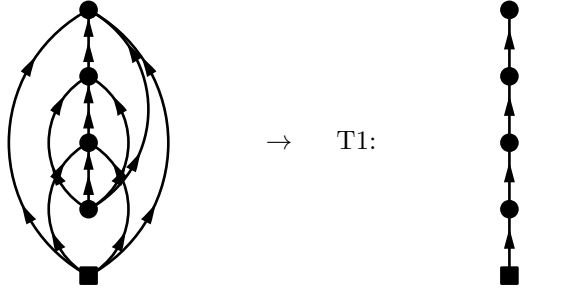
$$a_2 = \epsilon_{k_1 k_2}^{k_9 k_{10}}$$

$$a_3 = \epsilon_{k_5 k_6 k_7 k_9}$$

$$a_4 = \epsilon_{k_3 k_4 k_8 k_{10}}$$

**Diagram 23:**

$$\begin{aligned}
\text{PO4.23} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_1 k_2}^{13} \Omega_{k_{10} k_9 k_6 k_7}^{13} \Omega_{k_{10} k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_2 k_5}^{k_9}} e^{-\tau_3 \epsilon_{k_3 k_5 k_6}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_7 k_8}^{k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_1 k_2}^{13} \Omega_{k_{10} k_9 k_6 k_7}^{13} \Omega_{k_{10} k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_6 k_7 k_3 k_4 k_8} \epsilon_{k_6 k_7 k_9 k_3 k_4 k_8} \epsilon_{k_3 k_4 k_8 k_{10}}}
\end{aligned} \tag{59}$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{60}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

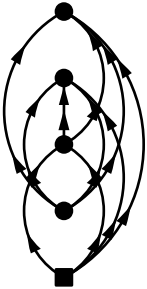
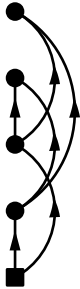
$$a_2 = \epsilon_{k_1 k_2 k_5}^{k_9}$$

$$a_3 = \epsilon_{k_6 k_7 k_9}^{k_{10}}$$

$$a_4 = \epsilon_{k_3 k_4 k_8 k_{10}}$$

**Diagram 24:**

$$\begin{aligned}
\text{PO4.24} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_1 k_2}^{22} \Omega_{k_9 k_5 k_6 k_3}^{04} \Omega_{k_{10} k_7 k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_3 k_5 k_6}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_7 k_8}^{k_9}} \\
&= \frac{-(-1)^4}{2(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_{10} k_1 k_2}^{22} \Omega_{k_9 k_5 k_6 k_3}^{04} \Omega_{k_{10} k_7 k_8 k_4}^{04} \left[ \frac{1}{\epsilon_{k_3 k_9 k_4 k_{10}} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_6 k_9} \epsilon_{k_4 k_7 k_8 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_5 k_6 k_4 k_7 k_8} \epsilon_{k_3 k_5 k_6 k_9} \epsilon_{k_4 k_7 k_8 k_{10}}} \right]
\end{aligned} \tag{61}$$


→ T11:


$$T11 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (62)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

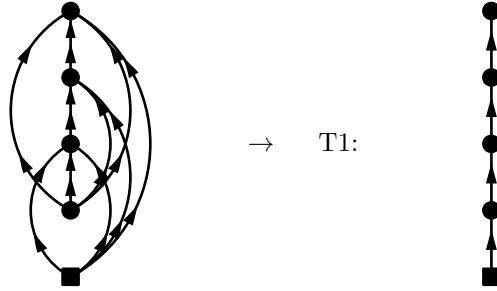
$$a_2 = \epsilon^{k_9 k_{10}}_{k_1 k_2}$$

$$a_3 = \epsilon^{k_3 k_5 k_6 k_9}$$

$$a_4 = \epsilon^{k_4 k_7 k_8 k_{10}}$$

**Diagram 25:**

$$\begin{aligned}
\text{PO4.25} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_1 k_2}^{13} \Omega_{k_{10} k_9 k_6 k_3}^{13} \Omega_{k_{10} k_7 k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon^{k_9}_{k_1 k_2 k_5}} e^{-\tau_3 \epsilon^{k_3 k_5 k_6 k_9}} e^{-\tau_4 \epsilon^{k_4 k_7 k_8 k_{10}}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_1 k_2}^{13} \Omega_{k_{10} k_9 k_6 k_3}^{13} \Omega_{k_{10} k_7 k_8 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_3 k_6 k_4 k_7 k_8} \epsilon_{k_3 k_6 k_9 k_4 k_7 k_8} \epsilon_{k_4 k_7 k_8 k_{10}}} \quad (63)
\end{aligned}$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (64)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

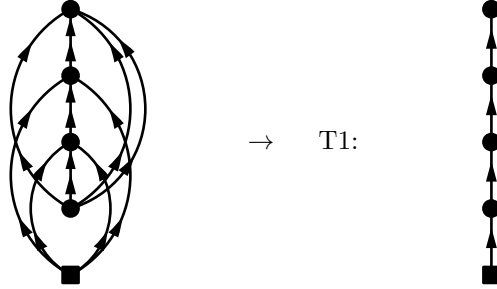
$$a_2 = \epsilon^{k_9}_{k_1 k_2 k_5}$$

$$a_3 = \epsilon^{k_{10}}_{k_3 k_6 k_9}$$

$$a_4 = \epsilon_{k_4 k_7 k_8 k_{10}}$$

**Diagram 26:**

$$\begin{aligned} \text{PO4.26} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_1 k_2}^{13} \Omega_{k_{10} k_9 k_3 k_4}^{13} \Omega_{k_{10} k_6 k_7 k_8}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon^{k_9}_{k_1 k_2 k_5}} e^{-\tau_3 \epsilon^{k_{10}}_{k_3 k_4 k_9}} \\ &= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_1 k_2}^{13} \Omega_{k_{10} k_9 k_3 k_4}^{13} \Omega_{k_{10} k_6 k_7 k_8}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_3 k_4 k_6 k_7 k_8} \epsilon_{k_3 k_4 k_9 k_6 k_7 k_8} \epsilon_{k_6 k_7 k_8 k_{10}}} \end{aligned} \quad (65)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (66)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

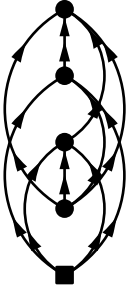

$$a_2 = \epsilon^{k_9}_{k_1 k_2 k_5}$$

$$a_3 = \epsilon^{k_{10}}_{k_3 k_4 k_9}$$

$$a_4 = \epsilon_{k_6 k_7 k_8 k_{10}}$$

**Diagram 27:**

$$\begin{aligned}
\text{PO4.27} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_1 k_2}^{13} \Omega_{k_{10} k_6 k_3 k_4}^{13} \Omega_{k_{10} k_9 k_7 k_8}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_9}} \\
&= \frac{-(-1)^4}{2(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_1 k_2}^{13} \Omega_{k_{10} k_6 k_3 k_4}^{13} \Omega_{k_{10} k_9 k_7 k_8}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_7 k_8 k_{10}} \epsilon_{k_1 k_2 k_5 k_3 k_4 k_6 k_7 k_8} \epsilon_{k_7 k_8 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_3 k_4 k_6 k_7 k_8} \epsilon_{k_3 k_4 k_6 k_7 k_8 k_9}} \right]
\end{aligned} \tag{67}$$


→ T8:


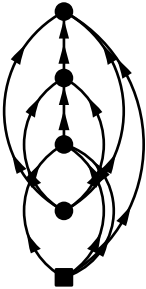

$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{68}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6 k_7 k_8} \\
a_2 &= \epsilon_{k_1 k_2}^{k_9} \\
a_3 &= \epsilon_{k_3 k_4}^{k_{10}} \\
a_4 &= \epsilon_{k_7 k_8 k_9 k_{10}}
\end{aligned}$$

**Diagram 28:**

$$\begin{aligned}
\text{PO4.28} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_1 k_2 k_3}^{13} \Omega_{k_{10} k_9 k_5 k_6}^{13} \Omega_{k_{10} k_7 k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_9}} e^{-\tau_3 \epsilon_{k_5 k_6}^{k_{10}}} \\
&= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_1 k_2 k_3}^{13} \Omega_{k_{10} k_9 k_5 k_6}^{13} \Omega_{k_{10} k_7 k_8 k_4}^{04} \left[ \frac{1}{\epsilon_{k_9 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_9 k_4 k_7 k_8} \epsilon_{k_4 k_7 k_8 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_5 k_6 k_4 k_7 k_8} \epsilon_{k_5 k_6 k_9 k_4 k_7 k_8} \epsilon_{k_4 k_7 k_8 k_{10}}} \right]
\end{aligned} \tag{69}$$



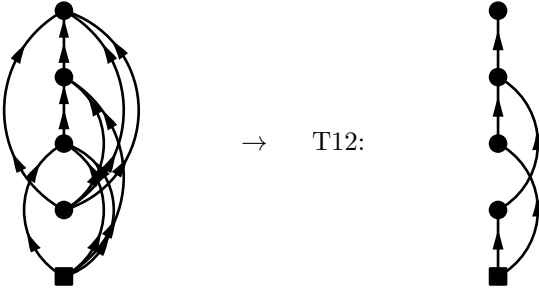

→ T12:


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (70)$$

$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$   
 $a_2 = \epsilon^{k_9}_{k_1 k_2 k_3}$   
 $a_3 = \epsilon^{k_{10}}_{k_5 k_6 k_9}$   
 $a_4 = \epsilon_{k_4 k_7 k_8 k_{10}}$

**Diagram 29:**

$$\begin{aligned}
PO4.29 &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_1 k_2 k_3}^{13} \Omega_{k_{10} k_9 k_5 k_4}^{13} \Omega_{k_{10} k_6 k_7 k_8}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) \\
&\quad e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon^{k_9}_{k_1 k_2 k_3}} e^{-\tau_3 \epsilon^{k_{10}}_{k_4 k_5 k_9}} \\
&= \frac{-(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_1 k_2 k_3}^{13} \Omega_{k_{10} k_9 k_5 k_4}^{13} \Omega_{k_{10} k_6 k_7 k_8}^{04} \left[ \frac{1}{\epsilon_{k_4 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_5 k_9 k_6 k_7 k_8} \epsilon_{k_6 k_7 k_8 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6 k_7 k_8} \epsilon_{k_4 k_5 k_9 k_6 k_7 k_8} \epsilon_{k_6 k_7 k_8 k_{10}}} \right] \quad (71)
\end{aligned}$$



$$T_{12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (72)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

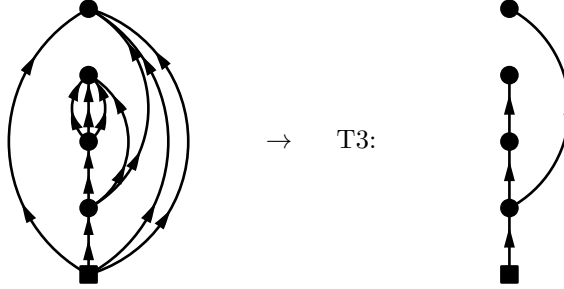
$$a_2 = \epsilon_{k_1 k_2 k_3}^{k_9}$$

$$a_3 = \epsilon_{k_4 k_5 k_9}^{k_{10}}$$

$$a_4 = \epsilon_{k_6 k_7 k_8 k_{10}}$$

**Diagram 30:**

$$\begin{aligned} \text{PO4.30} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_5}^{31} \Omega_{k_8 k_9 k_{10} k_6}^{04} \Omega_{k_7 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5}^{k_8 k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_6 k_8 k_9 k_{10}}} \\ &= \frac{(-1)^4}{(3!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_5}^{31} \Omega_{k_8 k_9 k_{10} k_6}^{04} \Omega_{k_7 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_6 k_8 k_9 k_{10}} \epsilon_{k_2 k_3 k_4 k_7}} \end{aligned} \quad (73)$$



$$T_3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \quad (74)$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

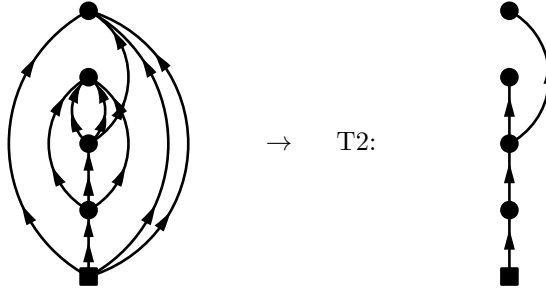
$$a_2 = \epsilon_{k_5}^{k_8 k_9 k_{10}}$$

$$a_3 = \epsilon_{k_6 k_8 k_9 k_{10}}$$

$$a_4 = \epsilon_{k_2 k_3 k_4 k_7}$$

**Diagram 31:**

$$\begin{aligned}
\text{PO4.31} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_5}^{31} \Omega_{k_8 k_9 k_6 k_7}^{04} \Omega_{k_{10} k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5}^{k_8 k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_8 k_9 k_{10}}} \\
&= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_5}^{31} \Omega_{k_8 k_9 k_6 k_7}^{04} \Omega_{k_{10} k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_2 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_9} \epsilon_{k_2 k_3 k_4 k_{10}}}
\end{aligned} \tag{75}$$



$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \tag{76}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_2 &= \epsilon_{k_5}^{k_8 k_9 k_{10}} \\
a_3 &= \epsilon_{k_6 k_7 k_8 k_9} \\
a_4 &= \epsilon_{k_2 k_3 k_4 k_{10}}
\end{aligned}$$

**Diagram 32:**

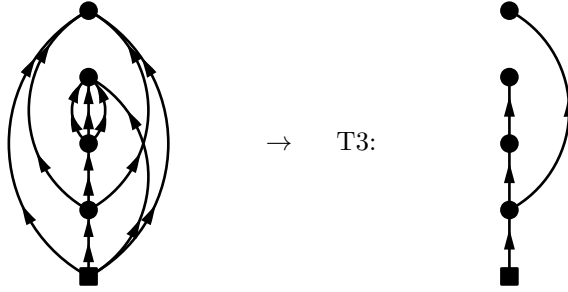
$$\begin{aligned}
\text{PO4.32} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_{10} k_8 k_9 k_7}^{13} \Omega_{k_{10} k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_7 k_8 k_9}^{k_{10}}} e^{-\tau_4 \epsilon_{k_8 k_9 k_{10}}^{k_2 k_3 k_4}} \\
&= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_{10} k_8 k_9 k_7}^{13} \Omega_{k_{10} k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_2 k_3 k_4} \epsilon_{k_7 k_8 k_9 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_{10}}}
\end{aligned} \tag{77}$$

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (78)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_5 k_6}^{k_8 k_9} \\ a_3 &= \epsilon_{k_7 k_8 k_9}^{k_{10}} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_{10}} \end{aligned}$$

**Diagram 33:**

$$\begin{aligned} \text{PO4.33} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2 (3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_5}^{31} \Omega_{k_8 k_9 k_{10} k_2}^{04} \Omega_{k_6 k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5}^{k_8 k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_2 k_8 k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_3}} \\ &= \frac{(-1)^4}{(2!)^2 (3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_5}^{31} \Omega_{k_8 k_9 k_{10} k_2}^{04} \Omega_{k_6 k_7 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2} \epsilon_{k_2 k_8 k_9 k_{10}} \epsilon_{k_3 k_4 k_6 k_7}} \end{aligned} \quad (79)$$

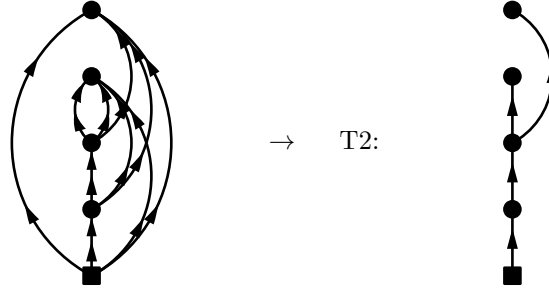


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (80)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_5}^{k_8 k_9 k_{10}} \\ a_3 &= \epsilon_{k_2 k_8 k_9 k_{10}} \\ a_4 &= \epsilon_{k_3 k_4 k_6 k_7} \end{aligned}$$

**Diagram 34:**

$$\begin{aligned} \text{PO4.34} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_5}^{31} \Omega_{k_8 k_9 k_6 k_2}^{04} \Omega_{k_{10} k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5}^{k_8 k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_2 k_8 k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_7}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_5}^{31} \Omega_{k_8 k_9 k_6 k_2}^{04} \Omega_{k_{10} k_7 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_6 k_3 k_4 k_7} \epsilon_{k_2 k_6 k_8 k_9} \epsilon_{k_3 k_4 k_7 k_{10}}} \end{aligned} \quad (81)$$

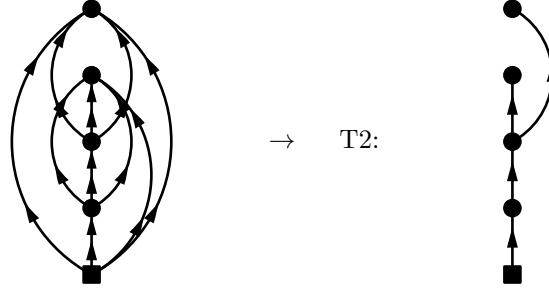


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (82)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_5}^{k_8 k_9 k_{10}} \\ a_3 &= \epsilon_{k_2 k_6 k_8 k_9} \\ a_4 &= \epsilon_{k_3 k_4 k_7 k_{10}} \end{aligned}$$

**Diagram 35:**

$$\begin{aligned}
\text{PO4.35} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_5}^{31} \Omega_{k_8 k_6 k_7 k_2}^{04} \Omega_{k_9 k_{10} k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5}^{k_8 k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_2 k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_9 k_{10}}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_5}^{31} \Omega_{k_8 k_6 k_7 k_2}^{04} \Omega_{k_9 k_{10} k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_6 k_7 k_3 k_4} \epsilon_{k_2 k_6 k_7 k_8} \epsilon_{k_3 k_4 k_9 k_{10}}}
\end{aligned} \tag{83}$$



$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \tag{84}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_2 &= \epsilon_{k_5}^{k_8 k_9 k_{10}} \\
a_3 &= \epsilon_{k_2 k_6 k_7 k_8} \\
a_4 &= \epsilon_{k_3 k_4 k_9 k_{10}}
\end{aligned}$$

**Diagram 36:**

$$\begin{aligned}
\text{PO4.36} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_{10} k_8 k_9 k_2}^{13} \Omega_{k_{10} k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_2 k_8 k_9}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_{10}}} \\
&= \frac{-(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_{10} k_8 k_9 k_2}^{13} \Omega_{k_{10} k_7 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_2 k_3 k_4 k_7} \epsilon_{k_2 k_8 k_9 k_3 k_4 k_7} \epsilon_{k_3 k_4 k_7 k_{10}}}
\end{aligned} \tag{85}$$

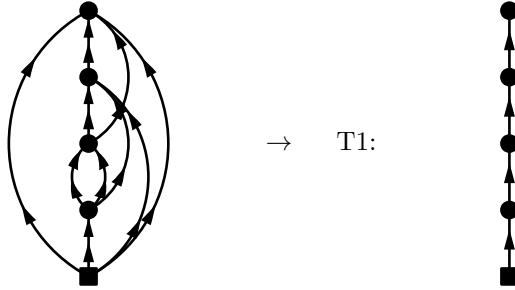
Diagrammatic equation (86) showing a reduction of a complex loop diagram to a tree diagram T1. The left side is a diagram with a square root at the bottom, four internal vertices, and a top vertex, connected by multiple curved lines. An arrow points to the right, labeled 'T1:', leading to a vertical chain of five vertices connected by upward-pointing arrows, with a square root at the bottom. Below the diagrams, the formula for T1 is given:

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (86)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_5 k_6}^{k_8 k_9} \\ a_3 &= \epsilon_{k_2 k_8 k_9}^{k_{10}} \\ a_4 &= \epsilon_{k_3 k_4 k_7 k_{10}} \end{aligned}$$

**Diagram 37:**

$$\begin{aligned} \text{PO4.37} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_{10} k_8 k_7 k_2}^{13} \Omega_{k_{10} k_9 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_2 k_8 k_9}^{k_{10}}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_{10}}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_{10} k_8 k_7 k_2}^{13} \Omega_{k_{10} k_9 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_2 k_7 k_3 k_4} \epsilon_{k_2 k_7 k_8 k_3 k_4 k_9} \epsilon_{k_3 k_4 k_9 k_{10}}} \end{aligned} \quad (87)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (88)$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

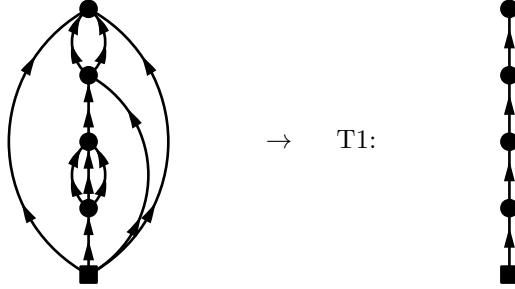
$$a_2 = \epsilon_{k_5 k_6}^{k_8 k_9}$$

$$a_3 = \epsilon_{k_2 k_7 k_8}^{k_{10}}$$

$$a_4 = \epsilon_{k_3 k_4 k_9 k_{10}}$$

**Diagram 38:**

$$\begin{aligned} \text{PO4.38} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_9 k_{10} k_8 k_2}^{22} \Omega_{k_9 k_{10} k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6 k_7}^{k_8}} e^{-\tau_3 \epsilon_{k_2 k_8}^{k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_3 k_4 k_9 k_{10}}} \\ &= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_9 k_{10} k_8 k_2}^{22} \Omega_{k_9 k_{10} k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_2 k_3 k_4} \epsilon_{k_2 k_8 k_3 k_4} \epsilon_{k_3 k_4 k_9 k_{10}}} \end{aligned} \quad (89)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (90)$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

$$a_2 = \epsilon_{k_5 k_6 k_7}^{k_8}$$

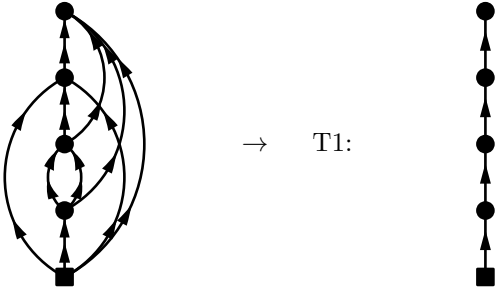
$$a_3 = \epsilon_{k_2 k_8}^{k_9 k_{10}}$$

$$a_4 = \epsilon_{k_3 k_4 k_9 k_{10}}$$



**Diagram 39:**

$$\begin{aligned}
 \text{PO4.39} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_{10} k_8 k_2 k_3}^{13} \Omega_{k_{10} k_9 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_8 k_9}^{k_{10} k_2 k_3}} e^{-\tau_4 \epsilon_{k_{10} k_2 k_3}^{k_4 k_7 k_9}} \\
 &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_{10} k_8 k_2 k_3}^{13} \Omega_{k_{10} k_9 k_7 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_2 k_3 k_4 k_7} \epsilon_{k_2 k_3 k_8 k_4 k_7 k_9} \epsilon_{k_4 k_7 k_9 k_{10}}}
 \end{aligned} \tag{91}$$

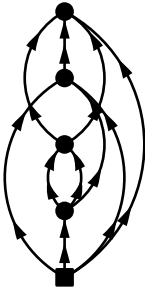



$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{92}$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
 a_2 &= \epsilon_{k_5 k_6}^{k_8 k_9} \\
 a_3 &= \epsilon_{k_2 k_3}^{k_{10} k_8} \\
 a_4 &= \epsilon_{k_4 k_7 k_9 k_{10}}
 \end{aligned}$$

**Diagram 40:**

$$\begin{aligned}
 \text{PO4.40} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_{10} k_7 k_2 k_3}^{13} \Omega_{k_{10} k_8 k_9 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_2 k_3}^{k_{10} k_7}} e^{-\tau_4 \epsilon_{k_{10} k_7}^{k_4 k_8 k_9}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_{10} k_7 k_2 k_3}^{13} \Omega_{k_{10} k_8 k_9 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_4 k_{10}} \epsilon_{k_5 k_6 k_2 k_3 k_7 k_4} \epsilon_{k_4 k_8 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_2 k_3 k_7 k_4} \epsilon_{k_2 k_3 k_7 k_4 k_8 k_9} \epsilon_{k_4 k_8 k_9 k_{10}}} \right]
 \end{aligned} \tag{93}$$

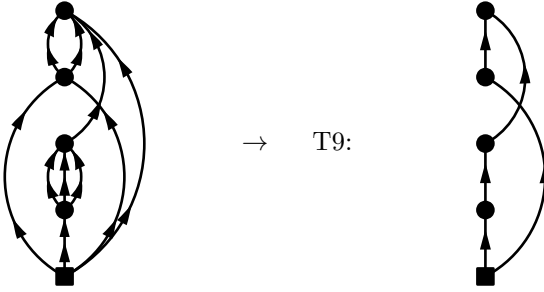

→ T8:


$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (94)$$

$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$   
 $a_2 = \epsilon_{k_5 k_6}^{k_8 k_9}$   
 $a_3 = \epsilon_{k_2 k_3 k_7}^{k_{10}}$   
 $a_4 = \epsilon_{k_4 k_8 k_9 k_{10}}$

**Diagram 41:**

$$\begin{aligned}
PO4.41 &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_9 k_{10} k_2 k_3}^{22} \Omega_{k_9 k_{10} k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6 k_7}^{k_8}} e^{-\tau_3 \epsilon_{k_2 k_3}^{k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_4 k_8 k_9 k_{10}}} \\
&= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_9 k_{10} k_2 k_3}^{22} \Omega_{k_9 k_{10} k_8 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_4 k_9 k_{10}} \epsilon_{k_5 k_6 k_7 k_4 k_9 k_{10}} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_8 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_4 k_9 k_{10}} \epsilon_{k_5 k_6 k_7 k_2 k_3 k_4} \epsilon_{k_4 k_8 k_9 k_{10}}} \right] \quad (95)
\end{aligned}$$

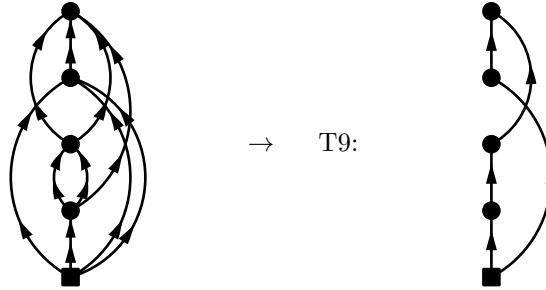


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (96)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_5 k_6 k_7}^{k_8} \\ a_3 &= \epsilon_{k_2 k_3}^{k_9 k_{10}} \\ a_4 &= \epsilon_{k_4 k_8 k_9 k_{10}} \end{aligned}$$

**Diagram 42:**

$$\begin{aligned} \text{PO4.42} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_{10} k_2 k_3 k_4}^{13} \Omega_{k_{10} k_8 k_9 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_2 k_3 k_4}^{k_{10}}} e^{-\tau_4 \epsilon_{k_{10} k_8 k_9 k_7}^{04}} \\ &= \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_{10} k_2 k_3 k_4}^{13} \Omega_{k_{10} k_8 k_9 k_7}^{04} \left[ \frac{1}{\epsilon_{k_1 k_{10}} \epsilon_{k_5 k_6 k_7 k_{10}} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_7 k_8 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_{10}} \epsilon_{k_5 k_6 k_2 k_3 k_4 k_7} \epsilon_{k_7 k_8 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_{10}} \epsilon_{k_5 k_6 k_2 k_3 k_4 k_7} \epsilon_{k_7 k_8 k_9 k_{10}}} \right] \quad (97) \end{aligned}$$

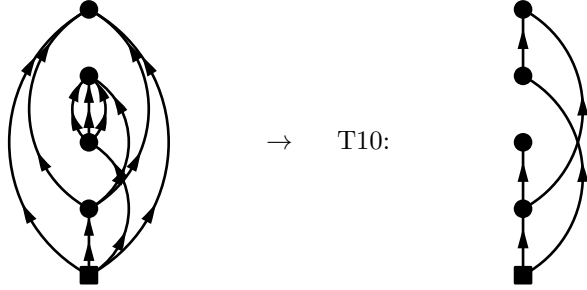


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (98)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_2 &= \epsilon_{k_5 k_6}^{k_8 k_9} \\
a_3 &= \epsilon_{k_2 k_3 k_4}^{k_{10}} \\
a_4 &= \epsilon_{k_7 k_8 k_9 k_{10}}
\end{aligned}$$

**Diagram 43:**

$$\begin{aligned}
\text{PO4.43} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_2}^{31} \Omega_{k_8 k_9 k_{10} k_5}^{04} \Omega_{k_6 k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2}^{k_8 k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_5 k_8 k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_7}} \\
&= \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_2}^{31} \Omega_{k_8 k_9 k_{10} k_5}^{04} \Omega_{k_6 k_7 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4}^{k_5 k_8 k_9 k_{10}} \epsilon_{k_2}^{k_8 k_9 k_{10}} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2}^{k_8 k_9 k_{10}} \epsilon_{k_5 k_8 k_9 k_{10} k_3 k_4 k_6 k_7} \epsilon_{k_3 k_4 k_6 k_7}} \right] \\
&\quad (99)
\end{aligned}$$

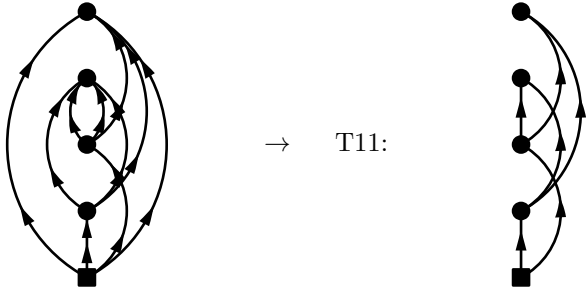
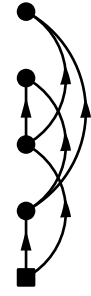


$$\text{T10} = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (100)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_2 &= \epsilon_{k_2}^{k_8 k_9 k_{10}} \\
a_3 &= \epsilon_{k_5 k_8 k_9 k_{10}} \\
a_4 &= \epsilon_{k_3 k_4 k_6 k_7}
\end{aligned}$$

**Diagram 44:**

$$\begin{aligned}
\text{PO4.44} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_2}^{31} \Omega_{k_8 k_9 k_5 k_6}^{04} \Omega_{k_{10} k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2}^{k_8 k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_5 k_6 k_8 k_9}} e^{-\tau_4 \epsilon_{k_{10} k_7 k_3 k_4}} \\
&= \frac{-(-1)^4}{2(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_2}^{31} \Omega_{k_8 k_9 k_5 k_6}^{04} \Omega_{k_{10} k_7 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_8 k_9 k_3 k_4 k_{10}} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_8 k_9} \epsilon_{k_3 k_4 k_7 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_3 k_4 k_7} \epsilon_{k_5 k_6 k_8 k_9} \epsilon_{k_3 k_4 k_7 k_{10}}} \right]
\end{aligned} \tag{101}$$

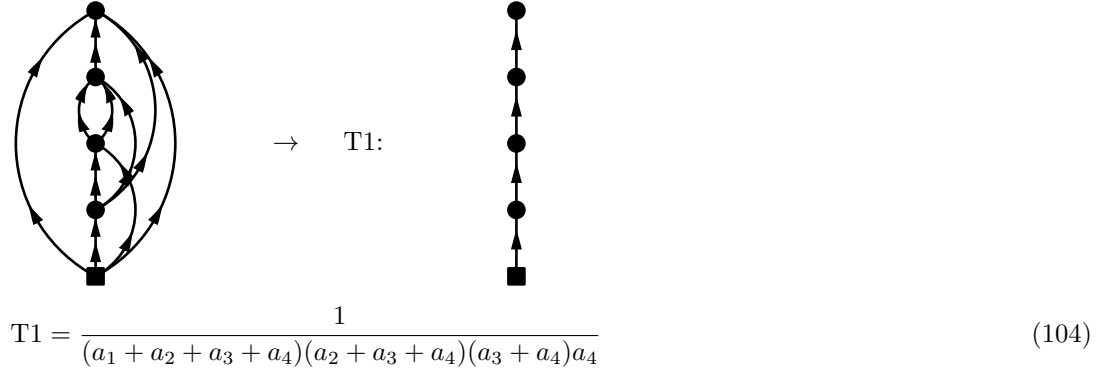

→ T11:


$$\text{T11} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3 a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \tag{102}$$

$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$   
 $a_2 = \epsilon_{k_2}^{k_8 k_9 k_{10}}$   
 $a_3 = \epsilon_{k_5 k_6 k_8 k_9}$   
 $a_4 = \epsilon_{k_3 k_4 k_7 k_{10}}$

**Diagram 45:**

$$\begin{aligned}
\text{PO4.45} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_{10} k_8 k_9 k_6}^{13} \Omega_{k_{10} k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_5 k_6 k_8 k_9}} e^{-\tau_4 \epsilon_{k_{10} k_7 k_3 k_4}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_{10} k_8 k_9 k_6}^{13} \Omega_{k_{10} k_7 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_3 k_4 k_7} \epsilon_{k_6 k_8 k_9 k_3 k_4 k_7} \epsilon_{k_3 k_4 k_7 k_{10}}}
\end{aligned} \tag{103}$$

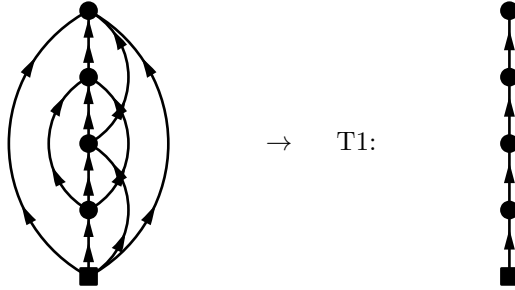


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (104)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2}^{k_8 k_9} \\ a_3 &= \epsilon_{k_6}^{k_{10}} \\ a_4 &= \epsilon_{k_3 k_4 k_7 k_{10}} \end{aligned}$$

**Diagram 46:**

$$\begin{aligned} \text{PO4.46} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_{10} k_8 k_6 k_7}^{13} \Omega_{k_{10} k_9 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_6}^{k_{10}}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_{10}}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_{10} k_8 k_6 k_7}^{13} \Omega_{k_{10} k_9 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_7 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_3 k_4 k_9} \epsilon_{k_3 k_4 k_9 k_{10}}} \end{aligned} \quad (105)$$

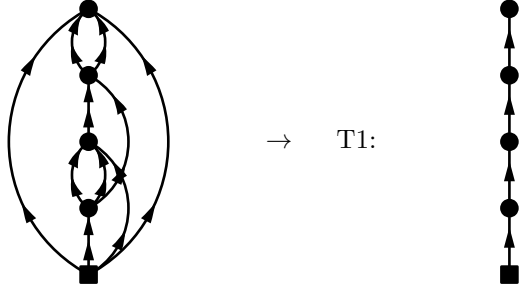


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (106)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2 k_5}^{k_8 k_9} \\ a_3 &= \epsilon_{k_6 k_7 k_8}^{k_{10}} \\ a_4 &= \epsilon_{k_3 k_4 k_9 k_{10}} \end{aligned}$$

**Diagram 47:**

$$\begin{aligned} \text{PO4.47} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_9 k_{10} k_8 k_7}^{22} \Omega_{k_9 k_{10} k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_7 k_8}^{k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_3 k_4 k_9 k_{10}}} \\ &= \frac{-(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_9 k_{10} k_8 k_7}^{22} \Omega_{k_9 k_{10} k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_7 k_3 k_4} \epsilon_{k_7 k_8 k_3 k_4} \epsilon_{k_3 k_4 k_9 k_{10}}} \end{aligned} \quad (107)$$

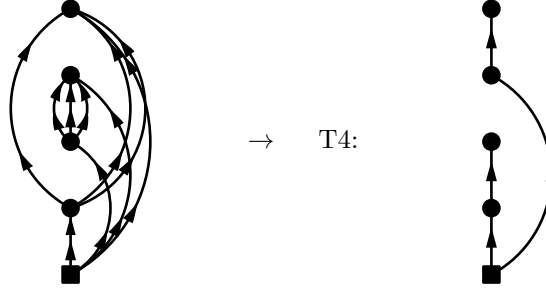


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (108)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2 k_5 k_6}^{k_8} \\ a_3 &= \epsilon_{k_7 k_8}^{k_9 k_{10}} \\ a_4 &= \epsilon_{k_3 k_4 k_9 k_{10}} \end{aligned}$$

**Diagram 48:**

$$\begin{aligned}
\text{PO4.48} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{2(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_2}^{31} \Omega_{k_8 k_9 k_{10} k_3}^{04} \Omega_{k_5 k_6 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2}^{k_8 k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_3 k_8 k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_4 k_5 k_6 k_7}} \\
&= \frac{(-1)^4}{2(3!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_2}^{31} \Omega_{k_8 k_9 k_{10} k_3}^{04} \Omega_{k_5 k_6 k_7 k_4}^{04}}{\epsilon_{k_1 k_2}^{k_5 k_6 k_7 k_8 k_9 k_{10}} \epsilon_{k_2}^{k_8 k_9 k_{10}} \epsilon_{k_3 k_8 k_9 k_{10} k_4 k_5 k_6 k_7} \epsilon_{k_4 k_5 k_6 k_7}}
\end{aligned} \tag{109}$$



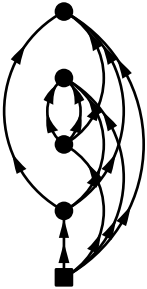
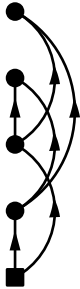
$$T4 = \frac{1}{(a_1 + a_2)a_2(a_3 + a_4)a_4} \tag{110}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_2 &= \epsilon_{k_2}^{k_8 k_9 k_{10}} \\
a_3 &= \epsilon_{k_3 k_8 k_9 k_{10}} \\
a_4 &= \epsilon_{k_4 k_5 k_6 k_7}
\end{aligned}$$

**Diagram 49:**

$$\begin{aligned}
\text{PO4.49} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_2}^{31} \Omega_{k_8 k_9 k_5 k_3}^{04} \Omega_{k_{10} k_6 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2}^{k_8 k_9 k_{10}}} e^{-\tau_3 \epsilon_{k_3 k_5 k_8}} \\
&= \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_{10} k_2}^{31} \Omega_{k_8 k_9 k_5 k_3}^{04} \Omega_{k_{10} k_6 k_7 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_3 k_8 k_9 k_4 k_{10}} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_8 k_9} \epsilon_{k_4 k_6 k_7 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_4 k_6 k_7} \epsilon_{k_3 k_5 k_8 k_9} \epsilon_{k_4 k_6 k_7 k_{10}}} \right]
\end{aligned} \tag{111}$$



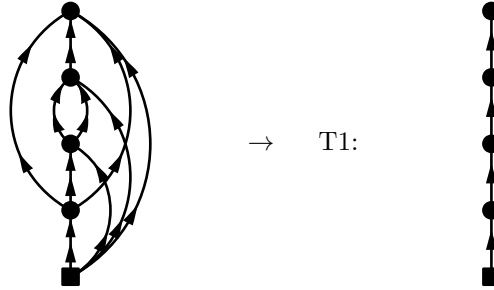

→ T11:


$$T11 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (112)$$

$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$   
 $a_2 = \epsilon_{k_2}^{k_8 k_9 k_{10}}$   
 $a_3 = \epsilon_{k_3}^{k_5 k_8 k_9}$   
 $a_4 = \epsilon_{k_4}^{k_6 k_7 k_{10}}$

**Diagram 50:**

$$\begin{aligned}
 \text{PO4.50} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_{10} k_8 k_9 k_3}^{13} \Omega_{k_{10} k_6 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) \\
 &\quad e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_3}^{k_{10}}} e^{-\tau_4 \epsilon_{k_4}^{k_6 k_7 k_{10}}} \\
 &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_{10} k_8 k_9 k_3}^{13} \Omega_{k_{10} k_6 k_7 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_4 k_6 k_7} \epsilon_{k_3 k_8 k_9 k_4 k_6 k_7} \epsilon_{k_4 k_6 k_7 k_{10}}} \quad (113)
 \end{aligned}$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (114)$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

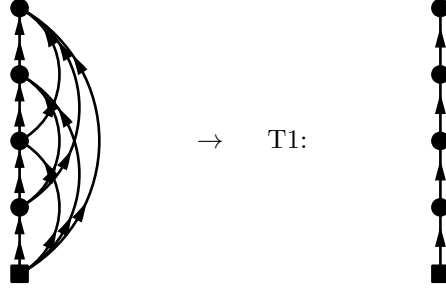
$$a_2 = \epsilon_{k_2 k_5}^{k_8 k_9}$$

$$a_3 = \epsilon_{k_3 k_8 k_9}^{k_{10}}$$

$$a_4 = \epsilon_{k_4 k_6 k_7 k_{10}}$$

**Diagram 51:**

$$\begin{aligned} \text{PO4.51} &= \lim_{\tau \rightarrow \infty} -(-1)^4 \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_{10} k_8 k_6 k_3}^{13} \Omega_{k_{10} k_9 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_3}^{k_{10}}} e^{-\tau_4 \epsilon_{k_4}^{k_6 k_7 k_{10}}} \\ &= -(-1)^4 \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_{10} k_8 k_6 k_3}^{13} \Omega_{k_{10} k_9 k_7 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_6 k_4 k_7} \epsilon_{k_3 k_6 k_8 k_4 k_7 k_9} \epsilon_{k_4 k_7 k_9 k_{10}}} \end{aligned} \quad (115)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (116)$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

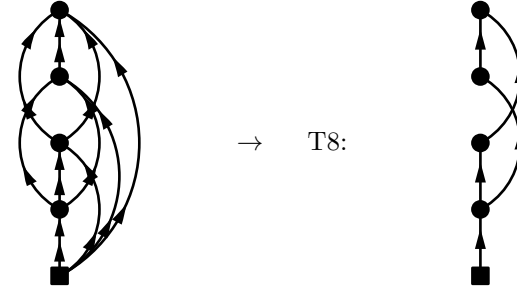
$$a_2 = \epsilon_{k_2 k_5}^{k_8 k_9}$$

$$a_3 = \epsilon_{k_3 k_6 k_8}^{k_{10}}$$


$$a_4 = \epsilon_{k_4 k_7 k_9 k_{10}}$$

**Diagram 52:**

$$\begin{aligned}
\text{PO4.52} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_{10} k_6 k_7 k_3}^{13} \Omega_{k_{10} k_8 k_9 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_3}^{k_{10}}} e^{-\tau_4 \epsilon_{k_4}^{k_{10}}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_{10} k_6 k_7 k_3}^{13} \Omega_{k_{10} k_8 k_9 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_4 k_{10}} \epsilon_{k_2 k_5 k_3 k_6 k_7 k_4} \epsilon_{k_4 k_8 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_6 k_7 k_4} \epsilon_{k_3 k_6 k_7 k_4 k_8 k_9} \epsilon_{k_4 k_8 k_9 k_{10}}} \right]
\end{aligned} \tag{117}$$



$\rightarrow$  T8:



$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{118}$$

$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$   
 $a_2 = \epsilon_{k_2}^{k_8 k_9}$   
 $a_3 = \epsilon_{k_3}^{k_{10}}$   
 $a_4 = \epsilon_{k_4}^{k_8 k_9 k_{10}}$

**Diagram 53:**

$$\begin{aligned}
\text{PO4.53} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_9 k_{10} k_8 k_3}^{22} \Omega_{k_9 k_{10} k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2}^{k_8}} e^{-\tau_3 \epsilon_{k_3}^{k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_4}^{k_{10}}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_9 k_{10} k_8 k_3}^{22} \Omega_{k_9 k_{10} k_7 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_3 k_4 k_7} \epsilon_{k_3 k_8 k_4 k_7} \epsilon_{k_4 k_7 k_9 k_{10}}}
\end{aligned} \tag{119}$$

Diagrammatic equation (120) showing a reduction of a complex loop diagram to a tree diagram T1. The left side is a diagram with a square root at the bottom, four vertices, and several curved arrows representing interactions. An arrow points to the right, labeled "T1:", where the right side is a simple vertical chain of four vertices connected by upward-pointing arrows, also starting from a square root. Below this, the formula for T1 is given:

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (120)$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

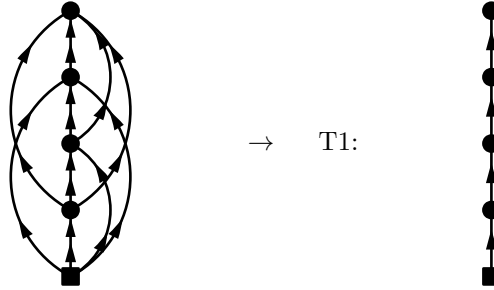
$$a_2 = \epsilon_{k_2}^{k_8 k_5 k_6}$$

$$a_3 = \epsilon_{k_3}^{k_9 k_{10}}$$

$$a_4 = \epsilon_{k_4}^{k_7 k_9 k_{10}}$$

**Diagram 54:**

$$\begin{aligned}
 \text{PO4.54} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_{10} k_8 k_3 k_4}^{13} \Omega_{k_{10} k_9 k_6 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_3}^{k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_4}^{k_7 k_9 k_{10}}} \\
 &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_{10} k_8 k_3 k_4}^{13} \Omega_{k_{10} k_9 k_6 k_7}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_4 k_6 k_7} \epsilon_{k_3 k_4 k_8 k_6 k_7 k_9} \epsilon_{k_6 k_7 k_9 k_{10}}} \quad (121)
 \end{aligned}$$

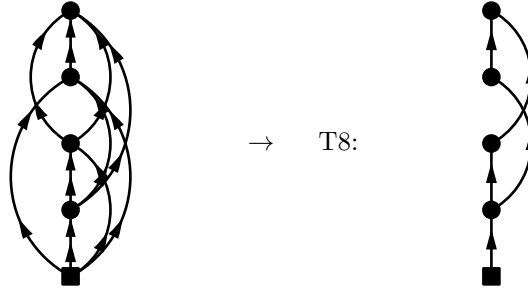


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (122)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2}^{k_8 k_9} \\ a_3 &= \epsilon_{k_3 k_4}^{k_{10}} \\ a_4 &= \epsilon_{k_6 k_7 k_9 k_{10}} \end{aligned}$$

**Diagram 55:**

$$\begin{aligned} \text{PO4.55} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_{10} k_6 k_3 k_4}^{13} \Omega_{k_{10} k_8 k_9 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_3 k_4}^{k_{10}}} e^{-\tau_4 \epsilon_{k_6 k_7 k_9 k_{10}}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_{10} k_6 k_3 k_4}^{13} \Omega_{k_{10} k_8 k_9 k_7}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_7 k_{10}} \epsilon_{k_2 k_5 k_3 k_4 k_6 k_7} \epsilon_{k_7 k_8 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_4 k_6 k_7} \epsilon_{k_3 k_4 k_6 k_7 k_8 k_9} \epsilon_{k_7 k_8 k_9 k_{10}}} \right] \end{aligned} \quad (123)$$

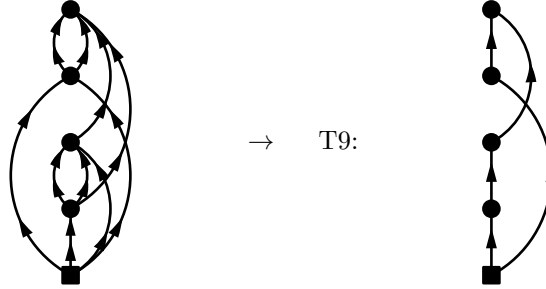


$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (124)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_2 &= \epsilon_{k_2 k_5}^{k_8} \\
a_3 &= \epsilon_{k_3 k_4}^{k_{10}} \\
a_4 &= \epsilon_{k_7 k_8 k_9 k_{10}}
\end{aligned}$$

**Diagram 56:**

$$\begin{aligned}
\text{PO4.56} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_9 k_{10} k_3 k_4}^{22} \Omega_{k_9 k_{10} k_8 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5}^{k_8}} e^{-\tau_3 \epsilon_{k_3 k_4}^{k_{10}}} e^{-\tau_4 \epsilon_{k_7 k_8 k_9 k_{10}}} \\
&= \frac{-(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_9 k_{10} k_3 k_4}^{22} \Omega_{k_9 k_{10} k_8 k_7}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_9 k_{10}} \epsilon_{k_2 k_5 k_6 k_7 k_9 k_{10}} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_7 k_8 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_7 k_9 k_{10}} \epsilon_{k_2 k_5 k_6 k_3 k_4 k_7} \epsilon_{k_7 k_8 k_9 k_{10}}} \right] \\
&\quad (125)
\end{aligned}$$

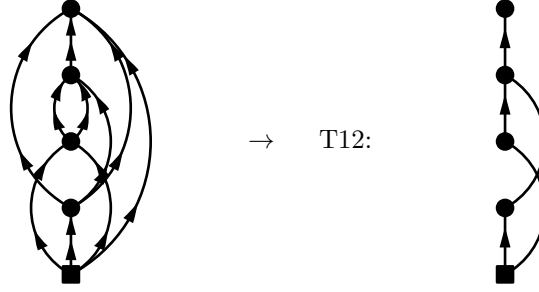


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (126)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_2 &= \epsilon_{k_2 k_5}^{k_8} \\
a_3 &= \epsilon_{k_3 k_4}^{k_{10}} \\
a_4 &= \epsilon_{k_7 k_8 k_9 k_{10}}
\end{aligned}$$

**Diagram 57:**

$$\begin{aligned}
\text{PO4.57} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_2 k_3}^{22} \Omega_{k_{10} k_8 k_9 k_5}^{13} \Omega_{k_{10} k_6 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_5 k_8 k_9}^{k_{10}}} e^{-\tau_4 \epsilon_{k_6 k_7 k_{10}}^{k_4}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_2 k_3}^{22} \Omega_{k_{10} k_8 k_9 k_5}^{13} \Omega_{k_{10} k_6 k_7 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_8 k_9 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_8 k_9 k_4 k_6 k_7} \epsilon_{k_4 k_6 k_7 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_4 k_6 k_7} \epsilon_{k_5 k_8 k_9 k_4 k_6 k_7} \epsilon_{k_4 k_6 k_7 k_{10}}} \right]
\end{aligned} \tag{127}$$

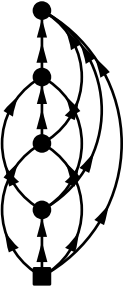



$$\text{T12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{128}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_2 &= \epsilon_{k_2 k_3}^{k_8 k_9} \\
a_3 &= \epsilon_{k_5 k_8 k_9}^{k_{10}} \\
a_4 &= \epsilon_{k_4 k_6 k_7 k_{10}}
\end{aligned}$$

**Diagram 58:**

$$\begin{aligned}
\text{PO4.58} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_2 k_3}^{22} \Omega_{k_{10} k_8 k_5 k_6}^{13} \Omega_{k_{10} k_9 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_5 k_8 k_9}^{k_{10}}} e^{-\tau_4 \epsilon_{k_6 k_7 k_{10}}^{k_4}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_2 k_3}^{22} \Omega_{k_{10} k_8 k_5 k_6}^{13} \Omega_{k_{10} k_9 k_7 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_8 k_4 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_8 k_4 k_7 k_9} \epsilon_{k_4 k_7 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_6 k_4 k_7} \epsilon_{k_5 k_6 k_8 k_4 k_7 k_9} \epsilon_{k_4 k_7 k_9 k_{10}}} \right]
\end{aligned} \tag{129}$$

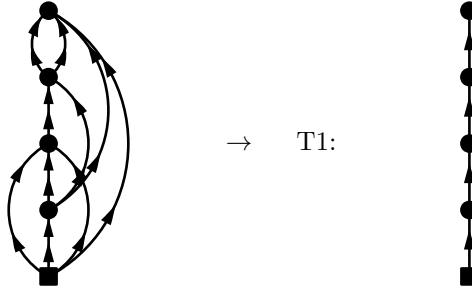

→ T12:


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (130)$$

$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$   
 $a_2 = \epsilon_{k_2}^{k_8 k_9}$   
 $a_3 = \epsilon_{k_5}^{k_{10} k_6 k_8}$   
 $a_4 = \epsilon_{k_4}^{k_7 k_9 k_{10}}$

**Diagram 59:**

$$\begin{aligned}
 \text{PO4.59} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_2 k_3}^{13} \Omega_{k_9 k_{10} k_8 k_6}^{22} \Omega_{k_9 k_{10} k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2}^{k_8 k_3 k_5}} e^{-\tau_3 \epsilon_{k_3}^{k_5 k_6 k_7}} e^{-\tau_4 \epsilon_{k_4}^{k_7 k_9 k_{10}}} \\
 &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_2 k_3}^{13} \Omega_{k_9 k_{10} k_8 k_6}^{22} \Omega_{k_9 k_{10} k_7 k_4}^{04}}{\epsilon_{k_1}^{k_2 k_3 k_4} \epsilon_{k_2}^{k_3 k_5 k_6 k_4 k_7} \epsilon_{k_6}^{k_8 k_4 k_7} \epsilon_{k_4}^{k_7 k_9 k_{10}}}
 \end{aligned} \quad (131)$$



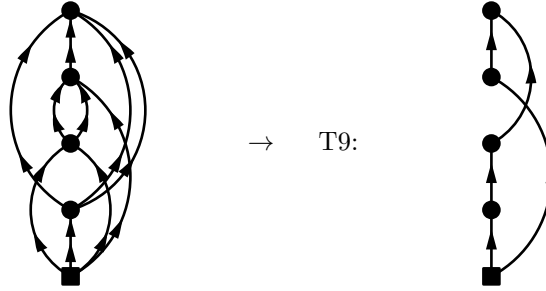


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (132)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2 k_3 k_5}^{k_8} \\ a_3 &= \epsilon_{k_6 k_8}^{k_9 k_{10}} \\ a_4 &= \epsilon_{k_4 k_7 k_9 k_{10}} \end{aligned}$$

**Diagram 60:**

$$\begin{aligned} \text{PO4.60} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_2 k_3}^{22} \Omega_{k_{10} k_8 k_9 k_4}^{13} \Omega_{k_{10} k_5 k_6 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_4 k_8 k_9}^{k_{10}}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7 k_{10}}} \\ &= \frac{-(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_2 k_3}^{22} \Omega_{k_{10} k_8 k_9 k_4}^{13} \Omega_{k_{10} k_5 k_6 k_7}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5 k_6 k_7} \epsilon_{k_4 k_8 k_9 k_5 k_6 k_7} \epsilon_{k_5 k_6 k_7 k_{10}}} + \frac{1}{\epsilon_{k_1 k_4 k_8 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_8 k_9 k_5 k_6 k_7} \epsilon_{k_5 k_6 k_7 k_{10}}} \right] \end{aligned} \quad (133)$$

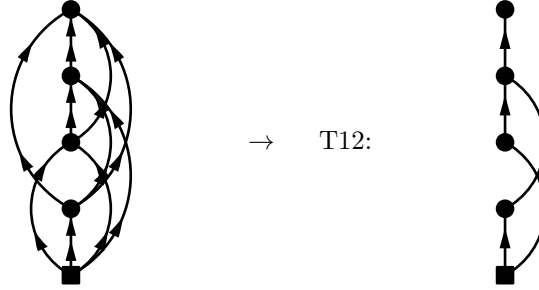


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (134)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_2 k_3}^{k_8 k_9} \\
a_2 &= \epsilon_{k_4 k_8 k_9}^{k_{10}} \\
a_3 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_4 &= \epsilon_{k_5 k_6 k_7 k_{10}}
\end{aligned}$$

**Diagram 61:**

$$\begin{aligned}
\text{PO4.61} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_2 k_3}^{22} \Omega_{k_{10} k_8 k_5 k_4}^{13} \Omega_{k_{10} k_9 k_6 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_4 k_8 k_9}^{k_{10}}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_2 k_3}^{22} \Omega_{k_{10} k_8 k_5 k_4}^{13} \Omega_{k_{10} k_9 k_6 k_7}^{04} \left[ \frac{1}{\epsilon_{k_1 k_4 k_8 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_5 k_8 k_6 k_7 k_9} \epsilon_{k_6 k_7 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5 k_6 k_7} \epsilon_{k_4 k_5 k_8 k_6 k_7 k_9} \epsilon_{k_6 k_7 k_9 k_{10}}} \right] \\
&\quad (135)
\end{aligned}$$

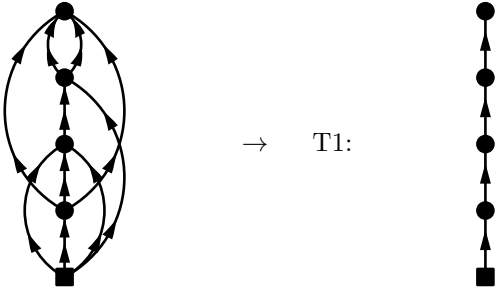


$$\text{T12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (136)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_2 &= \epsilon_{k_2 k_3}^{k_8 k_9} \\
a_3 &= \epsilon_{k_4 k_5 k_8}^{k_{10}} \\
a_4 &= \epsilon_{k_6 k_7 k_9 k_{10}}
\end{aligned}$$

**Diagram 62:**

$$\begin{aligned}
\text{PO4.62} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_2 k_3}^{13} \Omega_{k_9 k_{10} k_8 k_4}^{22} \Omega_{k_9 k_{10} k_6 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_3 k_5}^{k_8}} e^{-\tau_3 \epsilon_{k_4 k_8}^{k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_6 k_7 k_9 k_{10}}^{k_5}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_2 k_3}^{13} \Omega_{k_9 k_{10} k_8 k_4}^{22} \Omega_{k_9 k_{10} k_6 k_7}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_4 k_6 k_7} \epsilon_{k_4 k_8 k_6 k_7} \epsilon_{k_6 k_7 k_9 k_{10}}}
\end{aligned} \tag{137}$$



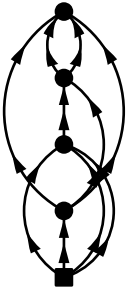
$\rightarrow$  T1:

$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{138}$$


$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$   
 $a_2 = \epsilon_{k_2 k_3 k_5}^{k_8}$   
 $a_3 = \epsilon_{k_4 k_8}^{k_9 k_{10}}$   
 $a_4 = \epsilon_{k_6 k_7 k_9 k_{10}}$

**Diagram 63:**

$$\begin{aligned}
\text{PO4.63} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2 (3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_2 k_3 k_4}^{13} \Omega_{k_9 k_{10} k_8 k_5}^{22} \Omega_{k_9 k_{10} k_6 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_3 k_4}^{k_8}} e^{-\tau_3 \epsilon_{k_5 k_8}^{k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_6 k_7 k_9 k_{10}}^{k_5}} \\
&= \frac{-(-1)^4}{(2!)^2 (3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_2 k_3 k_4}^{13} \Omega_{k_9 k_{10} k_8 k_5}^{22} \Omega_{k_9 k_{10} k_6 k_7}^{04} \left[ \frac{1}{\epsilon_{k_1 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_8 k_6 k_7} \epsilon_{k_6 k_7 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5 k_6 k_7} \epsilon_{k_5 k_8 k_6 k_7} \epsilon_{k_6 k_7 k_9 k_{10}}} \right]
\end{aligned} \tag{139}$$



$\rightarrow$  T12:

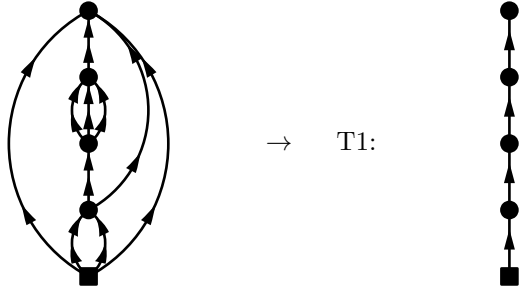


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (140)$$

$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$   
 $a_2 = \epsilon_{k_2}^{k_8 k_3 k_4}$   
 $a_3 = \epsilon_{k_5}^{k_9 k_{10} k_8}$   
 $a_4 = \epsilon_{k_6}^{k_7 k_9 k_{10}}$

**Diagram 64:**

$$\begin{aligned}
 \text{PO4.64} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2 (3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_{10} k_7 k_8 k_9}^{13} \Omega_{k_{10} k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_7 k_8 k_9}^{k_{10}}} e^{-\tau_4 \epsilon_{k_6 k_3 k_4}^{k_{10}}} \\
 &= \frac{(-1)^4}{(2!)^2 (3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_{10} k_7 k_8 k_9}^{13} \Omega_{k_{10} k_6 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_4 k_6} \epsilon_{k_7 k_8 k_9 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_6 k_{10}}} \quad (141)
 \end{aligned}$$

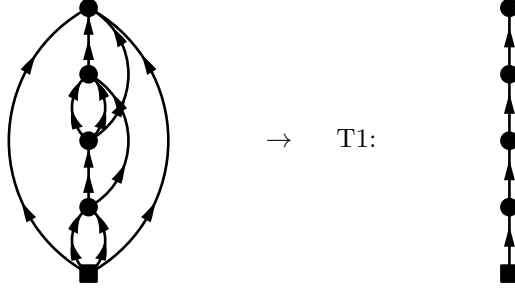


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (142)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7 k_8 k_9} \\ a_3 &= \epsilon_{k_7 k_8 k_9}^{k_{10}} \\ a_4 &= \epsilon_{k_3 k_4 k_6 k_{10}} \end{aligned}$$

**Diagram 65:**

$$\begin{aligned} \text{PO4.65} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_{10} k_7 k_8 k_6}^{13} \Omega_{k_{10} k_9 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_7 k_8 k_9}^{k_{10}}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_{10}}} \\ &= \frac{-(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_{10} k_7 k_8 k_6}^{13} \Omega_{k_{10} k_9 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_3 k_4 k_9} \epsilon_{k_3 k_4 k_9 k_{10}}} \end{aligned} \quad (143)$$

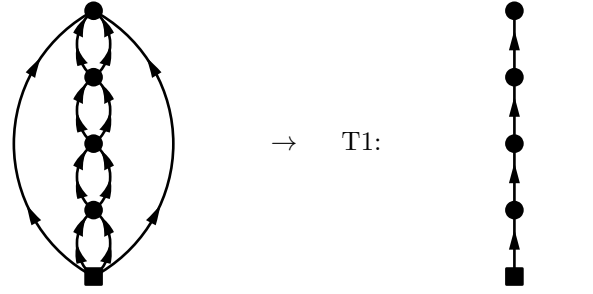


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (144)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7 k_8 k_9} \\ a_3 &= \epsilon_{k_6 k_7 k_8}^{k_{10}} \\ a_4 &= \epsilon_{k_3 k_4 k_9 k_{10}} \end{aligned}$$

**Diagram 66:**

$$\begin{aligned}
\text{PO4.66} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^5} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_{10} k_7 k_8}^{22} \Omega_{k_9 k_{10} k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_7 k_8}^{k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_3 k_4 k_9 k_{10}}} \\
&= \frac{(-1)^4}{(2!)^5} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_{10} k_7 k_8}^{22} \Omega_{k_9 k_{10} k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_3 k_4} \epsilon_{k_7 k_8 k_3 k_4} \epsilon_{k_3 k_4 k_9 k_{10}}}
\end{aligned} \tag{145}$$

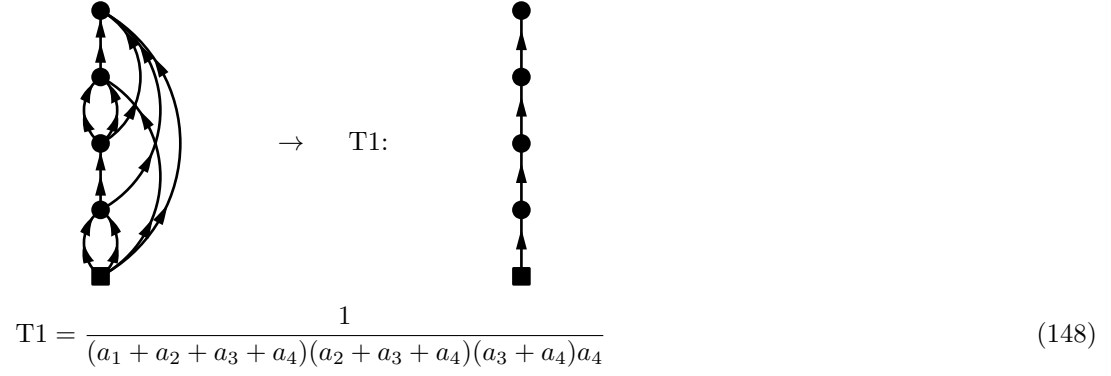


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{146}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_2 &= \epsilon_{k_5 k_6}^{k_7 k_8} \\
a_3 &= \epsilon_{k_7 k_8}^{k_9 k_{10}} \\
a_4 &= \epsilon_{k_3 k_4 k_9 k_{10}}
\end{aligned}$$

**Diagram 67:**

$$\begin{aligned}
\text{PO4.67} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_{10} k_7 k_8 k_3}^{13} \Omega_{k_{10} k_9 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_7 k_8}^{k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_3 k_4 k_9 k_{10}}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_{10} k_7 k_8 k_3}^{13} \Omega_{k_{10} k_9 k_6 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_4 k_6} \epsilon_{k_3 k_7 k_8 k_4 k_6 k_9} \epsilon_{k_4 k_6 k_9 k_{10}}}
\end{aligned} \tag{147}$$

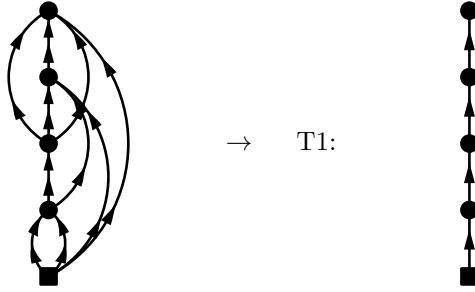


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (148)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7 k_8 k_9} \\ a_3 &= \epsilon_{k_3 k_7 k_8}^{k_{10}} \\ a_4 &= \epsilon_{k_4 k_6 k_9 k_{10}} \end{aligned}$$

**Diagram 68:**

$$\begin{aligned} \text{PO4.68} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_{10} k_7 k_6 k_3}^{13} \Omega_{k_{10} k_8 k_9 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_3 k_7 k_8}^{k_{10}}} e^{-\tau_4 \epsilon_{k_4 k_6 k_9 k_{10}}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_{10} k_7 k_6 k_3}^{13} \Omega_{k_{10} k_8 k_9 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_6 k_4} \epsilon_{k_3 k_6 k_7 k_4 k_8 k_9} \epsilon_{k_4 k_8 k_9 k_{10}}} \end{aligned} \quad (149)$$

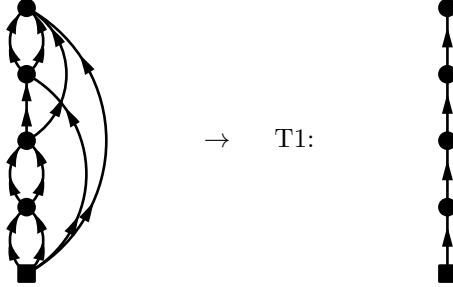


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (150)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7 k_8 k_9} \\ a_3 &= \epsilon_{k_3 k_6 k_7}^{k_{10}} \\ a_4 &= \epsilon_{k_4 k_8 k_9 k_{10}} \end{aligned}$$

**Diagram 69:**

$$\begin{aligned} \text{PO4.69} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_{10} k_7 k_3}^{22} \Omega_{k_9 k_{10} k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_7}^{k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_4 k_8 k_9 k_{10}}} \\ &= \frac{-(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_{10} k_7 k_3}^{22} \Omega_{k_9 k_{10} k_8 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_3 k_4} \epsilon_{k_3 k_7 k_4 k_8} \epsilon_{k_4 k_8 k_9 k_{10}}} \end{aligned} \quad (151)$$



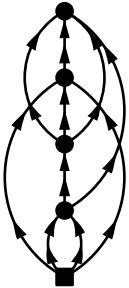

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (152)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_5 k_6}^{k_7 k_8} \\ a_3 &= \epsilon_{k_3 k_7}^{k_9 k_{10}} \\ a_4 &= \epsilon_{k_4 k_8 k_9 k_{10}} \end{aligned}$$



**Diagram 70:**

$$\begin{aligned}
 \text{PO4.70} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_{10} k_7 k_3 k_4}^{13} \Omega_{k_{10} k_8 k_9 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_3 k_4}^{k_{10}}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_{10} k_7 k_3 k_4}^{13} \Omega_{k_{10} k_8 k_9 k_6}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_7 k_6 k_8 k_9} \epsilon_{k_6 k_8 k_9 k_{10}}}
 \end{aligned} \tag{153}$$

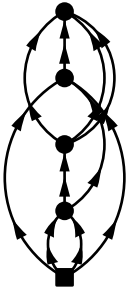


→ T1:


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{154}$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
 a_2 &= \epsilon_{k_5}^{k_7 k_8 k_9} \\
 a_3 &= \epsilon_{k_3 k_4 k_7}^{k_{10}} \\
 a_4 &= \epsilon_{k_6 k_8 k_9 k_{10}}
 \end{aligned}$$

**Diagram 71:**

$$\begin{aligned}
 \text{PO4.71} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2 (3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_{10} k_6 k_3 k_4}^{13} \Omega_{k_{10} k_7 k_8 k_9}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_3 k_4 k_6}^{k_{10}}} \\
 &= \frac{-(-1)^4}{(2!)^2 (3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_{10} k_6 k_3 k_4}^{13} \Omega_{k_{10} k_7 k_8 k_9}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_{10}} \epsilon_{k_5 k_3 k_4 k_6} \epsilon_{k_7 k_8 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_6 k_7 k_8 k_9} \epsilon_{k_7 k_8 k_9 k_{10}}} \right]
 \end{aligned} \tag{155}$$

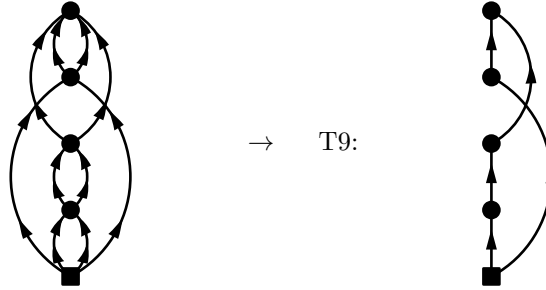

→ T8:


$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (156)$$

$a_1 = \epsilon_{k_1 k_2}^{k_5 k_6}$   
 $a_2 = \epsilon_{k_5}^{k_7 k_8 k_9}$   
 $a_3 = \epsilon_{k_3 k_4 k_6}^{k_{10}}$   
 $a_4 = \epsilon_{k_7 k_8 k_9 k_{10}}$

**Diagram 72:**

$$\begin{aligned}
\text{PO4.72} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^5} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_{10} k_3 k_4}^{22} \Omega_{k_9 k_{10} k_7 k_8}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_4}^{k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_7 k_8 k_9 k_{10}}} \\
&= \frac{(-1)^4}{(2!)^5} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_{10} k_3 k_4}^{22} \Omega_{k_9 k_{10} k_7 k_8}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_7 k_8 k_9 k_{10}}^{k_5 k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_4 k_7 k_8}^{k_5 k_6} \epsilon_{k_7 k_8 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_7 k_8 k_9 k_{10}}^{k_5 k_6} \epsilon_{k_1 k_2 k_9 k_{10}} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_7 k_8 k_9 k_{10}}} \right] \quad (157)
\end{aligned}$$

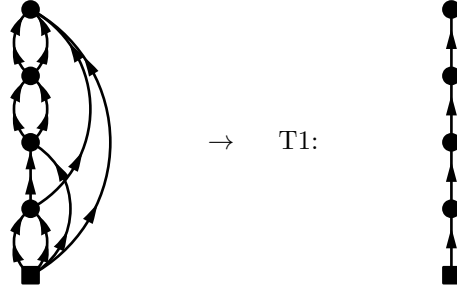


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (158)$$

$$\begin{aligned} a_1 &= \epsilon_{k_3 k_4}^{k_9 k_{10}} \\ a_2 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_3 &= \epsilon_{k_5 k_6}^{k_7 k_8} \\ a_4 &= \epsilon_{k_7 k_8 k_9 k_{10}} \end{aligned}$$

**Diagram 73:**

$$\begin{aligned} \text{PO4.73} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_9 k_{10} k_7 k_8}^{22} \Omega_{k_9 k_{10} k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_7 k_8}^{k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_9 k_{10} k_6 k_4}} \\ &= \frac{-(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_9 k_{10} k_7 k_8}^{22} \Omega_{k_9 k_{10} k_6 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_4 k_6} \epsilon_{k_7 k_8 k_4 k_6} \epsilon_{k_4 k_6 k_9 k_{10}}} \end{aligned} \quad (159)$$

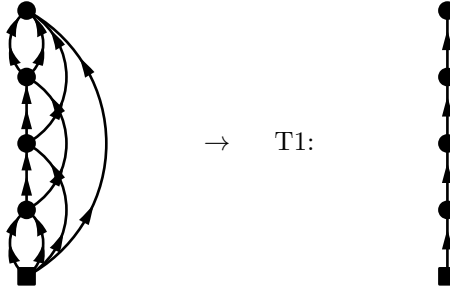


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (160)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_2 &= \epsilon_{k_3 k_5}^{k_7 k_8} \\
a_3 &= \epsilon_{k_7 k_8}^{k_9 k_{10}} \\
a_4 &= \epsilon_{k_4 k_6 k_9 k_{10}}
\end{aligned}$$

**Diagram 74:**

$$\begin{aligned}
\text{PO4.74} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_9 k_{10} k_7 k_6}^{22} \Omega_{k_9 k_{10} k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_7 k_8}^{k_9 k_{10}}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_9 k_{10} k_7 k_6}^{22} \Omega_{k_9 k_{10} k_8 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_6 k_4} \epsilon_{k_6 k_7 k_4 k_8} \epsilon_{k_4 k_8 k_9 k_{10}}}
\end{aligned} \tag{161}$$

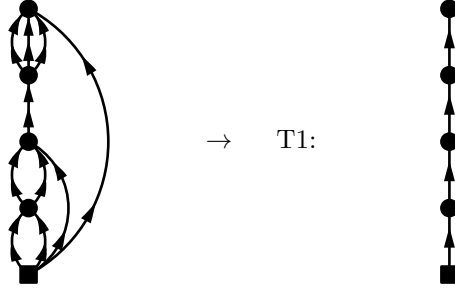


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{162}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_2 &= \epsilon_{k_3 k_5}^{k_7 k_8} \\
a_3 &= \epsilon_{k_6 k_7}^{k_9 k_{10}} \\
a_4 &= \epsilon_{k_4 k_8 k_9 k_{10}}
\end{aligned}$$

**Diagram 75:**

$$\begin{aligned}
 \text{PO4.75} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5 k_6 k_3}^{13} \Omega_{k_8 k_9 k_{10} k_7}^{31} \Omega_{k_8 k_9 k_{10} k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_5 k_6}^{k_7}} e^{-\tau_3 \epsilon_{k_7}^{k_8 k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_4 k_8 k_9 k_{10}}} \\
 &= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5 k_6 k_3}^{13} \Omega_{k_8 k_9 k_{10} k_7}^{31} \Omega_{k_8 k_9 k_{10} k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_6 k_4} \epsilon_{k_7 k_4} \epsilon_{k_4 k_8 k_9 k_{10}}}
 \end{aligned} \tag{163}$$

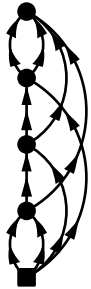



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{164}$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
 a_2 &= \epsilon_{k_3 k_5 k_6}^{k_7} \\
 a_3 &= \epsilon_{k_7}^{k_8 k_9 k_{10}} \\
 a_4 &= \epsilon_{k_4 k_8 k_9 k_{10}}
 \end{aligned}$$

**Diagram 76:**

$$\begin{aligned}
 \text{PO4.76} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_9 k_{10} k_7 k_4}^{22} \Omega_{k_9 k_{10} k_8 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_7}^{k_8 k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_4 k_8 k_9 k_{10}}} \\
 &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_9 k_{10} k_7 k_4}^{22} \Omega_{k_9 k_{10} k_8 k_6}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_4 k_6} \epsilon_{k_4 k_7 k_6 k_8} \epsilon_{k_6 k_8 k_9 k_{10}}}
 \end{aligned} \tag{165}$$

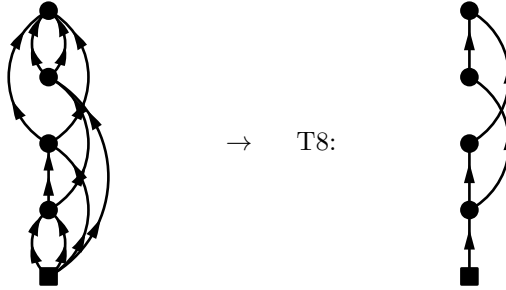

→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (166)$$

$a_1 = \epsilon_{k_1 k_2}^{k_5 k_6}$   
 $a_2 = \epsilon_{k_3 k_5}^{k_7 k_8}$   
 $a_3 = \epsilon_{k_4 k_7}^{k_9 k_{10}}$   
 $a_4 = \epsilon_{k_6 k_8 k_9 k_{10}}$

**Diagram 77:**

$$\begin{aligned}
 \text{PO4.77} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_9 k_{10} k_6 k_4}^{22} \Omega_{k_9 k_{10} k_7 k_8}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\
 &\quad e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_4 k_6}^{k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_6 k_8 k_9 k_{10}}} \\
 &= \frac{-(-1)^4}{2(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_9 k_{10} k_6 k_4}^{22} \Omega_{k_9 k_{10} k_7 k_8}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_9 k_{10}} \epsilon_{k_3 k_5 k_4 k_6} \epsilon_{k_7 k_8 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_4 k_6} \epsilon_{k_4 k_6 k_7 k_8} \epsilon_{k_7 k_8 k_9 k_{10}}} \right] \quad (167)
 \end{aligned}$$

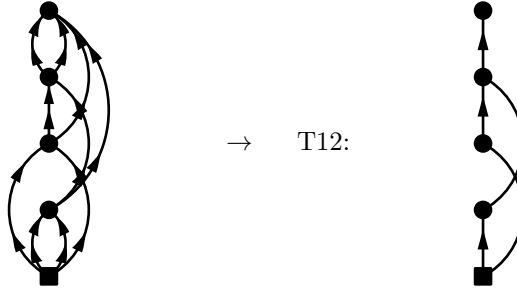


$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (168)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_3 k_5}^{k_7 k_8} \\ a_3 &= \epsilon_{k_4 k_6}^{k_9 k_{10}} \\ a_4 &= \epsilon_{k_7 k_8 k_9 k_{10}} \end{aligned}$$

**Diagram 78:**

$$\begin{aligned} \text{PO4.78} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_{10} k_7 k_5}^{22} \Omega_{k_9 k_{10} k_8 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_5 k_6}^{k_9 k_{10}}} \\ &= \frac{-(-1)^4}{2(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_{10} k_7 k_5}^{22} \Omega_{k_9 k_{10} k_8 k_6}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_7 k_6 k_8} \epsilon_{k_6 k_8 k_9 k_{10}}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_5 k_7 k_6 k_8} \epsilon_{k_6 k_8 k_9 k_{10}}} \right] \end{aligned} \quad (169)$$



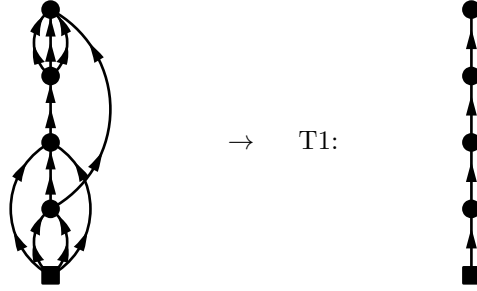
$\rightarrow$  T12:

$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (170)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_2 &= \epsilon_{k_3 k_4}^{k_7 k_8} \\
a_3 &= \epsilon_{k_5 k_7}^{k_9 k_{10}} \\
a_4 &= \epsilon_{k_6 k_8 k_9 k_{10}}
\end{aligned}$$

**Diagram 79:**

$$\begin{aligned}
\text{PO4.79} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5 k_3 k_4}^{13} \Omega_{k_8 k_9 k_{10} k_7}^{31} \Omega_{k_8 k_9 k_{10} k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4 k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_7}^{k_8 k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_6 k_8 k_9 k_{10}}} \\
&= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5 k_3 k_4}^{13} \Omega_{k_8 k_9 k_{10} k_7}^{31} \Omega_{k_8 k_9 k_{10} k_6}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_7 k_6} \epsilon_{k_6 k_8 k_9 k_{10}}}
\end{aligned} \tag{171}$$



$\rightarrow$  T1:

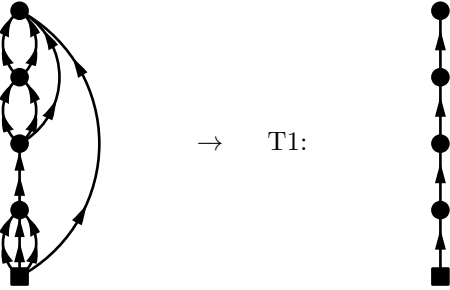
$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{172}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_2 &= \epsilon_{k_3 k_4 k_5}^{k_7} \\
a_3 &= \epsilon_{k_7}^{k_8 k_9 k_{10}} \\
a_4 &= \epsilon_{k_6 k_8 k_9 k_{10}}
\end{aligned}$$



**Diagram 80:**

$$\begin{aligned}
\text{PO4.80} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_{10} k_6 k_7}^{22} \Omega_{k_9 k_{10} k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2 k_3}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_6 k_7}^{k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_8 k_4}^{k_9 k_{10}}} \\
&= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_{10} k_6 k_7}^{22} \Omega_{k_9 k_{10} k_8 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_4} \epsilon_{k_6 k_7 k_4 k_8} \epsilon_{k_4 k_8 k_9 k_{10}}}
\end{aligned} \tag{173}$$

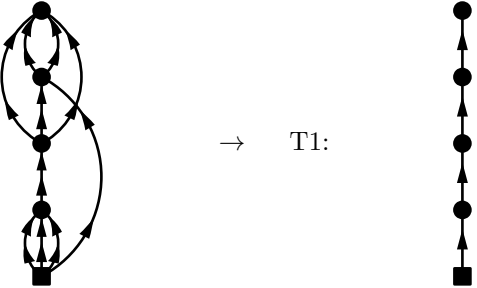


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{174}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2 k_3}^{k_5} \\
a_2 &= \epsilon_{k_5}^{k_6 k_7 k_8} \\
a_3 &= \epsilon_{k_6 k_7}^{k_9 k_{10}} \\
a_4 &= \epsilon_{k_4 k_8 k_9 k_{10}}
\end{aligned}$$

**Diagram 81:**

$$\begin{aligned}
\text{PO4.81} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_{10} k_6 k_4}^{22} \Omega_{k_9 k_{10} k_7 k_8}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2 k_3}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_4 k_6}^{k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_7 k_8}^{k_9 k_{10}}} \\
&= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_{10} k_6 k_4}^{22} \Omega_{k_9 k_{10} k_7 k_8}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_4} \epsilon_{k_4 k_6 k_7 k_8} \epsilon_{k_7 k_8 k_9 k_{10}}}
\end{aligned} \tag{175}$$

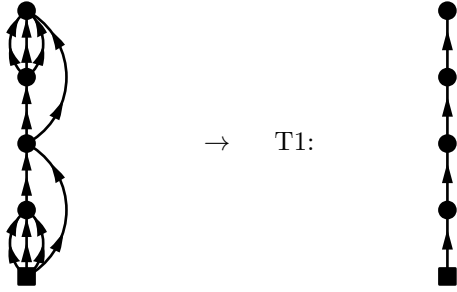


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (176)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2 k_3}^{k_5} \\ a_2 &= \epsilon_{k_5}^{k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_4 k_6}^{k_9 k_{10}} \\ a_4 &= \epsilon_{k_7 k_8 k_9 k_{10}} \end{aligned}$$

**Diagram 82:**

$$\begin{aligned} \text{PO4.82} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_5 k_4}^{22} \Omega_{k_8 k_9 k_{10} k_6}^{31} \Omega_{k_8 k_9 k_{10} k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2 k_3}^{k_5}} e^{-\tau_2 \epsilon_{k_4 k_5}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_6}^{k_8 k_9 k_{10}}} e^{-\tau_4 \epsilon_{k_7 k_8 k_9 k_{10}}} \\ &= \frac{(-1)^4}{(3!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_5 k_4}^{22} \Omega_{k_8 k_9 k_{10} k_6}^{31} \Omega_{k_8 k_9 k_{10} k_7}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_5} \epsilon_{k_6 k_7} \epsilon_{k_7 k_8 k_9 k_{10}}} \end{aligned} \quad (177)$$



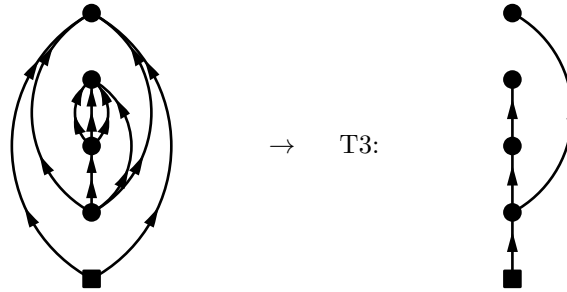
$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (178)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2 k_3}^{k_5} \\ a_2 &= \epsilon_{k_4 k_5}^{k_6 k_7} \\ a_3 &= \epsilon_{k_6}^{k_8 k_9 k_{10}} \\ a_4 &= \epsilon_{k_7 k_8 k_9 k_{10}} \end{aligned}$$

## 2.2 Two-body canonical diagrams for a generic operator only

Diagram 83:

$$\begin{aligned} \text{PO4.83} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_9 k_3}^{31} \Omega_{k_7 k_8 k_9 k_4}^{04} \Omega_{k_5 k_6 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_4 k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_1 k_2 k_5 k_6}} \\ &= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_9 k_3}^{31} \Omega_{k_7 k_8 k_9 k_4}^{04} \Omega_{k_5 k_6 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_4 k_7 k_8 k_9} \epsilon_{k_1 k_2 k_5 k_6}} \end{aligned} \quad (179)$$

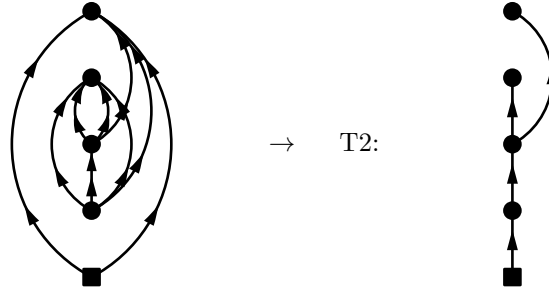


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \quad (180)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
a_2 &= \epsilon_{k_3}^{k_7 k_8 k_9} \\
a_3 &= \epsilon_{k_4 k_7 k_8 k_9} \\
a_4 &= \epsilon_{k_1 k_2 k_5 k_6}
\end{aligned}$$

**Diagram 84:**

$$\begin{aligned}
\text{PO4.84} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_9 k_3}^{31} \Omega_{k_7 k_8 k_4 k_5}^{04} \Omega_{k_9 k_6 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_4 k_7 k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_9 k_3}^{31} \Omega_{k_7 k_8 k_4 k_5}^{04} \Omega_{k_9 k_6 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_1 k_2 k_6} \epsilon_{k_4 k_5 k_7 k_8} \epsilon_{k_1 k_2 k_6 k_9}}
\end{aligned} \tag{181}$$

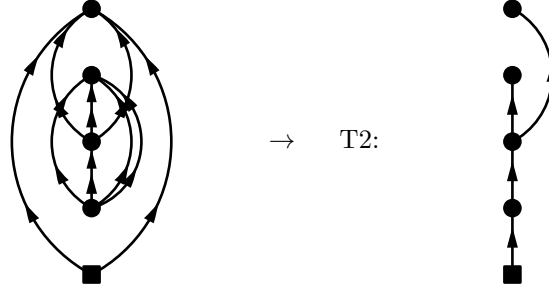


$$\text{T2} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
a_2 &= \epsilon_{k_3}^{k_7 k_8 k_9} \\
a_3 &= \epsilon_{k_4 k_5 k_7 k_8} \\
a_4 &= \epsilon_{k_1 k_2 k_6 k_9}
\end{aligned}$$

**Diagram 85:**

$$\begin{aligned}
 \text{PO4.85} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_9 k_3}^{31} \Omega_{k_7 k_4 k_5 k_6}^{04} \Omega_{k_8 k_9 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_4 k_5 k_6 k_7}} e^{-\tau_4 \epsilon_{k_8 k_9 k_1 k_2}} \\
 &= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_9 k_3}^{31} \Omega_{k_7 k_4 k_5 k_6}^{04} \Omega_{k_8 k_9 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_6 k_1 k_2} \epsilon_{k_4 k_5 k_6 k_7} \epsilon_{k_1 k_2 k_8 k_9}} \quad (183)
 \end{aligned}$$

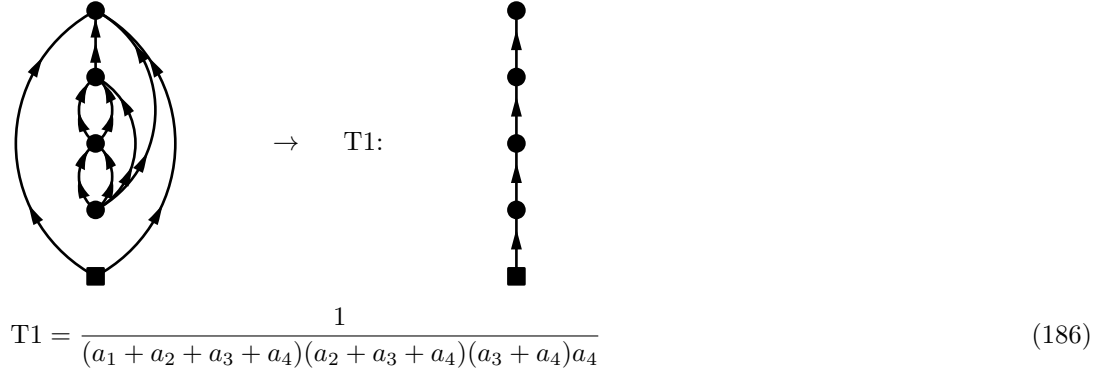


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \quad (184)$$

$$\begin{aligned}
 a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
 a_2 &= \epsilon_{k_3}^{k_7 k_8 k_9} \\
 a_3 &= \epsilon_{k_4 k_5 k_6 k_7} \\
 a_4 &= \epsilon_{k_1 k_2 k_8 k_9}
 \end{aligned}$$

**Diagram 86:**

$$\begin{aligned}
 \text{PO4.86} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_7 k_8 k_5}^{13} \Omega_{k_9 k_6 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_5 k_7}^{k_9}} e^{-\tau_4 \epsilon_{k_6 k_1 k_2}^{04}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_7 k_8 k_5}^{13} \Omega_{k_9 k_6 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_1 k_2 k_6} \epsilon_{k_5 k_7 k_8 k_1 k_2 k_6} \epsilon_{k_1 k_2 k_6 k_9}} \quad (185)
 \end{aligned}$$

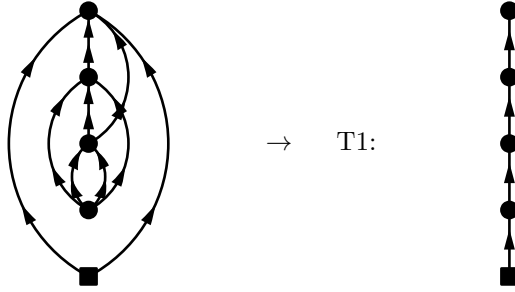


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (186)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\ a_2 &= \epsilon^{k_7 k_8} \\ a_3 &= \epsilon^{k_9} \\ a_4 &= \epsilon_{k_1 k_2 k_6 k_9} \end{aligned}$$

**Diagram 87:**

$$\begin{aligned} \text{PO4.87} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_7 k_5 k_6}^{13} \Omega_{k_9 k_8 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon^{k_9}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_7 k_5 k_6}^{13} \Omega_{k_9 k_8 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_6 k_1 k_2} \epsilon_{k_5 k_6 k_7 k_1 k_2 k_8} \epsilon_{k_1 k_2 k_8 k_9}} \end{aligned} \quad (187)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (188)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

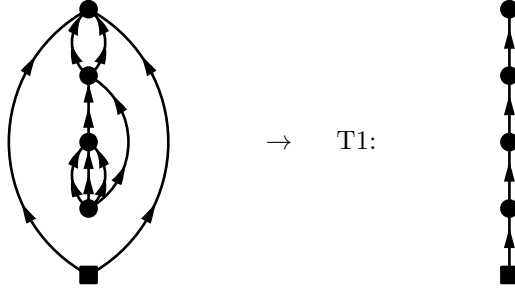
$$a_2 = \epsilon^{k_7 k_8}_{k_3 k_4}$$

$$a_3 = \epsilon^{k_9}_{k_5 k_6 k_7}$$

$$a_4 = \epsilon_{k_1 k_2 k_8 k_9}$$

**Diagram 88:**

$$\begin{aligned} \text{PO4.88} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_9 k_7 k_6}^{22} \Omega_{k_8 k_9 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7}_{k_3 k_4 k_5}} e^{-\tau_3 \epsilon^{k_8 k_9}_{k_6 k_7}} e^{-\tau_4 \epsilon_{k_1 k_2 k_8 k_9}} \\ &= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_9 k_7 k_6}^{22} \Omega_{k_8 k_9 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_6 k_1 k_2} \epsilon_{k_6 k_7 k_1 k_2} \epsilon_{k_1 k_2 k_8 k_9}} \end{aligned} \quad (189)$$



→ T1:

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (190)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

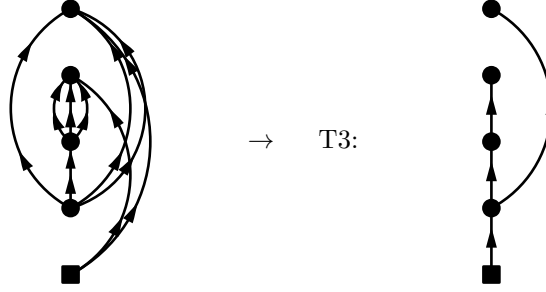
$$a_2 = \epsilon^{k_7}_{k_3 k_4 k_5}$$

$$a_3 = \epsilon^{k_8 k_9}_{k_6 k_7}$$

$$a_4 = \epsilon_{k_1 k_2 k_8 k_9}$$

**Diagram 89:**

$$\begin{aligned}
\text{PO4.89} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_9 k_3}^{31} \Omega_{k_7 k_8 k_9 k_1}^{04} \Omega_{k_4 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_1 k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_2 k_4 k_5 k_6}} \\
&= \frac{-(-1)^4}{(3!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_9 k_3}^{31} \Omega_{k_7 k_8 k_9 k_1}^{04} \Omega_{k_4 k_5 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1} \epsilon_{k_1 k_7 k_8 k_9} \epsilon_{k_2 k_4 k_5 k_6}}
\end{aligned} \tag{191}$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \tag{192}$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

$$a_2 = \epsilon_{k_3}^{k_7 k_8 k_9}$$

$$a_3 = \epsilon_{k_1 k_7 k_8 k_9}$$

$$a_4 = \epsilon_{k_2 k_4 k_5 k_6}$$

**Diagram 90:**

$$\begin{aligned}
\text{PO4.90} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_9 k_3}^{31} \Omega_{k_7 k_8 k_4 k_1}^{04} \Omega_{k_9 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_1 k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_2 k_4 k_5 k_6}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_9 k_3}^{31} \Omega_{k_7 k_8 k_4 k_1}^{04} \Omega_{k_9 k_5 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_4 k_2 k_5 k_6} \epsilon_{k_1 k_4 k_7 k_8} \epsilon_{k_2 k_5 k_6 k_9}}
\end{aligned} \tag{193}$$



$\rightarrow \quad \text{T2:}$

$$\text{T2} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (194)$$

$$\begin{aligned}
 a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
 a_2 &= \epsilon^{k_7 k_8 k_9} \\
 a_3 &= \epsilon_{k_1 k_4 k_7 k_8} \\
 a_4 &= \epsilon_{k_2 k_5 k_6 k_9}
 \end{aligned}$$

**Diagram 91:**

$$\begin{aligned}
 \text{PO4.91} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_7 k_8 k_1}^{13} \Omega_{k_9 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_1 k_7 k_8}} e^{-\tau_4 \epsilon_{k_2 k_5 k_6}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_7 k_8 k_1}^{13} \Omega_{k_9 k_5 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_2 k_5 k_6} \epsilon_{k_1 k_7 k_8 k_2 k_5 k_6} \epsilon_{k_2 k_5 k_6 k_9}}
 \end{aligned} \quad (195)$$

$\rightarrow \quad \text{T1:}$

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (196)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

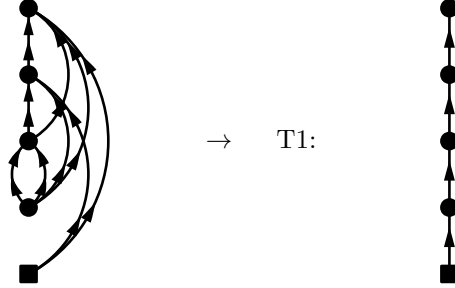
$$a_2 = \epsilon^{k_7 k_8}_{k_3 k_4}$$

$$a_3 = \epsilon^{k_9}_{k_1 k_7 k_8}$$

$$a_4 = \epsilon_{k_2 k_5 k_6 k_9}$$

**Diagram 92:**

$$\begin{aligned} \text{PO4.92} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_7 k_5 k_1}^{13} \Omega_{k_9 k_8 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}_{k_3 k_4}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_7 k_5 k_1}^{13} \Omega_{k_9 k_8 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_5 k_2 k_6} \epsilon_{k_1 k_5 k_7 k_2 k_6 k_8} \epsilon_{k_2 k_6 k_8 k_9}} \end{aligned} \quad (197)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (198)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

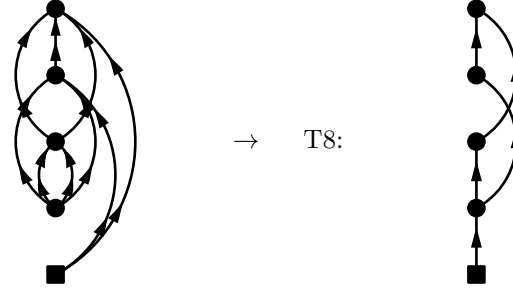
$$a_2 = \epsilon^{k_7 k_8}_{k_3 k_4}$$

$$a_3 = \epsilon^{k_9}_{k_1 k_5 k_7}$$

$$a_4 = \epsilon_{k_2 k_6 k_8 k_9}$$

**Diagram 93:**

$$\begin{aligned}
 \text{PO4.93} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_9 k_7 k_8 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon^{k_9}} e^{-\tau_4 \epsilon^{k_2 k_3 k_4 k_5 k_6}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_9 k_7 k_8 k_2}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_2 k_9} \epsilon_{k_3 k_4 k_1 k_5 k_6 k_2} \epsilon_{k_2 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_5 k_6 k_2} \epsilon_{k_1 k_5 k_6 k_2 k_7 k_8} \epsilon_{k_2 k_7 k_8 k_9}} \right]
 \end{aligned} \tag{199}$$



$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{200}$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$



$$a_2 = \epsilon^{k_7 k_8}$$

$$a_3 = \epsilon^{k_9}$$

$$a_4 = \epsilon^{k_2 k_7 k_8 k_9}$$

**Diagram 94:**

$$\begin{aligned}
 \text{PO4.94} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_9 k_7 k_1}^{22} \Omega_{k_8 k_9 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7}} e^{-\tau_3 \epsilon^{k_8 k_9}} e^{-\tau_4 \epsilon^{k_2 k_3 k_4 k_5 k_6}} \\
 &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_9 k_7 k_1}^{22} \Omega_{k_8 k_9 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_1 k_2 k_6} \epsilon_{k_1 k_7 k_2 k_6} \epsilon_{k_2 k_6 k_8 k_9}}
 \end{aligned} \tag{201}$$

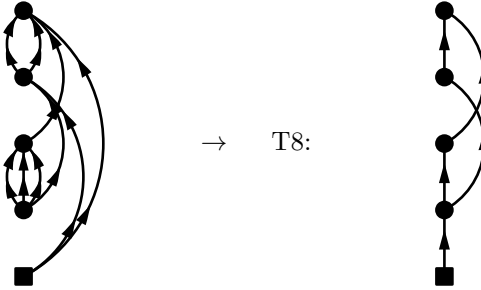

→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (202)$$

$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$   
 $a_2 = \epsilon^{k_7}_{k_3 k_4 k_5}$   
 $a_3 = \epsilon^{k_8 k_9}_{k_1 k_7}$   
 $a_4 = \epsilon_{k_2 k_6 k_8 k_9}$

**Diagram 95:**

$$\begin{aligned}
 PO4.95 &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_9 k_6 k_1}^{22} \Omega_{k_8 k_9 k_7 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\
 &\quad e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7}_{k_3 k_4 k_5}} e^{-\tau_3 \epsilon^{k_8 k_9}_{k_1 k_6}} e^{-\tau_4 \epsilon_{k_2}} \\
 &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_9 k_6 k_1}^{22} \Omega_{k_8 k_9 k_7 k_2}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_2 k_8 k_9} \epsilon_{k_3 k_4 k_5 k_1 k_6 k_2} \epsilon_{k_2 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_1 k_6 k_2} \epsilon_{k_1 k_6 k_2 k_7} \epsilon_{k_2 k_7 k_8 k_9}} \right] \quad (203)
 \end{aligned}$$



$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (204)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

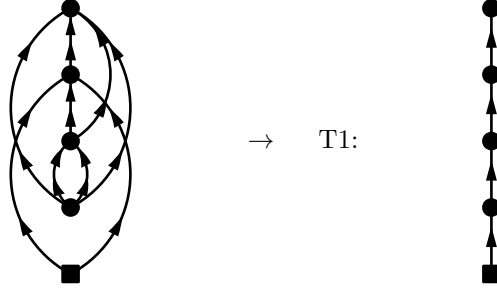
$$a_2 = \epsilon^{k_7 k_3 k_4 k_5}$$

$$a_3 = \epsilon^{k_8 k_9 k_1 k_6}$$

$$a_4 = \epsilon^{k_2 k_7 k_8 k_9}$$

**Diagram 96:**

$$\begin{aligned} \text{PO4.96} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_7 k_1 k_2}^{13} \Omega_{k_9 k_8 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8 k_3 k_4}} e^{-\tau_3 \epsilon^{k_9 k_7 k_1 k_2}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_7 k_1 k_2}^{13} \Omega_{k_9 k_8 k_5 k_6}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_2 k_5 k_6} \epsilon_{k_1 k_2 k_7 k_5 k_6 k_8} \epsilon_{k_5 k_6 k_8 k_9}} \end{aligned} \quad (205)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (206)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

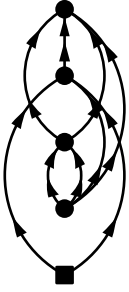

$$a_2 = \epsilon^{k_7 k_8 k_3 k_4}$$

$$a_3 = \epsilon^{k_9 k_7 k_1 k_2}$$

$$a_4 = \epsilon^{k_5 k_6 k_8 k_9}$$

**Diagram 97:**

$$\begin{aligned}
\text{PO4.97} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_5 k_1 k_2}^{13} \Omega_{k_9 k_7 k_8 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_7 k_8}} e^{-\tau_3 \epsilon_{k_1 k_2}^{k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_5 k_1 k_2}^{13} \Omega_{k_9 k_7 k_8 k_6}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_6 k_9} \epsilon_{k_3 k_4 k_1 k_2 k_5 k_6} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_2 k_5 k_6} \epsilon_{k_1 k_2 k_5 k_6 k_7 k_8} \epsilon_{k_6 k_7 k_8 k_9}} \right]
\end{aligned} \tag{207}$$

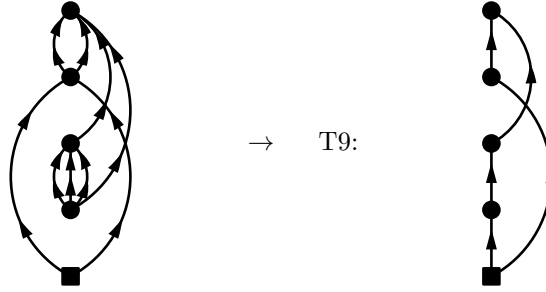

→ T8:


$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{208}$$

$a_1 = \epsilon_{k_3 k_4 k_5 k_6}$   
 $a_2 = \epsilon_{k_7 k_8}^{k_9}$   
 $a_3 = \epsilon_{k_1 k_2 k_5}^{k_9}$   
 $a_4 = \epsilon_{k_6 k_7 k_8 k_9}$

**Diagram 98:**

$$\begin{aligned}
\text{PO4.98} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2 (3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_9 k_1 k_2}^{22} \Omega_{k_8 k_9 k_7 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_7 k_8}^{k_9}} e^{-\tau_3 \epsilon_{k_1 k_2}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_1 k_2}^{k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^2 (3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_9 k_1 k_2}^{22} \Omega_{k_8 k_9 k_7 k_6}^{04} \left[ \frac{1}{\epsilon_{k_8 k_9} \epsilon_{k_3 k_4 k_5 k_6 k_8 k_9} \epsilon_{k_1 k_2} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_6 k_8 k_9} \epsilon_{k_3 k_4 k_5 k_1 k_2 k_6} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_1 k_2} \epsilon_{k_6 k_7 k_8 k_9} \epsilon_{k_8 k_9}} \right]
\end{aligned} \tag{209}$$



$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (210)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

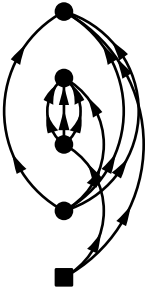
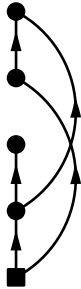
$$a_2 = \epsilon^{k_7 k_3 k_4 k_5}$$

$$a_3 = \epsilon^{k_8 k_9 k_1 k_2}$$

$$a_4 = \epsilon^{k_6 k_7 k_8 k_9}$$

**Diagram 99:**

$$\begin{aligned} \text{PO4.99} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_9 k_1}^{31} \Omega_{k_7 k_8 k_9 k_3}^{04} \Omega_{k_4 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_3 k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_2 k_4 k_5 k_6}} \\ &= \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_9 k_1}^{31} \Omega_{k_7 k_8 k_9 k_3}^{04} \Omega_{k_4 k_5 k_6 k_2}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2}^{k_3 k_7 k_8 k_9} \epsilon_{k_1}^{k_7 k_8 k_9} \epsilon_{k_1 k_2} \epsilon_{k_2 k_4 k_5 k_6}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1}^{k_7 k_8 k_9} \epsilon_{k_3 k_7 k_8 k_9 k_2 k_4 k_5 k_6} \epsilon_{k_2 k_4 k_5 k_6}} \right] \quad (211) \end{aligned}$$

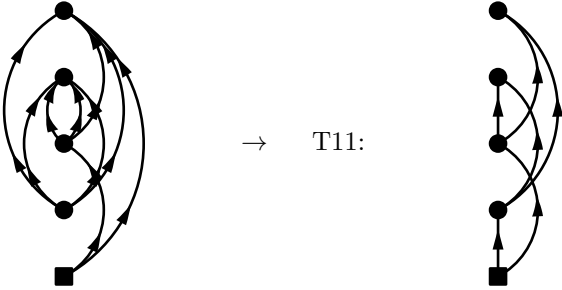

→ T10:


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (212)$$

$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$   
 $a_2 = \epsilon_{k_1}^{k_7 k_8 k_9}$   
 $a_3 = \epsilon_{k_3 k_7 k_8 k_9}$   
 $a_4 = \epsilon_{k_2 k_4 k_5 k_6}$

**Diagram 100:**

$$\begin{aligned}
 PO4.100 &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_9 k_1}^{31} \Omega_{k_7 k_8 k_3 k_4}^{04} \Omega_{k_9 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \\
 &\quad e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_3 k_4 k_7 k_8}} e^{-\tau_4 \epsilon_{k_5 k_6 k_9}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_9 k_1}^{31} \Omega_{k_7 k_8 k_3 k_4}^{04} \Omega_{k_9 k_5 k_6 k_2}^{04} \left[ \frac{1}{\epsilon_{k_7 k_8 k_2 k_9} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_7 k_8} \epsilon_{k_2 k_5 k_6 k_9}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_2 k_5 k_6} \epsilon_{k_3 k_4 k_7 k_8} \epsilon_{k_2 k_5 k_6 k_9}} \right] \quad (213)
 \end{aligned}$$





$$T_{11} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (214)$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}$$

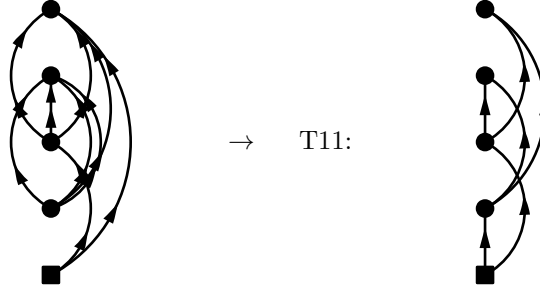
$$a_2 = \epsilon_{k_1}^{k_7k_8k_9}$$

$$a_3 = \epsilon_{k_3k_4k_7k_8}$$

$$a_4 = \epsilon_{k_2k_5k_6k_9}$$

**Diagram 101:**

$$\begin{aligned} \text{PO4.101} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1k_2}^{20} \Omega_{k_3k_4k_5k_6}^{40} \Omega_{k_7k_8k_9k_1}^{31} \Omega_{k_7k_3k_4k_5}^{04} \Omega_{k_8k_9k_6k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3k_4k_5k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7k_8k_9}} e^{-\tau_3 \epsilon_{k_3k_4k_5k_7} \epsilon_{k_7k_8k_9k_1}} e^{-\tau_4 \epsilon_{k_7k_3k_4k_5} \epsilon_{k_8k_9k_6k_2}} \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1k_2}^{20} \Omega_{k_3k_4k_5k_6}^{40} \Omega_{k_7k_8k_9k_1}^{31} \Omega_{k_7k_3k_4k_5}^{04} \Omega_{k_8k_9k_6k_2}^{04} \left[ \frac{1}{\epsilon_{k_7k_2k_8k_9} \epsilon_{k_1k_2} \epsilon_{k_3k_4k_5k_7} \epsilon_{k_2k_6k_8k_9}} + \frac{1}{\epsilon_{k_1k_2} \epsilon_{k_1k_3k_4k_5k_2k_6} \epsilon_{k_3k_4k_5k_7} \epsilon_{k_2k_6k_8k_9}} \right] \end{aligned} \quad (215)$$



$$T_{11} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (216)$$

$$a_1 = \epsilon^{k_3k_4k_5k_6}$$

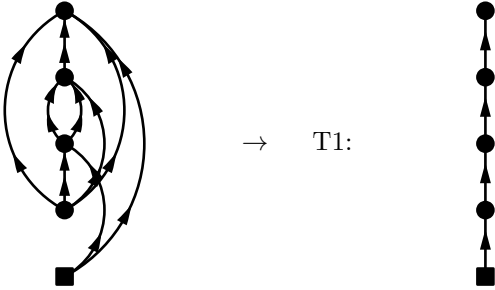
$$a_2 = \epsilon_{k_1}^{k_7k_8k_9}$$

$$a_3 = \epsilon_{k_3k_4k_5k_7}$$

$$a_4 = \epsilon_{k_2k_6k_8k_9}$$

**Diagram 102:**

$$\begin{aligned}
\text{PO4.102} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_9 k_7 k_8 k_4}^{13} \Omega_{k_9 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon^{k_9 k_5 k_6}} e^{-\tau_4 \epsilon^{k_9 k_5 k_6}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_9 k_7 k_8 k_4}^{13} \Omega_{k_9 k_5 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_2 k_5 k_6} \epsilon_{k_4 k_7 k_8 k_2 k_5 k_6} \epsilon_{k_2 k_5 k_6 k_9}}
\end{aligned} \tag{217}$$

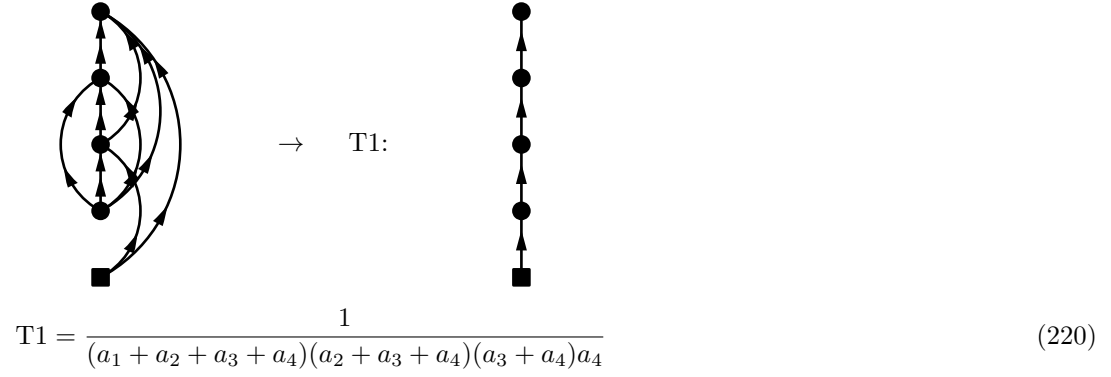


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{218}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
a_2 &= \epsilon^{k_7 k_8} \\
a_3 &= \epsilon^{k_9} \\
a_4 &= \epsilon_{k_2 k_5 k_6 k_9}
\end{aligned}$$

**Diagram 103:**

$$\begin{aligned}
\text{PO4.103} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_9 k_7 k_4 k_5}^{13} \Omega_{k_9 k_8 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon^{k_9 k_5 k_6}} e^{-\tau_4 \epsilon^{k_9 k_5 k_6}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_9 k_7 k_4 k_5}^{13} \Omega_{k_9 k_8 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_5 k_2 k_6} \epsilon_{k_4 k_5 k_7 k_2 k_6 k_8} \epsilon_{k_2 k_6 k_8 k_9}}
\end{aligned} \tag{219}$$

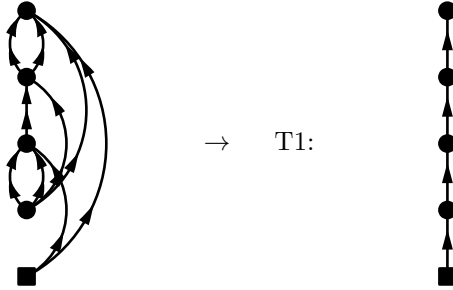


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (220)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\ a_2 &= \epsilon^{k_7 k_8} \\ a_3 &= \epsilon^{k_9} \\ a_4 &= \epsilon_{k_2 k_6 k_8 k_9} \end{aligned}$$

**Diagram 104:**

$$\begin{aligned} \text{PO4.104} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_1}^{13} \Omega_{k_8 k_9 k_7 k_5}^{22} \Omega_{k_8 k_9 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_3 k_4}} e^{-\tau_3 \epsilon_{k_1 k_3 k_4}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_1}^{13} \Omega_{k_8 k_9 k_7 k_5}^{22} \Omega_{k_8 k_9 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_5 k_2 k_6} \epsilon_{k_5 k_7 k_2 k_6} \epsilon_{k_2 k_6 k_8 k_9}} \end{aligned} \quad (221)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (222)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

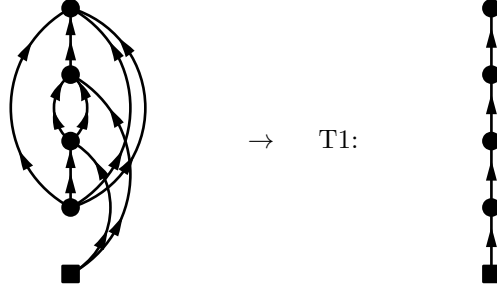
$$a_2 = \epsilon_{k_1 k_3 k_4}^{k_7}$$

$$a_3 = \epsilon_{k_5 k_7}^{k_8 k_9}$$

$$a_4 = \epsilon_{k_2 k_6 k_8 k_9}$$

**Diagram 105:**

$$\begin{aligned} \text{PO4.105} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_9 k_7 k_8 k_2}^{13} \Omega_{k_9 k_4 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_3}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_2 k_7 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_5 k_6 k_9}} \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_9 k_7 k_8 k_2}^{13} \Omega_{k_9 k_4 k_5 k_6}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_2 k_4 k_5 k_6} \epsilon_{k_2 k_7 k_8 k_4 k_5 k_6} \epsilon_{k_4 k_5 k_6 k_9}} \end{aligned} \quad (223)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (224)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

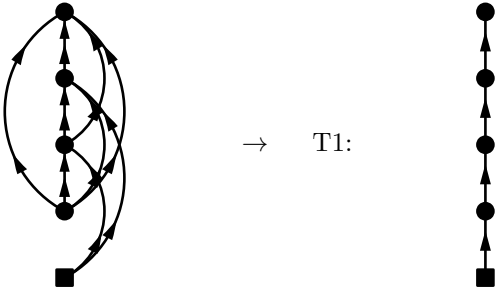
$$a_2 = \epsilon_{k_1 k_3}^{k_7 k_8}$$

$$a_3 = \epsilon_{k_2 k_7 k_8}^{k_9}$$

$$a_4 = \epsilon_{k_4 k_5 k_6 k_9}$$

**Diagram 106:**

$$\begin{aligned}
\text{PO4.106} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_9 k_7 k_4 k_2}^{13} \Omega_{k_9 k_8 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8 k_3 k_1}} e^{-\tau_3 \epsilon^{k_9 k_7 k_4 k_2}} e^{-\tau_4 \epsilon^{k_9 k_8 k_5 k_6}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_9 k_7 k_4 k_2}^{13} \Omega_{k_9 k_8 k_5 k_6}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_2 k_4 k_5 k_6} \epsilon_{k_2 k_4 k_7 k_5 k_6 k_8} \epsilon_{k_5 k_6 k_8 k_9}}
\end{aligned} \tag{225}$$

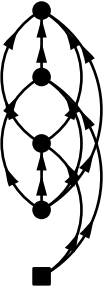



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{226}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
a_2 &= \epsilon^{k_7 k_8} \\
a_3 &= \epsilon^{k_9} \\
a_4 &= \epsilon_{k_5 k_6 k_8 k_9}
\end{aligned}$$

**Diagram 107:**

$$\begin{aligned}
\text{PO4.107} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_9 k_4 k_5 k_2}^{13} \Omega_{k_9 k_7 k_8 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon^{k_9}} e^{-\tau_4 \epsilon^{k_9 k_7 k_8 k_6}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_9 k_4 k_5 k_2}^{13} \Omega_{k_9 k_7 k_8 k_6}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_6 k_9} \epsilon_{k_1 k_3 k_2 k_4 k_5 k_6} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_2 k_4 k_5 k_6} \epsilon_{k_2 k_4 k_5 k_6 k_7 k_8} \epsilon_{k_6 k_7 k_8 k_9}} \right]
\end{aligned} \tag{227}$$

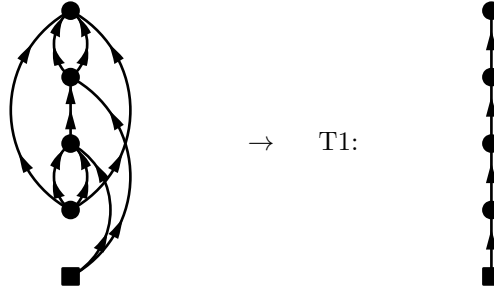

→ T8:


$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (228)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
a_2 &= \epsilon^{k_7 k_8} \\
a_3 &= \epsilon^{k_9} \\
a_4 &= \epsilon_{k_6 k_7 k_8 k_9}
\end{aligned}$$

**Diagram 108:**

$$\begin{aligned}
\text{PO4.108} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_1}^{13} \Omega_{k_8 k_9 k_7 k_2}^{22} \Omega_{k_8 k_9 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) \\
&\quad e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_3 k_4}^{k_7}} e^{-\tau_3 \epsilon_{k_2 k_7}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_5}^{k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_1}^{13} \Omega_{k_8 k_9 k_7 k_2}^{22} \Omega_{k_8 k_9 k_5 k_6}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_2 k_5 k_6} \epsilon_{k_2 k_7 k_5 k_6} \epsilon_{k_5 k_6 k_8 k_9}}
\end{aligned} \quad (229)$$

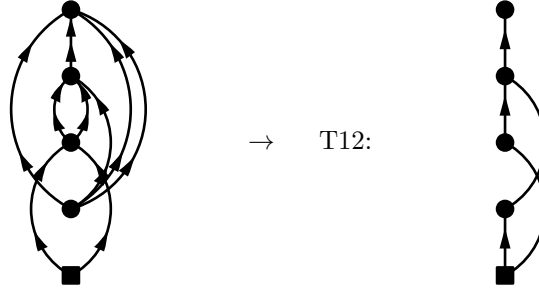


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (230)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\ a_2 &= \epsilon^{k_7}_{k_1 k_3 k_4} \\ a_3 &= \epsilon^{k_8 k_9}_{k_2 k_7} \\ a_4 &= \epsilon_{k_5 k_6 k_8 k_9} \end{aligned}$$

**Diagram 109:**

$$\begin{aligned} \text{PO4.109} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_9 k_7 k_8 k_3}^{13} \Omega_{k_9 k_4 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}_{k_1 k_2}} e^{-\tau_3 \epsilon^{k_9}_{k_3 k_7 k_8}} e^{-\tau_4} \\ &= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_9 k_7 k_8 k_3}^{13} \Omega_{k_9 k_4 k_5 k_6}^{04} \left[ \frac{1}{\epsilon_{k_7 k_8} \epsilon_{k_1 k_2} \epsilon_{k_3 k_7 k_8 k_4 k_5 k_6} \epsilon_{k_4 k_5 k_6 k_9}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6} \epsilon_{k_3 k_7 k_8 k_4 k_5 k_6} \epsilon_{k_4 k_5 k_6 k_9}} \right] \end{aligned} \quad (231)$$

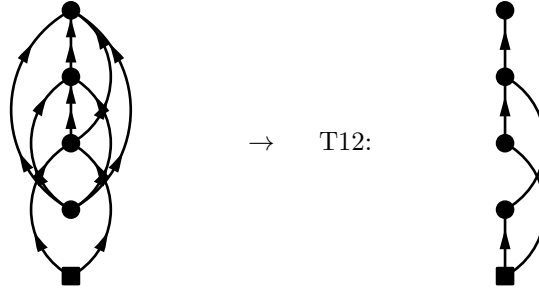


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (232)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
a_2 &= \epsilon^{k_7 k_8} \\
a_3 &= \epsilon^{k_9} \\
a_4 &= \epsilon_{k_4 k_5 k_6 k_9}
\end{aligned}$$

**Diagram 110:**

$$\begin{aligned}
\text{PO4.110} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_9 k_7 k_3 k_4}^{13} \Omega_{k_9 k_8 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon^{k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_9 k_7 k_3 k_4}^{13} \Omega_{k_9 k_8 k_5 k_6}^{04} \left[ \frac{1}{\epsilon_{k_7 k_8} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_7 k_5 k_6 k_8} \epsilon_{k_5 k_6 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6} \epsilon_{k_3 k_4 k_7 k_5 k_6 k_8} \epsilon_{k_5 k_6 k_8 k_9}} \right]
\end{aligned} \tag{233}$$



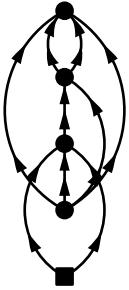

$$\text{T12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{234}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
a_2 &= \epsilon^{k_7 k_8} \\
a_3 &= \epsilon^{k_9} \\
a_4 &= \epsilon_{k_5 k_6 k_8 k_9}
\end{aligned}$$



**Diagram 111:**

$$\begin{aligned}
\text{PO4.111} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_1 k_2}^{13} \Omega_{k_8 k_9 k_7 k_4}^{22} \Omega_{k_8 k_9 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2 k_3}^{k_7}} e^{-\tau_3 \epsilon_{k_1 k_2 k_3}^{k_8}} e^{-\tau_4 \epsilon_{k_1 k_2 k_3}^{k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_1 k_2}^{13} \Omega_{k_8 k_9 k_7 k_4}^{22} \Omega_{k_8 k_9 k_5 k_6}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6} \epsilon_{k_4 k_7 k_5 k_6} \epsilon_{k_5 k_6 k_8 k_9}}
\end{aligned} \tag{235}$$


→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{236}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
a_2 &= \epsilon_{k_1 k_2 k_3}^{k_7} \\
a_3 &= \epsilon_{k_4 k_7}^{k_8 k_9} \\
a_4 &= \epsilon_{k_5 k_6 k_8 k_9}
\end{aligned}$$

**Diagram 112:**

$$\begin{aligned}
\text{PO4.112} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_9 k_6 k_7 k_8}^{13} \Omega_{k_9 k_4 k_5 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_6 k_7 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_1 k_2 k_3}^{k_4 k_5 k_6}} \\
&= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_9 k_6 k_7 k_8}^{13} \Omega_{k_9 k_4 k_5 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2 k_4 k_5} \epsilon_{k_6 k_7 k_8 k_2 k_4 k_5} \epsilon_{k_2 k_4 k_5 k_9}}
\end{aligned} \tag{237}$$

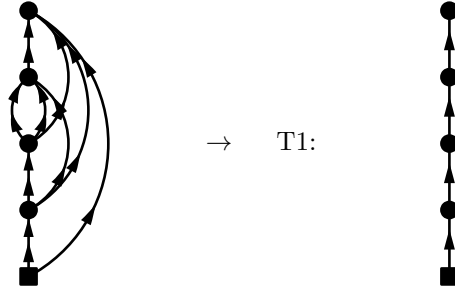
Diagrammatic equation (238) showing a reduction of a complex loop diagram to a tree diagram T1. The left side is a diagram with a square root at the bottom, a vertical chain of four nodes, and a complex loop structure on the left. The right side is a tree diagram T1, which is a vertical chain of four nodes with a square root at the bottom. The equation is:

$$\text{Diagram} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (238)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_3}^{k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_6 k_7 k_8}^{k_9} \\ a_4 &= \epsilon_{k_2 k_4 k_5 k_9} \end{aligned}$$

**Diagram 113:**

$$\begin{aligned} \text{PO4.113} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_9 k_6 k_7 k_4}^{13} \Omega_{k_9 k_8 k_5 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6 k_7 k_8}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_9 k_6 k_7 k_4}^{13} \Omega_{k_9 k_8 k_5 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_2 k_5} \epsilon_{k_4 k_6 k_7 k_2 k_5 k_8} \epsilon_{k_2 k_5 k_8 k_9}} \end{aligned} \quad (239)$$

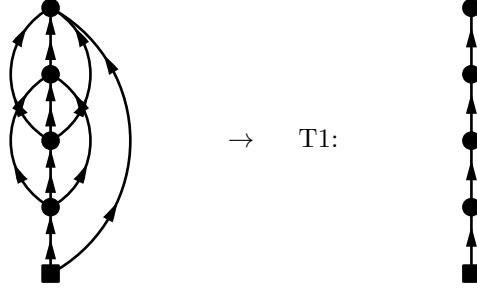


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (240)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_3}^{k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_4 k_6 k_7}^{k_9} \\ a_4 &= \epsilon_{k_2 k_5 k_8 k_9} \end{aligned}$$

**Diagram 114:**

$$\begin{aligned} \text{PO4.114} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_9 k_6 k_4 k_5}^{13} \Omega_{k_9 k_7 k_8 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_4 k_6 k_7}^{k_9}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_9 k_6 k_4 k_5}^{13} \Omega_{k_9 k_7 k_8 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_2} \epsilon_{k_4 k_5 k_6 k_2 k_7 k_8} \epsilon_{k_2 k_7 k_8 k_9}} \end{aligned} \quad (241)$$

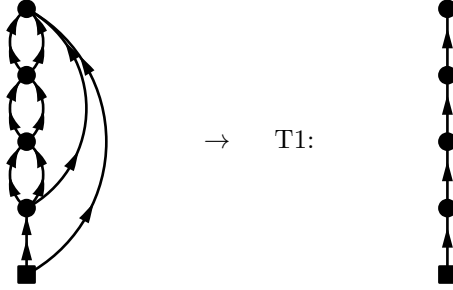


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (242)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_3}^{k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_4 k_5 k_6}^{k_9} \\ a_4 &= \epsilon_{k_2 k_7 k_8 k_9} \end{aligned}$$

**Diagram 115:**

$$\begin{aligned}
\text{PO4.115} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_9 k_6 k_7}^{22} \Omega_{k_8 k_9 k_5 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_6 k_7}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_2 k_5 k_8}^{k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_9 k_6 k_7}^{22} \Omega_{k_8 k_9 k_5 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_2 k_5} \epsilon_{k_6 k_7 k_2 k_5} \epsilon_{k_2 k_5 k_8 k_9}}
\end{aligned} \tag{243}$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{244}$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$$

$$a_2 = \epsilon_{k_3 k_4}^{k_6 k_7}$$

$$a_3 = \epsilon_{k_6 k_7}^{k_8 k_9}$$

$$a_4 = \epsilon_{k_2 k_5 k_8 k_9}$$

**Diagram 116:**

$$\begin{aligned}
\text{PO4.116} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_9 k_6 k_5}^{22} \Omega_{k_8 k_9 k_7 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_5 k_8}^{k_9}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_9 k_6 k_5}^{22} \Omega_{k_8 k_9 k_7 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_2} \epsilon_{k_5 k_6 k_2 k_7} \epsilon_{k_2 k_7 k_8 k_9}}
\end{aligned} \tag{245}$$

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (246)$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$$

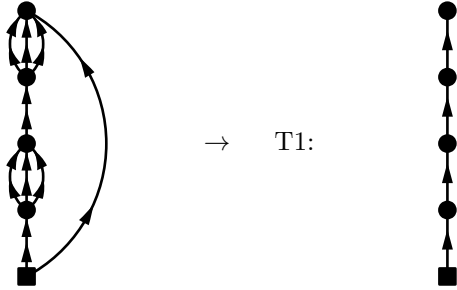
$$a_2 = \epsilon_{k_3 k_4}^{k_6 k_7}$$

$$a_3 = \epsilon_{k_5 k_6}^{k_8 k_9}$$

$$a_4 = \epsilon_{k_2 k_7 k_8 k_9}$$

**Diagram 117:**

$$\begin{aligned}
\text{PO4.117} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3 k_4 k_5}^{13} \Omega_{k_7 k_8 k_9 k_6}^{31} \Omega_{k_7 k_8 k_9 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4 k_5}^{k_6}} e^{-\tau_3 \epsilon_{k_6}^{k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_2 k_7 k_8 k_9}} \\
&= \frac{(-1)^4}{(3!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3 k_4 k_5}^{13} \Omega_{k_7 k_8 k_9 k_6}^{31} \Omega_{k_7 k_8 k_9 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_2} \epsilon_{k_6 k_2} \epsilon_{k_2 k_7 k_8 k_9}} \quad (247)
\end{aligned}$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (248)$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$$

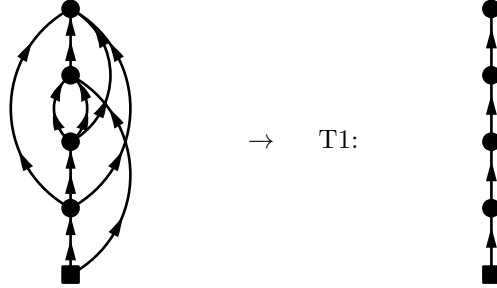
$$a_2 = \epsilon_{k_3 k_4 k_5}^{k_6}$$

$$a_3 = \epsilon_{k_6}^{k_7 k_8 k_9}$$

$$a_4 = \epsilon_{k_2 k_7 k_8 k_9}$$

**Diagram 118:**

$$\begin{aligned} \text{PO4.118} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_9 k_6 k_7 k_2}^{13} \Omega_{k_9 k_8 k_4 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_6}^{k_7 k_8 k_9}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_9 k_6 k_7 k_2}^{13} \Omega_{k_9 k_8 k_4 k_5}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2 k_4 k_5} \epsilon_{k_2 k_6 k_7 k_4 k_5 k_8} \epsilon_{k_4 k_5 k_8 k_9}} \end{aligned} \quad (249)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (250)$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$$

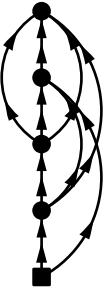

$$a_2 = \epsilon_{k_3}^{k_6 k_7 k_8}$$

$$a_3 = \epsilon_{k_2 k_6 k_7}^{k_9}$$

$$a_4 = \epsilon_{k_4 k_5 k_8 k_9}$$

**Diagram 119:**

$$\begin{aligned}
\text{PO4.119} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_9 k_6 k_4 k_2}^{13} \Omega_{k_9 k_7 k_8 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6 k_7 k_8}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_9 k_6 k_4 k_2}^{13} \Omega_{k_9 k_7 k_8 k_5}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2 k_4 k_5} \epsilon_{k_2 k_4 k_6 k_5 k_7 k_8} \epsilon_{k_5 k_7 k_8 k_9}}
\end{aligned} \tag{251}$$


→ T1:


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{252}$$

$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$   
 $a_2 = \epsilon_{k_3}^{k_6 k_7 k_8}$   
 $a_3 = \epsilon_{k_2 k_4 k_6}^{k_9}$   
 $a_4 = \epsilon_{k_5 k_7 k_8 k_9}$

**Diagram 120:**

$$\begin{aligned}
\text{PO4.120} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_9 k_4 k_5 k_2}^{13} \Omega_{k_9 k_6 k_7 k_8}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_2 k_4 k_5}^{k_9}} e^{-\tau_4 \epsilon_{k_5 k_7 k_8 k_9}} \\
&= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_9 k_4 k_5 k_2}^{13} \Omega_{k_9 k_6 k_7 k_8}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_9} \epsilon_{k_3 k_2 k_4 k_5} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2 k_4 k_5} \epsilon_{k_2 k_4 k_5 k_6 k_7 k_8} \epsilon_{k_6 k_7 k_8 k_9}} \right]
\end{aligned} \tag{253}$$

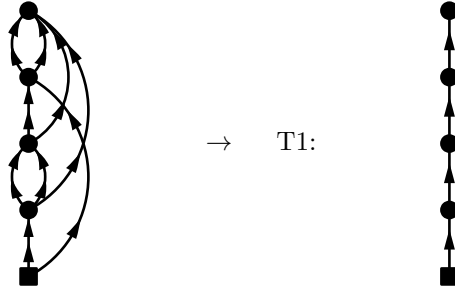
$\rightarrow$  T8:

$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (254)$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\
 a_2 &= \epsilon_{k_3}^{k_6 k_7 k_8} \\
 a_3 &= \epsilon_{k_2 k_4 k_5}^{k_9} \\
 a_4 &= \epsilon_{k_6 k_7 k_8 k_9}
 \end{aligned}$$

**Diagram 121:**

$$\begin{aligned}
 \text{PO4.121} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_9 k_6 k_2}^{22} \Omega_{k_8 k_9 k_7 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\
 &\quad e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_2 k_6}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_7 k_8 k_9}^{k_5}} \\
 &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_9 k_6 k_2}^{22} \Omega_{k_8 k_9 k_7 k_5}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_2 k_5} \epsilon_{k_2 k_6 k_5 k_7} \epsilon_{k_5 k_7 k_8 k_9}}
 \end{aligned} \quad (255)$$



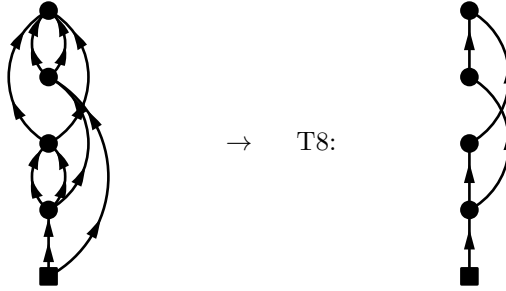


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (256)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_3 k_4}^{k_6 k_7} \\ a_3 &= \epsilon_{k_2 k_6}^{k_8 k_9} \\ a_4 &= \epsilon_{k_5 k_7 k_8 k_9} \end{aligned}$$

**Diagram 122:**

$$\begin{aligned} \text{PO4.122} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_8 k_9 k_6 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_2 k_5}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_6 k_7 k_8 k_9}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_8 k_9 k_6 k_7}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_8 k_9} \epsilon_{k_3 k_4 k_2 k_5} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_2 k_5} \epsilon_{k_2 k_5 k_6 k_7} \epsilon_{k_6 k_7 k_8 k_9}} \right] \end{aligned} \quad (257)$$



→ T8:

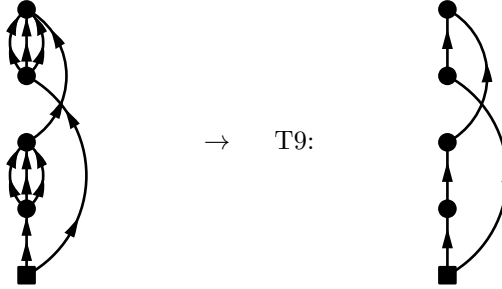


$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (258)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\
a_2 &= \epsilon_{k_3 k_4}^{k_6 k_7} \\
a_3 &= \epsilon_{k_2 k_5}^{k_8 k_9} \\
a_4 &= \epsilon_{k_6 k_7 k_8 k_9}
\end{aligned}$$

**Diagram 123:**

$$\begin{aligned}
\text{PO4.123} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3 k_4 k_5}^{13} \Omega_{k_7 k_8 k_9 k_2}^{31} \Omega_{k_7 k_8 k_9 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4 k_5}^{k_6}} e^{-\tau_3 \epsilon_{k_2}^{k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_6 k_7 k_8 k_9}} \\
&= \frac{-(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3 k_4 k_5}^{13} \Omega_{k_7 k_8 k_9 k_2}^{31} \Omega_{k_7 k_8 k_9 k_6}^{04} \left[ \frac{1}{\epsilon_{k_1 k_7 k_8 k_9} \epsilon_{k_3 k_4 k_5 k_7 k_8 k_9} \epsilon_{k_1 k_2} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_7 k_8 k_9} \epsilon_{k_3 k_4 k_5 k_2} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_2} \epsilon_{k_6 k_7 k_8 k_9}} \right] \\
&\quad (259)
\end{aligned}$$

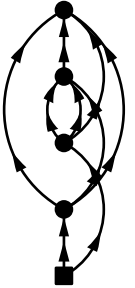
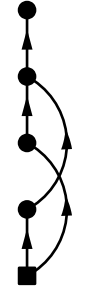


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (260)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\
a_2 &= \epsilon_{k_3 k_4 k_5}^{k_6} \\
a_3 &= \epsilon_{k_2}^{k_7 k_8 k_9} \\
a_4 &= \epsilon_{k_6 k_7 k_8 k_9}
\end{aligned}$$

**Diagram 124:**

$$\begin{aligned}
\text{PO4.124} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_9 k_6 k_7 k_3}^{13} \Omega_{k_9 k_8 k_4 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_3}^{k_9}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_9 k_6 k_7 k_3}^{13} \Omega_{k_9 k_8 k_4 k_5}^{04} \left[ \frac{1}{\epsilon_{k_1 k_6 k_7 k_8} \epsilon_{k_1 k_2} \epsilon_{k_3 k_6 k_7 k_4 k_5 k_8} \epsilon_{k_4 k_5 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_3 k_6 k_7 k_4 k_5 k_8} \epsilon_{k_4 k_5 k_8 k_9}} \right]
\end{aligned} \tag{261}$$

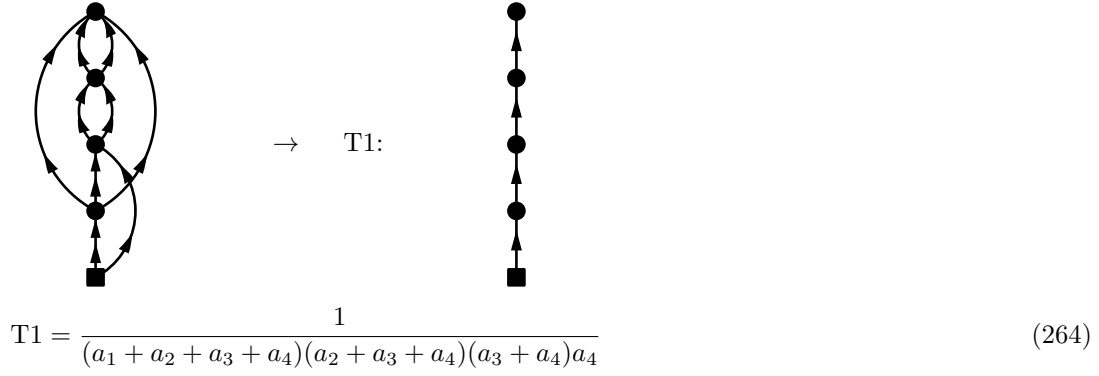

→ T12:


$$\text{T12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{262}$$

$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$   
 $a_2 = \epsilon_{k_2}^{k_6 k_7 k_8}$   
 $a_3 = \epsilon_{k_3}^{k_9}$   
 $a_4 = \epsilon_{k_4 k_5 k_8 k_9}$

**Diagram 125:**

$$\begin{aligned}
\text{PO4.125} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_2}^{22} \Omega_{k_8 k_9 k_6 k_7}^{22} \Omega_{k_8 k_9 k_4 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_3}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_4}^{k_5 k_8}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_2}^{22} \Omega_{k_8 k_9 k_6 k_7}^{22} \Omega_{k_8 k_9 k_4 k_5}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_6 k_7 k_4 k_5} \epsilon_{k_4 k_5 k_8 k_9}}
\end{aligned} \tag{263}$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (264)$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$$

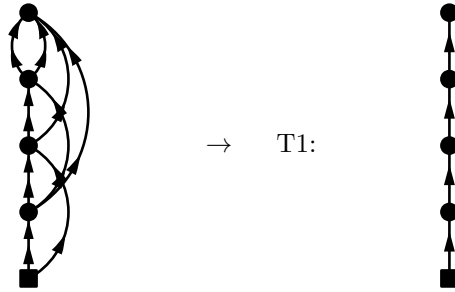
$$a_2 = \epsilon_{k_2}^{k_6 k_7}$$

$$a_3 = \epsilon_{k_6}^{k_8 k_9}$$

$$a_4 = \epsilon_{k_4}^{k_5 k_8 k_9}$$

**Diagram 126:**

$$\begin{aligned}
 \text{PO4.126} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_2}^{22} \Omega_{k_8 k_9 k_6 k_4}^{22} \Omega_{k_8 k_9 k_7 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6 k_7}} \\
 &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_2}^{22} \Omega_{k_8 k_9 k_6 k_4}^{22} \Omega_{k_8 k_9 k_7 k_5}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_4 k_6 k_5 k_7} \epsilon_{k_5 k_7 k_8 k_9}}
 \end{aligned} \quad (265)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (266)$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$$

$$a_2 = \epsilon_{k_2 k_3}^{k_6 k_7}$$

$$a_3 = \epsilon_{k_4 k_6}^{k_8 k_9}$$

$$a_4 = \epsilon_{k_5 k_7 k_8 k_9}$$

**Diagram 127:**

$$\begin{aligned} \text{PO4.127} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3 k_4 k_2}^{13} \Omega_{k_7 k_8 k_9 k_6}^{31} \Omega_{k_7 k_8 k_9 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_2 k_3 k_4}^{k_6}} e^{-\tau_3 \epsilon_{k_6}^{k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_5 k_7 k_8 k_9}} \\ &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3 k_4 k_2}^{13} \Omega_{k_7 k_8 k_9 k_6}^{31} \Omega_{k_7 k_8 k_9 k_5}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_6 k_5} \epsilon_{k_5 k_7 k_8 k_9}} \end{aligned} \quad (267)$$



$\rightarrow$  T1:



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (268)$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$$

$$a_2 = \epsilon_{k_2 k_3 k_4}^{k_6}$$

$$a_3 = \epsilon_{k_6}^{k_7 k_8 k_9}$$

$$a_4 = \epsilon_{k_5 k_7 k_8 k_9}$$

**Diagram 128:**

$$\begin{aligned}
\text{PO4.128} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_8 k_9 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_5 k_6}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_4}^{k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_8 k_9 k_7 k_4}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_5 k_6 k_4 k_7} \epsilon_{k_4 k_7 k_8 k_9}}
\end{aligned} \tag{269}$$



$\rightarrow$  T1:

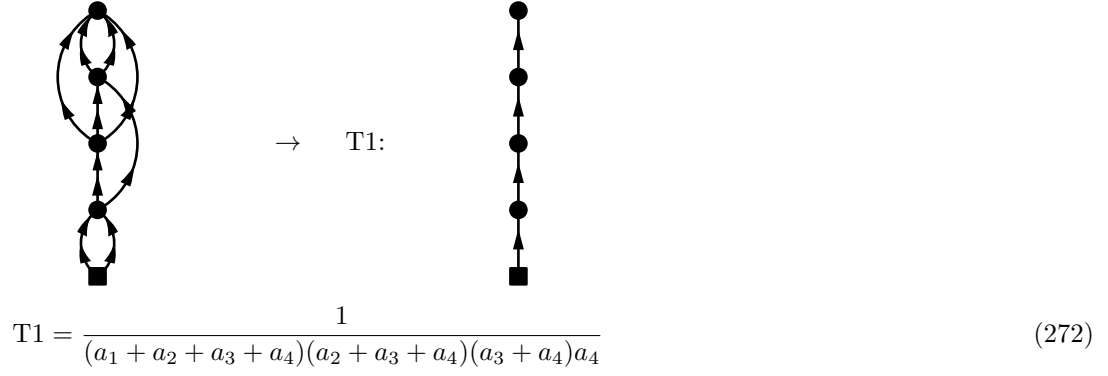


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{270}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_3 k_4} \\
a_2 &= \epsilon_{k_3}^{k_5 k_6 k_7} \\
a_3 &= \epsilon_{k_5 k_6}^{k_8 k_9} \\
a_4 &= \epsilon_{k_4 k_7 k_8 k_9}
\end{aligned}$$

**Diagram 129:**

$$\begin{aligned}
\text{PO4.129} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_9 k_5 k_4}^{22} \Omega_{k_8 k_9 k_6 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_4 k_5}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_6}^{k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_9 k_5 k_4}^{22} \Omega_{k_8 k_9 k_6 k_7}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_4 k_5 k_6 k_7} \epsilon_{k_6 k_7 k_8 k_9}}
\end{aligned} \tag{271}$$

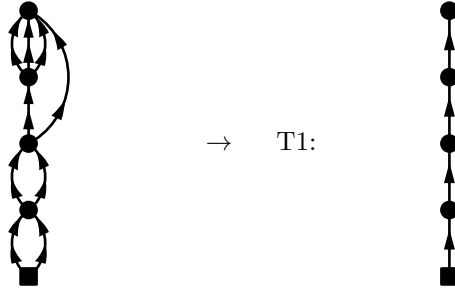


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (272)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_3 k_4} \\ a_2 &= \epsilon_{k_3}^{k_5 k_6 k_7} \\ a_3 &= \epsilon_{k_4 k_5}^{k_8 k_9} \\ a_4 &= \epsilon_{k_6 k_7 k_8 k_9} \end{aligned}$$

**Diagram 130:**

$$\begin{aligned} \text{PO4.130} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_8 k_9 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_5 k_6}^{k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_6 k_7 k_8 k_9}} \\ &= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_8 k_9 k_6}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_6 k_7 k_8 k_9}} \end{aligned} \quad (273)$$



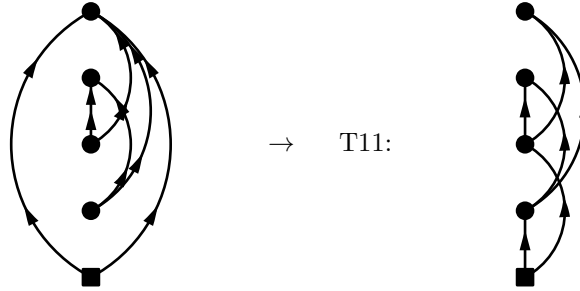
$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (274)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_3 k_4} \\ a_2 &= \epsilon_{k_3 k_4}^{k_5 k_6} \\ a_3 &= \epsilon_{k_5}^{k_7 k_8 k_9} \\ a_4 &= \epsilon_{k_6 k_7 k_8 k_9} \end{aligned}$$

### 2.3 Two-body non-canonical diagrams

Diagram 131:

$$\begin{aligned} \text{PO4.131} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6}^{20} \Omega_{k_5 k_3}^{02} \Omega_{k_6 k_4 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_3 k_4}} e^{-\tau_2 \epsilon_{k_5 k_6}} e^{-\tau_3 \epsilon_{k_3 k_5}} e^{-\tau_4 \epsilon_{k_1 k_2 k_4 k_6}} \\ &= \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6}^{20} \Omega_{k_5 k_3}^{02} \Omega_{k_6 k_4 k_1 k_2}^{04} \left[ \frac{1}{\epsilon_{k_5 k_1 k_2 k_6} \epsilon_{k_1 k_2} \epsilon_{k_3 k_5} \epsilon_{k_1 k_2 k_4 k_6}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_4} \epsilon_{k_3 k_5} \epsilon_{k_1 k_2 k_4 k_6}} \right] \end{aligned} \quad (275)$$



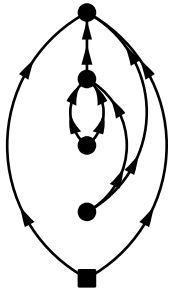

$$T11 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3 a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \quad (276)$$



$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon^{k_5 k_6} \\
a_3 &= \epsilon_{k_3 k_5} \\
a_4 &= \epsilon_{k_1 k_2 k_4 k_6}
\end{aligned}$$

**Diagram 132:**

$$\begin{aligned}
\text{PO4.132} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_6 k_3}^{13} \Omega_{k_7 k_4 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_3 k_5 k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_1 k_2 k_4 k_7}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_6 k_3}^{13} \Omega_{k_7 k_4 k_1 k_2}^{04} \left[ \frac{1}{\epsilon_{k_5 k_6 k_1 k_2} \epsilon_{k_1 k_2} \epsilon_{k_3 k_5 k_6 k_1 k_2 k_4} \epsilon_{k_1 k_2 k_4 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_4} \epsilon_{k_3 k_5 k_6 k_1 k_2 k_4} \epsilon_{k_1 k_2 k_4 k_7}} \right] \\
&\hspace{25em} (277)
\end{aligned}$$

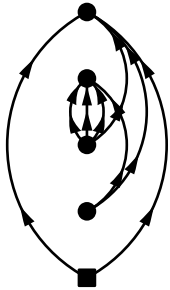
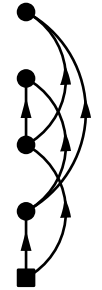

→ T12:


$$\text{T12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (278)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon^{k_5 k_6} \\
a_3 &= \epsilon_{k_3 k_5 k_6}^{k_7} \\
a_4 &= \epsilon_{k_1 k_2 k_4 k_7}
\end{aligned}$$

**Diagram 133:**

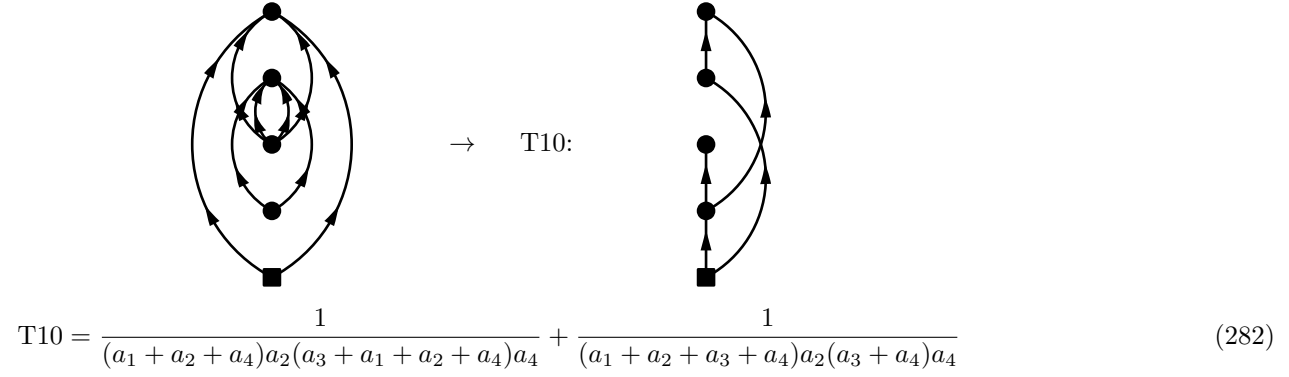
$$\begin{aligned}
\text{PO4.133} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6 k_7 k_3}^{04} \Omega_{k_8 k_4 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_5 k_6 k_7}} e^{-\tau_4 \epsilon_{k_1 k_2 k_4 k_8}} \\
&= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6 k_7 k_3}^{04} \Omega_{k_8 k_4 k_1 k_2}^{04} \left[ \frac{1}{\epsilon_{k_5 k_6 k_7 k_1 k_2 k_8} \epsilon_{k_1 k_2} \epsilon_{k_3 k_5 k_6 k_7} \epsilon_{k_1 k_2 k_4 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_4} \epsilon_{k_3 k_5 k_6 k_7} \epsilon_{k_1 k_2 k_4 k_8}} \right]
\end{aligned} \tag{279}$$


→ T11:


$$\begin{aligned}
\text{T11} &= \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3 a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \\
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon^{k_5 k_6 k_7 k_8} \\
a_3 &= \epsilon_{k_3 k_5 k_6 k_7} \\
a_4 &= \epsilon_{k_1 k_2 k_4 k_8}
\end{aligned} \tag{280}$$

**Diagram 134:**

$$\begin{aligned}
\text{PO4.134} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6 k_3 k_4}^{04} \Omega_{k_7 k_8 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_4 k_5 k_6}} e^{-\tau_4 \epsilon_{k_1 k_2 k_7 k_8}} \\
&= \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6 k_3 k_4}^{04} \Omega_{k_7 k_8 k_1 k_2}^{04} \left[ \frac{1}{\epsilon^{k_3 k_4} \epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_7 k_8}} + \frac{1}{\epsilon^{k_3 k_4} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_6 k_1 k_2 k_7 k_8} \epsilon_{k_1 k_2 k_7 k_8}} \right]
\end{aligned} \tag{281}$$

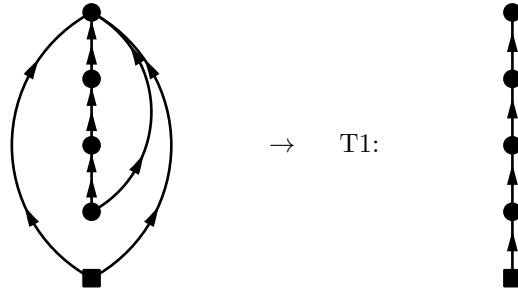


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (282)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6 k_7 k_8} \\ a_2 &= \epsilon^{k_3 k_4} \\ a_3 &= \epsilon_{k_3 k_4 k_5 k_6} \\ a_4 &= \epsilon_{k_1 k_2 k_7 k_8} \end{aligned}$$

**Diagram 135:**

$$\begin{aligned} \text{PO4.135} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_6 k_4 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5}} e^{-\tau_3 \epsilon_{k_5}^{k_6}} e^{-\tau_4 \epsilon_{k_1 k_2 k_4 k_6}} \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_6 k_4 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_4} \epsilon_{k_5 k_1 k_2 k_4} \epsilon_{k_1 k_2 k_4 k_6}} \end{aligned} \quad (283)$$

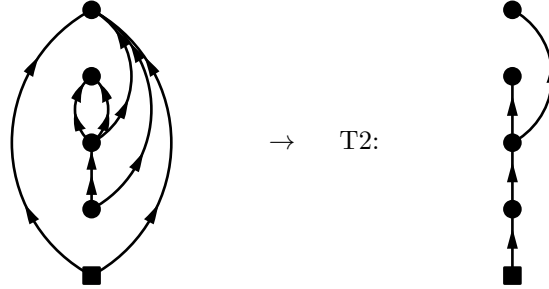


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (284)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon_{k_3}^{k_5} \\ a_3 &= \epsilon_{k_5}^{k_6} \\ a_4 &= \epsilon_{k_1 k_2 k_4 k_6} \end{aligned}$$

**Diagram 136:**

$$\begin{aligned} \text{PO4.136} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_7 k_4 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_5 k_6}} e^{-\tau_4 \epsilon_{k_1 k_2 k_4 k_7}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_7 k_4 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_4} \epsilon_{k_5 k_6} \epsilon_{k_1 k_2 k_4 k_7}} \end{aligned} \quad (285)$$

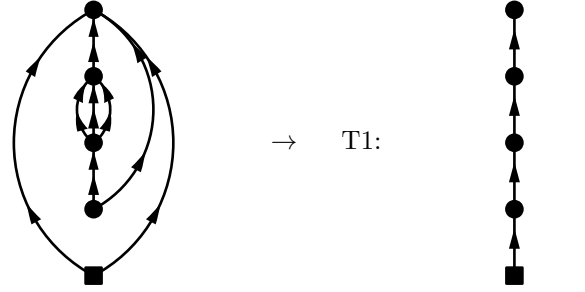


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \quad (286)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon_{k_3}^{k_5 k_6 k_7} \\ a_3 &= \epsilon_{k_5 k_6} \\ a_4 &= \epsilon_{k_1 k_2 k_4 k_7} \end{aligned}$$

**Diagram 137:**

$$\begin{aligned}
\text{PO4.137} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_8}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_8 k_4 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_5 k_6 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_1 k_2 k_4 k_8}} \\
&= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_8}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_8 k_4 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_4} \epsilon_{k_5 k_6 k_7 k_1 k_2 k_4} \epsilon_{k_1 k_2 k_4 k_8}}
\end{aligned} \tag{287}$$

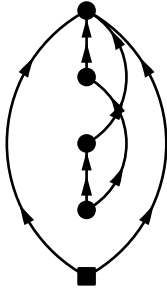



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{288}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon_{k_3}^{k_5 k_6 k_7} \\
a_3 &= \epsilon_{k_5 k_6 k_7}^{k_8} \\
a_4 &= \epsilon_{k_1 k_2 k_4 k_8}
\end{aligned}$$

**Diagram 138:**

$$\begin{aligned}
\text{PO4.138} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_4}^{11} \Omega_{k_6 k_5 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5}} e^{-\tau_3 \epsilon_{k_4}^{k_6}} e^{-\tau_4 \epsilon_{k_1 k_2 k_5 k_6}} \\
&= \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_4}^{11} \Omega_{k_6 k_5 k_1 k_2}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_6} \epsilon_{k_3 k_4 k_1 k_2} \epsilon_{k_1 k_2 k_5 k_6}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_2} \epsilon_{k_4 k_1 k_2 k_5} \epsilon_{k_1 k_2 k_5 k_6}} \right]
\end{aligned} \tag{289}$$

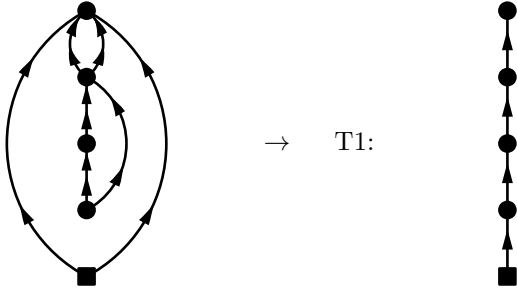

→ T8:


$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (290)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon^{k_5} \\
a_3 &= \epsilon^{k_6} \\
a_4 &= \epsilon_{k_1 k_2 k_5 k_6}
\end{aligned}$$

**Diagram 139:**

$$\begin{aligned}
\text{PO4.139} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_7 k_5 k_4}^{22} \Omega_{k_6 k_7 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5}} e^{-\tau_3 \epsilon_{k_4 k_5}^{k_6 k_7}} e^{-\tau_4 \epsilon_{k_1 k_2 k_6 k_7}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_7 k_5 k_4}^{22} \Omega_{k_6 k_7 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_2} \epsilon_{k_4 k_5 k_1 k_2} \epsilon_{k_1 k_2 k_6 k_7}}
\end{aligned} \quad (291)$$

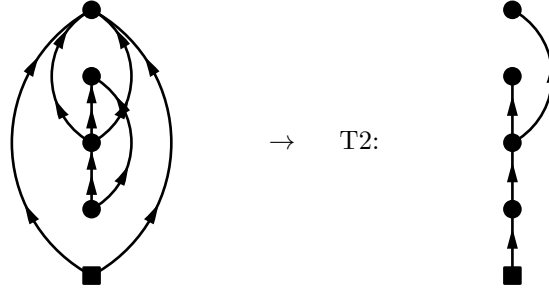


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (292)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon_{k_3}^{k_5} \\ a_3 &= \epsilon_{k_4 k_5}^{k_6 k_7} \\ a_4 &= \epsilon_{k_1 k_2 k_6 k_7} \end{aligned}$$

**Diagram 140:**

$$\begin{aligned} \text{PO4.140} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_5 k_4}^{02} \Omega_{k_6 k_7 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \\ &\quad e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_4 k_5}} e^{-\tau_4 \epsilon_{k_1 k_2 k_6 k_7}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_5 k_4}^{02} \Omega_{k_6 k_7 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_2} \epsilon_{k_4 k_5} \epsilon_{k_1 k_2 k_6 k_7}} \end{aligned} \quad (293)$$



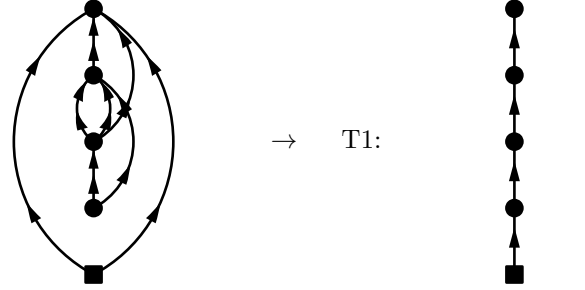
$\rightarrow$  T2:

$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \quad (294)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon_{k_3}^{k_5 k_6 k_7} \\ a_3 &= \epsilon_{k_4 k_5} \\ a_4 &= \epsilon_{k_1 k_2 k_6 k_7} \end{aligned}$$

**Diagram 141:**

$$\begin{aligned}
\text{PO4.141} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_5 k_6 k_4}^{13} \Omega_{k_8 k_7 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_4 k_5 k_6}^{k_8}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_5 k_6 k_4}^{13} \Omega_{k_8 k_7 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_2} \epsilon_{k_4 k_5 k_6 k_1 k_2 k_7} \epsilon_{k_1 k_2 k_7 k_8}}
\end{aligned} \tag{295}$$



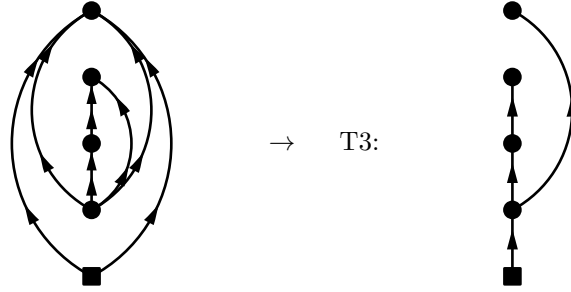
$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{296}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon_{k_3}^{k_5 k_6 k_7} \\
a_3 &= \epsilon_{k_4 k_5 k_6}^{k_8} \\
a_4 &= \epsilon_{k_1 k_2 k_7 k_8}
\end{aligned}$$

**Diagram 142:**

$$\begin{aligned}
\text{PO4.142} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_7 k_4}^{02} \Omega_{k_5 k_6 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3}^{k_7}} e^{-\tau_3 \epsilon_{k_4 k_7}} e^{-\tau_4 \epsilon_{k_1 k_2 k_5 k_6}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_7 k_4}^{02} \Omega_{k_5 k_6 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_5 k_6}^{k_7} \epsilon_{k_4 k_7} \epsilon_{k_1 k_2 k_5 k_6}}
\end{aligned} \tag{297}$$



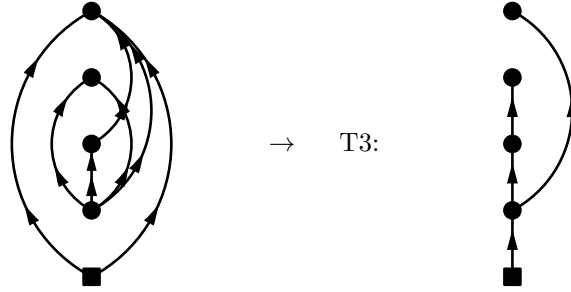


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (298)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\ a_2 &= \epsilon^{k_7} \\ a_3 &= \epsilon_{k_1 k_2 k_5 k_6} \\ a_4 &= \epsilon_{k_4 k_7} \end{aligned}$$

**Diagram 143:**

$$\begin{aligned} \text{PO4.143} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_4 k_5}^{02} \Omega_{k_7 k_6 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \\ &\quad e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3}^{k_7}} e^{-\tau_3 \epsilon_{k_4 k_5}} e^{-\tau_4 \epsilon_{k_1 k_2 k_6 k_7}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_4 k_5}^{02} \Omega_{k_7 k_6 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_6} \epsilon_{k_4 k_5} \epsilon_{k_1 k_2 k_6 k_7}} \end{aligned} \quad (299)$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (300)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

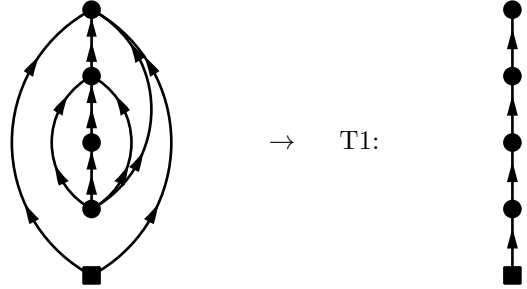
$$a_2 = \epsilon_{k_3}^{k_7}$$

$$a_3 = \epsilon_{k_1 k_2 k_6 k_7}$$

$$a_4 = \epsilon_{k_4 k_5}$$

**Diagram 144:**

$$\begin{aligned} \text{PO4.144} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_8 k_7 k_4 k_5}^{13} \Omega_{k_8 k_6 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3}^{k_7}} e^{-\tau_3 \epsilon_{k_4 k_5 k_6 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_1 k_2 k_6 k_7}^{k_8}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_8 k_7 k_4 k_5}^{13} \Omega_{k_8 k_6 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_1 k_2 k_6} \epsilon_{k_4 k_5 k_7 k_1 k_2 k_6} \epsilon_{k_1 k_2 k_6 k_8}} \end{aligned} \quad (301)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (302)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

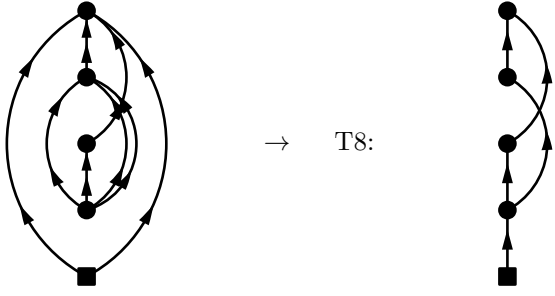
$$a_2 = \epsilon_{k_3}^{k_7}$$

$$a_3 = \epsilon_{k_4 k_5 k_7}^{k_8}$$


$$a_4 = \epsilon_{k_1 k_2 k_6 k_8}$$

**Diagram 145:**

$$\begin{aligned}
\text{PO4.145} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_8 k_4 k_5 k_6}^{13} \Omega_{k_8 k_7 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3}^{k_7}} e^{-\tau_3 \epsilon_{k_4 k_5 k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_1 k_2 k_7}^{k_8}} \\
&= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_8 k_4 k_5 k_6}^{13} \Omega_{k_8 k_7 k_1 k_2}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_8} \epsilon_{k_3 k_4 k_5 k_6 k_1 k_2} \epsilon_{k_1 k_2 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_6 k_1 k_2} \epsilon_{k_4 k_5 k_6 k_1 k_2 k_7} \epsilon_{k_1 k_2 k_7 k_8}} \right]
\end{aligned} \tag{303}$$



$\rightarrow$  T8:

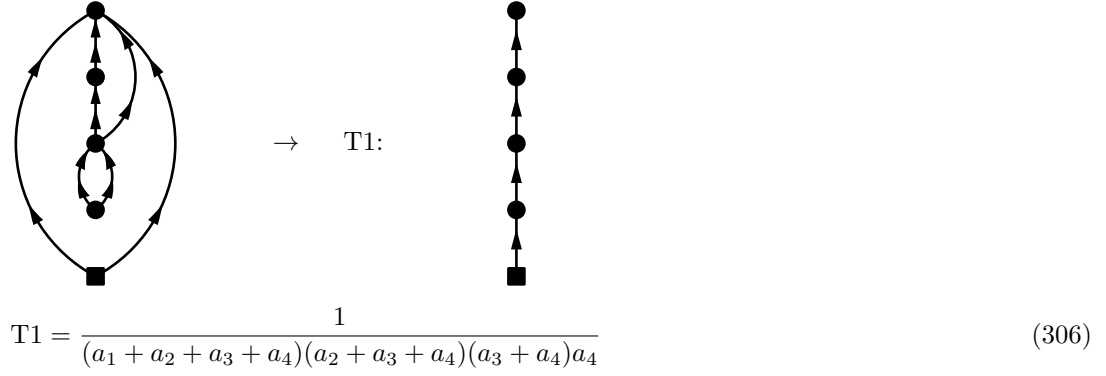


$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{304}$$

$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$   
 $a_2 = \epsilon_{k_3}^{k_7}$   
 $a_3 = \epsilon_{k_4 k_5 k_6}^{k_8}$   
 $a_4 = \epsilon_{k_1 k_2 k_7 k_8}$

**Diagram 146:**

$$\begin{aligned}
\text{PO4.146} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_7 k_6 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_5}^{k_7}} e^{-\tau_4 \epsilon_{k_1 k_2 k_6 k_7}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_7 k_6 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_2} \epsilon_{k_5 k_1 k_2 k_6} \epsilon_{k_1 k_2 k_6 k_7}}
\end{aligned} \tag{305}$$

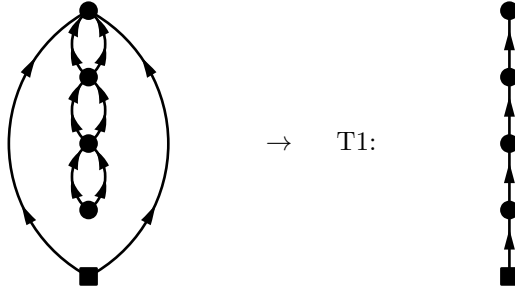


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (306)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon^{k_5 k_6} \\ a_3 &= \epsilon^{k_7} \\ a_4 &= \epsilon_{k_1 k_2 k_6 k_7} \end{aligned}$$

**Diagram 147:**

$$\begin{aligned} \text{PO4.147} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_7 k_8 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6}} e^{-\tau_3 \epsilon^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_1 k_2 k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)^4} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_7 k_8 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_2} \epsilon_{k_5 k_6 k_1 k_2} \epsilon_{k_1 k_2 k_7 k_8}} \end{aligned} \quad (307)$$

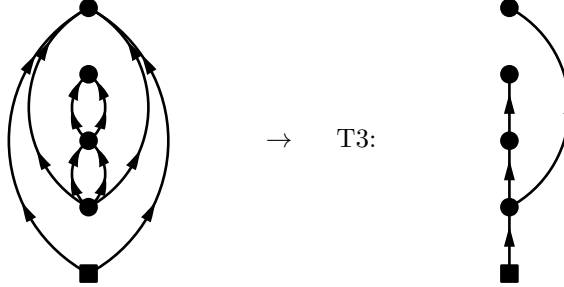


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (308)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon_{k_3 k_4}^{k_5 k_6} \\ a_3 &= \epsilon_{k_5 k_6}^{k_7 k_8} \\ a_4 &= \epsilon_{k_1 k_2 k_7 k_8} \end{aligned}$$

**Diagram 148:**

$$\begin{aligned} \text{PO4.148} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_7 k_8}^{02} \Omega_{k_5 k_6 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_7 k_8}} e^{-\tau_4 \epsilon_{k_1 k_2 k_5 k_6}} \\ &= \frac{(-1)^4}{(2!)^4} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_7 k_8}^{02} \Omega_{k_5 k_6 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4}^{k_7 k_8} \epsilon_{k_7 k_8} \epsilon_{k_3 k_4 k_1 k_2 k_5 k_6}^{k_7 k_8}} \end{aligned} \quad (309)$$

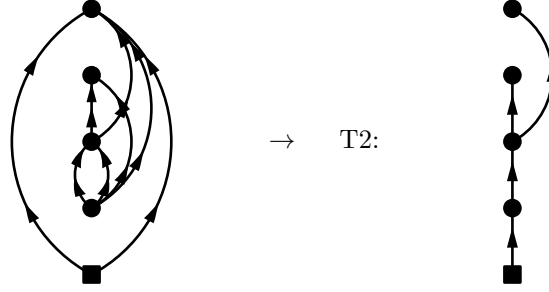


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \quad (310)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\ a_2 &= \epsilon_{k_1 k_2 k_5 k_6} \\ a_3 &= \epsilon_{k_3 k_4}^{k_7 k_8} \\ a_4 &= \epsilon_{k_7 k_8} \end{aligned}$$

**Diagram 149:**

$$\begin{aligned}
\text{PO4.149} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_7 k_5}^{02} \Omega_{k_8 k_6 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_5 k_7}} e^{-\tau_4 \epsilon_{k_1 k_2}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_7 k_5}^{02} \Omega_{k_8 k_6 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_7 k_8 k_3 k_4} \epsilon_{k_5 k_7} \epsilon_{k_1 k_2 k_6 k_8}}
\end{aligned} \tag{311}$$

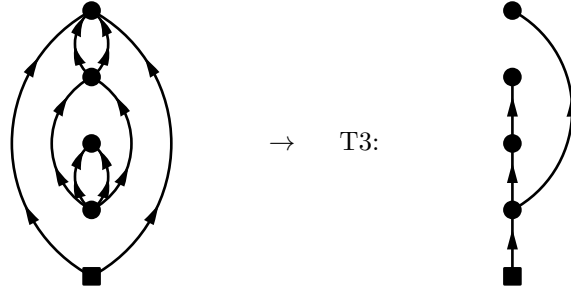


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \tag{312}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
a_2 &= \epsilon^{k_7 k_8} \\
a_3 &= \epsilon_{k_5 k_7} \\
a_4 &= \epsilon_{k_1 k_2 k_6 k_8}
\end{aligned}$$

**Diagram 150:**

$$\begin{aligned}
\text{PO4.150} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_3 k_4}^{02} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_7 k_8 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4}} e^{-\tau_3 \epsilon^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_1 k_2 k_7 k_8}} \\
&= \frac{(-1)^4}{(2!)^4} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_3 k_4}^{02} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_7 k_8 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_5 k_6 k_1 k_2} \epsilon_{k_1 k_2 k_7 k_8}}
\end{aligned} \tag{313}$$

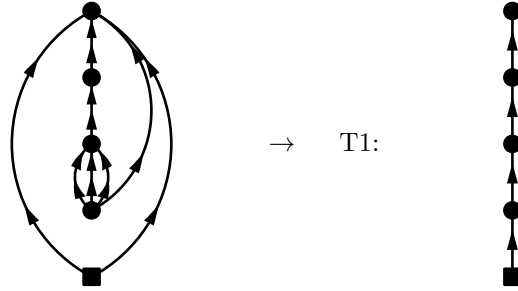


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (314)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\ a_2 &= \epsilon^{k_7 k_8} \\ a_3 &= \epsilon_{k_1 k_2 k_7 k_8} \\ a_4 &= \epsilon_{k_3 k_4} \end{aligned}$$

**Diagram 151:**

$$\begin{aligned} \text{PO4.151} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_6 k_1 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) \\ &\quad e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7}} e^{-\tau_3 \epsilon_{k_3 k_4 k_5}} e^{-\tau_4 \epsilon_{k_1 k_2 k_6 k_8}} \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_6 k_1 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_1 k_2 k_6} \epsilon_{k_7 k_1 k_2 k_6} \epsilon_{k_1 k_2 k_6 k_8}} \end{aligned} \quad (315)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (316)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

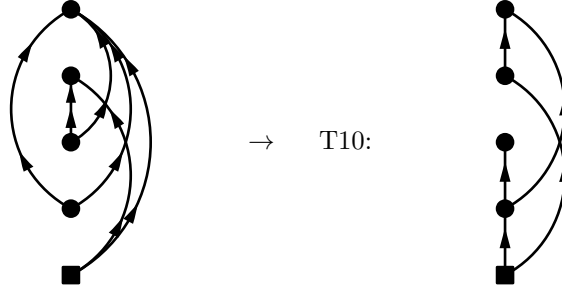
$$a_2 = \epsilon_{k_3 k_4 k_5}^{k_7}$$

$$a_3 = \epsilon_{k_7}^{k_8}$$

$$a_4 = \epsilon_{k_1 k_2 k_6 k_8}$$

**Diagram 152:**

$$\begin{aligned} \text{PO4.152} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6}^{20} \Omega_{k_5 k_1}^{02} \Omega_{k_6 k_3 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_1 k_5}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_6}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6}^{20} \Omega_{k_5 k_1}^{02} \Omega_{k_6 k_3 k_4 k_2}^{04} \left[ \frac{1}{\epsilon_{k_1}^{k_3 k_4 k_6} \epsilon^{k_5 k_6} \epsilon_{k_1 k_5} \epsilon_{k_1 k_2}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon^{k_5 k_6} \epsilon_{k_1 k_5} \epsilon_{k_1 k_5 k_2 k_3 k_4 k_6}} \right] \end{aligned} \quad (317)$$



→ T10:

$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (318)$$

$$a_1 = \epsilon^{k_3 k_4}$$

$$a_2 = \epsilon^{k_5 k_6}$$

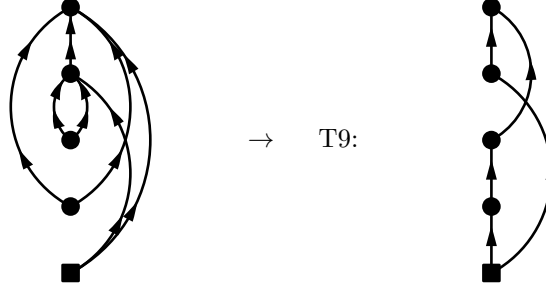
$$a_3 = \epsilon_{k_2 k_3 k_4 k_6}$$

$$a_4 = \epsilon_{k_1 k_5}$$



**Diagram 153:**

$$\begin{aligned}
\text{PO4.153} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_7 k_3 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_1 k_5 k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4} k_7} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_7 k_3 k_4 k_2}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_7}} + \frac{1}{\epsilon_{k_1 k_5 k_6 k_2} \epsilon_{k_1 k_2} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_7}} + \frac{1}{\epsilon_{k_2 k_7} \epsilon_{k_1 k_2} \epsilon_{k_1 k_5 k_6 k_2} \epsilon_{k_2 k_3 k_4 k_7}} \right] \\
&\quad (319)
\end{aligned}$$

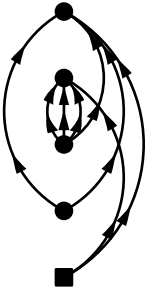
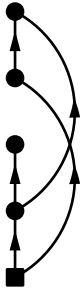


$$\begin{aligned}
\text{T9} &= \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \\
&\quad (320)
\end{aligned}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon_{k_1 k_5 k_6}^{k_7} \\
a_3 &= \epsilon^{k_3 k_4} \\
a_4 &= \epsilon_{k_2 k_3 k_4 k_7}
\end{aligned}$$

**Diagram 154:**

$$\begin{aligned}
\text{PO4.154} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6 k_7 k_1}^{04} \Omega_{k_8 k_3 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_1 k_5 k_6 k_7} k_8} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_8}} \\
&= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6 k_7 k_1}^{04} \Omega_{k_8 k_3 k_4 k_2}^{04} \left[ \frac{1}{\epsilon_{k_2}^{k_5 k_6 k_7} \epsilon_{k_5 k_6 k_7 k_8} \epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_4 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_5 k_6 k_7 k_8} \epsilon_{k_1 k_5 k_6 k_7 k_2 k_3 k_4 k_8} \epsilon_{k_2 k_3 k_4 k_8}} \right] \\
&\quad (321)
\end{aligned}$$

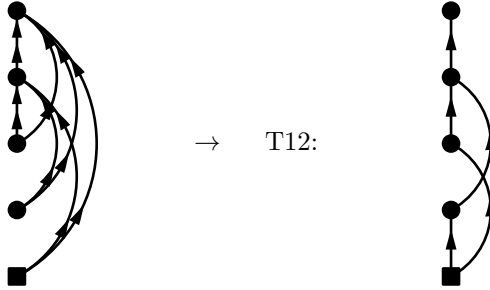

→ T10:


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (322)$$

$a_1 = \epsilon^{k_3 k_4}$   
 $a_2 = \epsilon^{k_5 k_6 k_7 k_8}$   
 $a_3 = \epsilon_{k_1 k_5 k_6 k_7}$   
 $a_4 = \epsilon_{k_2 k_3 k_4 k_8}$

**Diagram 155:**

$$\begin{aligned}
 PO4.155 &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_3 k_1}^{13} \Omega_{k_7 k_6 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\
 &\quad e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_1 k_3 k_5}^{k_7}} e^{-\tau_4 \epsilon_{k_2 k_4 k_6 k_7}^{k_8}} \\
 &= \frac{-(-1)^4}{2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_3 k_1}^{13} \Omega_{k_7 k_6 k_4 k_2}^{04} \left[ \frac{1}{\epsilon_{k_1 k_5 k_2 k_6} \epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_5 k_2 k_4 k_6} \epsilon_{k_2 k_4 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_2 k_4} \epsilon_{k_1 k_3 k_5 k_2 k_4 k_6} \epsilon_{k_2 k_4 k_6 k_7}} \right] \quad (323)
 \end{aligned}$$

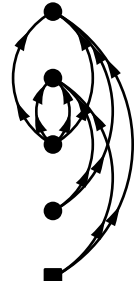
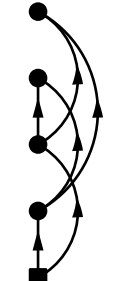


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (324)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon^{k_5 k_6} \\ a_3 &= \epsilon_{k_1 k_3 k_5}^{k_7} \\ a_4 &= \epsilon_{k_2 k_4 k_6 k_7} \end{aligned}$$

**Diagram 156:**

$$\begin{aligned} \text{PO4.156} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6 k_3 k_1}^{04} \Omega_{k_7 k_8 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_1 k_3 k_5 k_6}} e^{-\tau_4 \epsilon_{k_2 k_4 k_6 k_7}} \\ &= \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6 k_3 k_1}^{04} \Omega_{k_7 k_8 k_4 k_2}^{04} \left[ \frac{1}{\epsilon_{k_1 k_5 k_6 k_2 k_7 k_8} \epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_5 k_6} \epsilon_{k_2 k_4 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_2 k_4} \epsilon_{k_1 k_3 k_5 k_6} \epsilon_{k_2 k_4 k_7 k_8}} \right] \end{aligned} \quad (325)$$

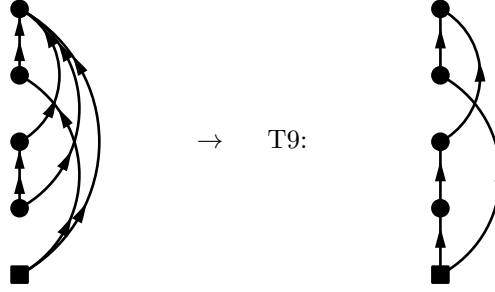

→ T11:


$$T11 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3 a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \quad (326)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon^{k_5 k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_1 k_3 k_5 k_6} \\ a_4 &= \epsilon_{k_2 k_4 k_7 k_8} \end{aligned}$$

**Diagram 157:**

$$\begin{aligned}
 \text{PO4.157} &= \lim_{\tau \rightarrow \infty} (-1)^4 \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_1}^{11} \Omega_{k_6 k_5 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5}} e^{-\tau_3 \epsilon_{k_1}^{k_6}} e^{-\tau_4 \epsilon_{k_2 k_4 k_5 k_6}} \\
 &= (-1)^4 \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_1}^{11} \Omega_{k_6 k_5 k_4 k_2}^{04} \left[ \frac{1}{\epsilon_{k_2 k_5 k_6}^{k_3} \epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_5}^{k_3} \epsilon_{k_2 k_4 k_5 k_6}} + \frac{1}{\epsilon_{k_2 k_5 k_6}^{k_3} \epsilon_{k_2 k_6} \epsilon_{k_1 k_2} \epsilon_{k_2 k_4 k_5 k_6}} + \frac{1}{\epsilon_{k_2 k_6} \epsilon_{k_3 k_2 k_4 k_6} \epsilon_{k_1 k_2} \epsilon_{k_2 k_4 k_5 k_6}} \right] \\
 &\quad (327)
 \end{aligned}$$



$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (328)$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1}^{k_6} \\
 a_2 &= \epsilon^{k_3 k_4} \\
 a_3 &= \epsilon_{k_3}^{k_5} \\
 a_4 &= \epsilon_{k_2 k_4 k_5 k_6}
 \end{aligned}$$

**Diagram 158:**

$$\begin{aligned}
 \text{PO4.158} &= \lim_{\tau \rightarrow \infty} -(-1)^4 \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_5 k_1}^{02} \Omega_{k_4 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5}} e^{-\tau_3 \epsilon_{k_1 k_5}} e^{-\tau_4 \epsilon_{k_2 k_4}} \\
 &= -(-1)^4 \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_5 k_1}^{02} \Omega_{k_4 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1} \epsilon_{k_1 k_5} \epsilon_{k_2 k_4}} \quad (329)
 \end{aligned}$$

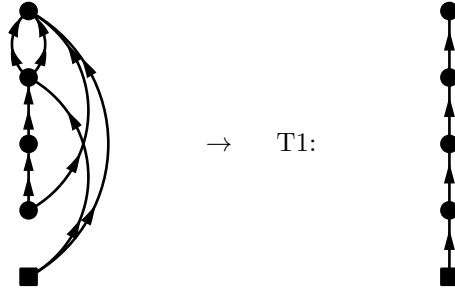
Diagrammatic equation (330) showing a reduction of a complex diagram to a simpler one labeled T3. The left side shows a diagram with a square at the bottom, four dots above it, and several curved arrows connecting them. The right side shows a diagram with a square at the bottom, four dots above it, and a single curved arrow connecting the top dot to the second dot from the bottom. The equation is labeled T3: and the result is T3 = 1 / ((a1 + a2 + a3 + a4)(a2 + a3)a3a4).

$$\text{T3} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (330)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon^{k_5} \\ a_3 &= \epsilon_{k_1 k_5} \\ a_4 &= \epsilon_{k_2 k_4} \end{aligned}$$

**Diagram 159:**

$$\begin{aligned} \text{PO4.159} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_7 k_5 k_1}^{22} \Omega_{k_6 k_7 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5}} e^{-\tau_3 \epsilon_{k_1 k_5}^{k_6 k_7}} e^{-\tau_4 \epsilon_{k_2 k_4 k_6 k_7}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_7 k_5 k_1}^{22} \Omega_{k_6 k_7 k_4 k_2}^{04}}{\epsilon_{k_1 k_2}^{20} \epsilon_{k_3 k_1 k_2 k_4}^{20} \epsilon_{k_1 k_5 k_2 k_4}^{11} \epsilon_{k_2 k_4 k_6 k_7}^{04}} \end{aligned} \quad (331)$$

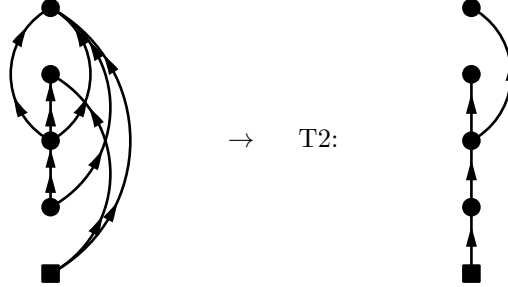


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (332)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon_{k_3}^{k_5} \\ a_3 &= \epsilon_{k_1 k_5}^{k_6 k_7} \\ a_4 &= \epsilon_{k_2 k_4 k_6 k_7} \end{aligned}$$

**Diagram 160:**

$$\begin{aligned} \text{PO4.160} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_5 k_1}^{02} \Omega_{k_6 k_7 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_1 k_5}^{k_6 k_7}} e^{-\tau_4 \epsilon_{k_2 k_4 k_6 k_7}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_5 k_1}^{02} \Omega_{k_6 k_7 k_4 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_4} \epsilon_{k_1 k_5} \epsilon_{k_2 k_4 k_6 k_7}} \end{aligned} \quad (333)$$



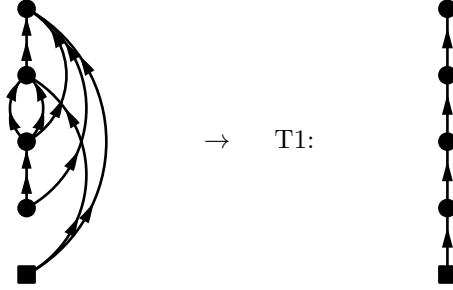
→ T2:

$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \quad (334)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon_{k_3}^{k_5 k_6 k_7} \\ a_3 &= \epsilon_{k_1 k_5} \\ a_4 &= \epsilon_{k_2 k_4 k_6 k_7} \end{aligned}$$

**Diagram 161:**

$$\begin{aligned}
\text{PO4.161} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_5 k_6 k_1}^{13} \Omega_{k_8 k_7 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_1 k_5 k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_2 k_4 k_7 k_8}^{k_1}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_5 k_6 k_1}^{13} \Omega_{k_8 k_7 k_4 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_4} \epsilon_{k_1 k_5 k_6 k_2 k_4 k_7} \epsilon_{k_2 k_4 k_7 k_8}}
\end{aligned} \tag{335}$$


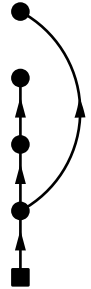


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{336}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon_{k_3}^{k_5 k_6 k_7} \\
a_3 &= \epsilon_{k_1 k_5 k_6}^{k_8} \\
a_4 &= \epsilon_{k_2 k_4 k_7 k_8}^{k_1}
\end{aligned}$$

**Diagram 162:**

$$\begin{aligned}
\text{PO4.162} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_5 k_6 k_7 k_1}^{04} \Omega_{k_4 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_1 k_5 k_6 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_2 k_4}^{k_1}} \\
&= \frac{-(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_5 k_6 k_7 k_1}^{04} \Omega_{k_4 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1} \epsilon_{k_1 k_5 k_6 k_7} \epsilon_{k_2 k_4}}
\end{aligned} \tag{337}$$

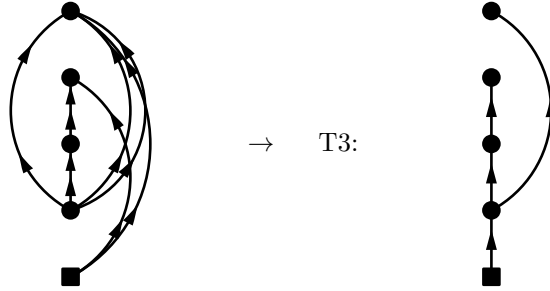

 $\rightarrow$  T3:
 

$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (338)$$

$$\begin{aligned}
 a_1 &= \epsilon^{k_3 k_4} \\
 a_2 &= \epsilon^{k_5 k_6 k_7} \\
 a_3 &= \epsilon_{k_1 k_5 k_6 k_7} \\
 a_4 &= \epsilon_{k_2 k_4}
 \end{aligned}$$

**Diagram 163:**

$$\begin{aligned}
 \text{PO4.163} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_7 k_1}^{02} \Omega_{k_4 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3}^{k_7}} e^{-\tau_3 \epsilon_{k_1 k_7}} e^{-\tau_4 \epsilon_{k_2 k_4 k_5 k_6}} \\
 &= \frac{-(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_7 k_1}^{02} \Omega_{k_4 k_5 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2 k_4 k_5 k_6}^{k_7} \epsilon_{k_1 k_7} \epsilon_{k_2 k_4 k_5 k_6}}
 \end{aligned} \quad (339)$$





$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (340)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

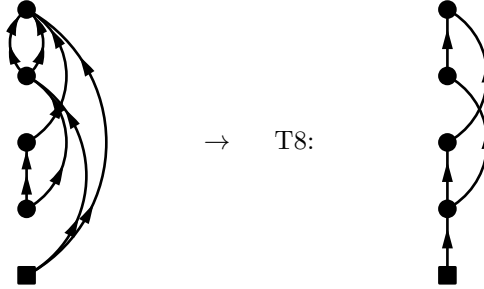
$$a_2 = \epsilon_{k_3}^{k_7}$$

$$a_3 = \epsilon_{k_2 k_4 k_5 k_6}$$

$$a_4 = \epsilon_{k_1 k_7}$$

**Diagram 164:**

$$\begin{aligned} \text{PO4.164} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_7 k_4 k_1}^{22} \Omega_{k_6 k_7 k_5 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5}} e^{-\tau_3 \epsilon_{k_1 k_4}^{k_6 k_7}} e^{-\tau_4 \epsilon_{k_2 k_5 k_6 k_7}} \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_7 k_4 k_1}^{22} \Omega_{k_6 k_7 k_5 k_2}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2 k_6 k_7} \epsilon_{k_3 k_1 k_4 k_2} \epsilon_{k_2 k_5 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_4 k_2} \epsilon_{k_1 k_4 k_2 k_5} \epsilon_{k_2 k_5 k_6 k_7}} \right] \end{aligned} \quad (341)$$



→ T8:

$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (342)$$

$$a_1 = \epsilon^{k_3 k_4}$$

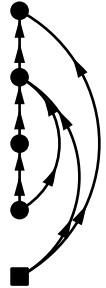

$$a_2 = \epsilon_{k_3}^{k_5}$$

$$a_3 = \epsilon_{k_1 k_4}^{k_6 k_7}$$

$$a_4 = \epsilon_{k_2 k_5 k_6 k_7}$$

**Diagram 165:**

$$\begin{aligned}
\text{PO4.165} &= \lim_{\tau \rightarrow \infty} (-1)^4 \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_5 k_4 k_1}^{13} \Omega_{k_6 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5}} e^{-\tau_3 \epsilon_{k_1 k_4 k_5}^{k_6}} e^{-\tau_4 \epsilon_{k_2 k_6}} \\
&= (-1)^4 \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_5 k_4 k_1}^{13} \Omega_{k_6 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_4 k_2} \epsilon_{k_1 k_4 k_5 k_2} \epsilon_{k_2 k_6}}
\end{aligned} \tag{343}$$

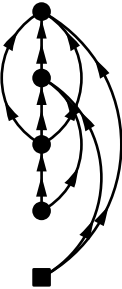


→ T1:


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{344}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon_{k_3}^{k_5} \\
a_3 &= \epsilon_{k_1 k_4 k_5}^{k_6} \\
a_4 &= \epsilon_{k_2 k_6}
\end{aligned}$$

**Diagram 166:**

$$\begin{aligned}
\text{PO4.166} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_5 k_4 k_1}^{13} \Omega_{k_8 k_6 k_7 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_1 k_4 k_5}^{k_8}} e^{-\tau_4 \epsilon_{k_2 k_6 k_7 k_8}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_5 k_4 k_1}^{13} \Omega_{k_8 k_6 k_7 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_4 k_2} \epsilon_{k_1 k_4 k_5 k_2 k_6 k_7} \epsilon_{k_2 k_6 k_7 k_8}}
\end{aligned} \tag{345}$$


→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (346)$$

$$a_1 = \epsilon^{k_3 k_4}$$

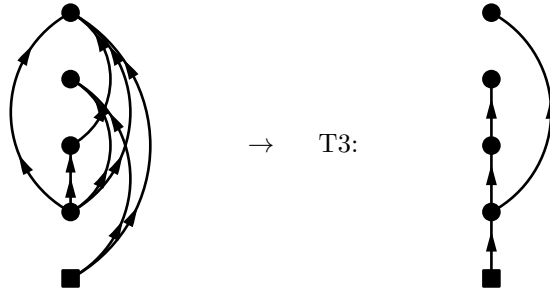
$$a_2 = \epsilon^{k_5 k_6 k_7}$$

$$a_3 = \epsilon^{k_8}$$

$$a_4 = \epsilon_{k_2 k_6 k_7 k_8}$$

**Diagram 167:**

$$\begin{aligned}
 \text{PO4.167} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_4 k_1}^{02} \Omega_{k_7 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \\
 &\quad e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3}^{k_7}} e^{-\tau_3 \epsilon_{k_1 k_4}} e^{-\tau_4 \epsilon_{k_2 k_5 k_6 k_7}} \\
 &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_4 k_1}^{02} \Omega_{k_7 k_5 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3}^{k_7} \epsilon_{k_3 k_1 k_4}^{k_7} \epsilon_{k_2 k_5 k_6 k_7}}
 \end{aligned} \quad (347)$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (348)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

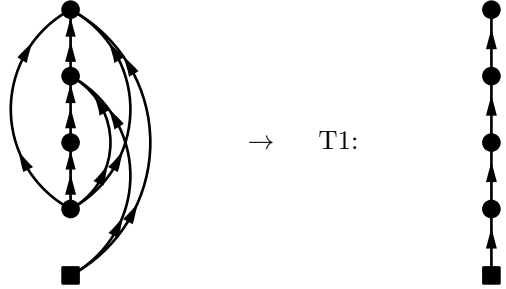
$$a_2 = \epsilon_{k_1 k_4}$$

$$a_3 = \epsilon_{k_3}^{k_7}$$

$$a_4 = \epsilon_{k_2 k_5 k_6 k_7}$$

**Diagram 168:**

$$\begin{aligned} \text{PO4.168} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_8 k_7 k_4 k_1}^{13} \Omega_{k_8 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3}^{k_7}} e^{-\tau_3 \epsilon_{k_1 k_4 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_2 k_5 k_6 k_7}^{k_8}} \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_8 k_7 k_4 k_1}^{13} \Omega_{k_8 k_5 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_4 k_2 k_5 k_6} \epsilon_{k_1 k_4 k_7 k_2 k_5 k_6} \epsilon_{k_2 k_5 k_6 k_8}} \end{aligned} \quad (349)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (350)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

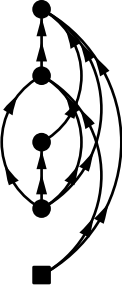

$$a_2 = \epsilon_{k_3}^{k_7}$$

$$a_3 = \epsilon_{k_1 k_4 k_7}^{k_8}$$

$$a_4 = \epsilon_{k_2 k_5 k_6 k_8}$$

**Diagram 169:**

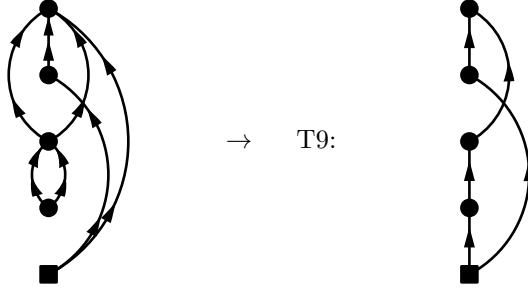
$$\begin{aligned}
\text{PO4.169} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_8 k_4 k_5 k_1}^{13} \Omega_{k_8 k_7 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7}} e^{-\tau_3 \epsilon^{k_8}} e^{-\tau_4 \epsilon^{k_1 k_4 k_5}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_8 k_4 k_5 k_1}^{13} \Omega_{k_8 k_7 k_6 k_2}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2 k_6 k_8} \epsilon_{k_3 k_1 k_4 k_5 k_2 k_6} \epsilon_{k_2 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_4 k_5 k_2 k_6} \epsilon_{k_1 k_4 k_5 k_2 k_6 k_7} \epsilon_{k_2 k_6 k_7 k_8}} \right] \\
&\quad (351)
\end{aligned}$$


→ T8:


$$\begin{aligned}
\text{T8} &= \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \\
&\quad (352) \\
a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
a_2 &= \epsilon_{k_3}^{k_7} \\
a_3 &= \epsilon_{k_1 k_4 k_5}^{k_8} \\
a_4 &= \epsilon_{k_2 k_6 k_7 k_8}
\end{aligned}$$

**Diagram 170:**

$$\begin{aligned}
\text{PO4.170} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_1}^{11} \Omega_{k_7 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_1}^{k_7}} e^{-\tau_4 \epsilon_{k_2 k_5 k_6 k_7}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_1}^{11} \Omega_{k_7 k_5 k_6 k_2}^{04} \left[ \frac{1}{\epsilon_{k_2 k_7} \epsilon_{k_3 k_4 k_2 k_7} \epsilon_{k_1 k_2} \epsilon_{k_2 k_5 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_2 k_7} \epsilon_{k_3 k_4 k_1 k_2} \epsilon_{k_2 k_5 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_2} \epsilon_{k_1 k_2 k_5 k_6} \epsilon_{k_2 k_5 k_6 k_7}} \right] \\
&\quad (353)
\end{aligned}$$

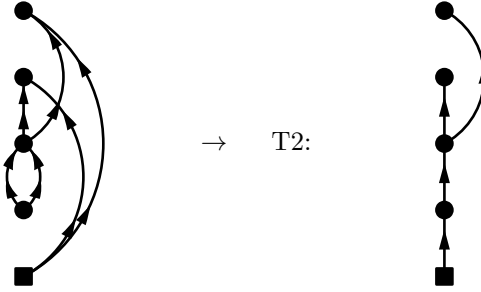


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (354)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon^{k_5 k_6} \\ a_3 &= \epsilon^{k_7} \\ a_4 &= \epsilon_{k_2 k_5 k_6 k_7} \end{aligned}$$

**Diagram 171:**

$$\begin{aligned} \text{PO4.171} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_5 k_1}^{02} \Omega_{k_6 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_1 k_5}} e^{-\tau_4 \epsilon_{k_2 k_6}} \\ &= \frac{-(-1)^4}{2(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_5 k_1}^{02} \Omega_{k_6 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_2} \epsilon_{k_1 k_5} \epsilon_{k_2 k_6}} \end{aligned} \quad (355)$$



$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (356)$$

$$a_1 = \epsilon^{k_3k_4}$$

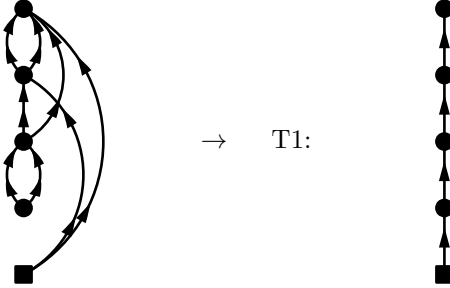
$$a_2 = \epsilon^{k_5k_6}$$

$$a_3 = \epsilon_{k_1k_5}$$

$$a_4 = \epsilon_{k_2k_6}$$

**Diagram 172:**

$$\begin{aligned} \text{PO4.172} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1k_2}^{20} \Omega_{k_3k_4}^{20} \Omega_{k_5k_6k_3k_4}^{22} \Omega_{k_7k_8k_5k_1}^{22} \Omega_{k_7k_8k_6k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3k_4}} e^{-\tau_2 \epsilon^{k_5k_6}} e^{-\tau_3 \epsilon_{k_1k_5}} e^{-\tau_4 \epsilon_{k_2k_6k_7k_8}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1k_2}^{20} \Omega_{k_3k_4}^{20} \Omega_{k_5k_6k_3k_4}^{22} \Omega_{k_7k_8k_5k_1}^{22} \Omega_{k_7k_8k_6k_2}^{04}}{\epsilon_{k_1k_2} \epsilon_{k_3k_4k_1k_2} \epsilon_{k_1k_5k_2k_6} \epsilon_{k_2k_6k_7k_8}} \end{aligned} \quad (357)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (358)$$

$$a_1 = \epsilon^{k_3k_4}$$

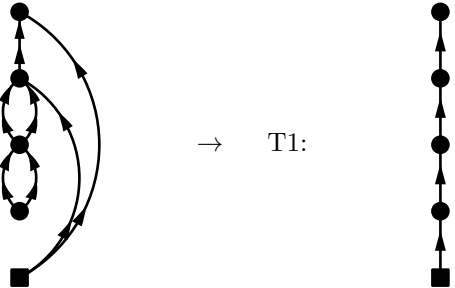
$$a_2 = \epsilon_{k_3k_4}^{k_5k_6}$$

$$a_3 = \epsilon_{k_1k_5}^{k_7k_8}$$


$$a_4 = \epsilon_{k_2k_6k_7k_8}$$

**Diagram 173:**

$$\begin{aligned}
\text{PO4.173} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_7 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_1 k_5 k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_2 k_7}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_7 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_2} \epsilon_{k_1 k_5 k_6 k_2} \epsilon_{k_2 k_7}}
\end{aligned} \tag{359}$$



$\rightarrow$  T1:



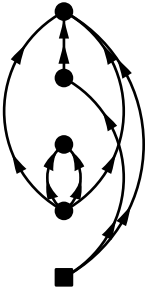
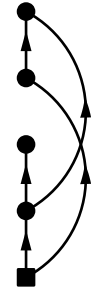
$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{360}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon_{k_3 k_4}^{k_5 k_6} \\
a_3 &= \epsilon_{k_1 k_5 k_6}^{k_7} \\
a_4 &= \epsilon_{k_2 k_7}
\end{aligned}$$

**Diagram 174:**

$$\begin{aligned}
\text{PO4.174} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_3 k_4}^{02} \Omega_{k_7 k_1}^{11} \Omega_{k_7 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4}} e^{-\tau_3 \epsilon_{k_1}^{k_7}} e^{-\tau_4 \epsilon_{k_2 k_5 k_6 k_7}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_3 k_4}^{02} \Omega_{k_7 k_1}^{11} \Omega_{k_7 k_5 k_6 k_2}^{04} \left[ \frac{1}{\epsilon^{k_3 k_4 k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_1 k_2}^{k_3 k_4} \epsilon_{k_2 k_5 k_6 k_7}} + \frac{1}{\epsilon^{k_3 k_4 k_5 k_6} \epsilon_{k_3 k_4 k_2 k_5 k_6 k_7} \epsilon_{k_1 k_2} \epsilon_{k_2 k_5 k_6 k_7}} \right]
\end{aligned} \tag{361}$$




→ T10:


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (362)$$

$$a_1 = \epsilon_{k_1}^{k_7}$$

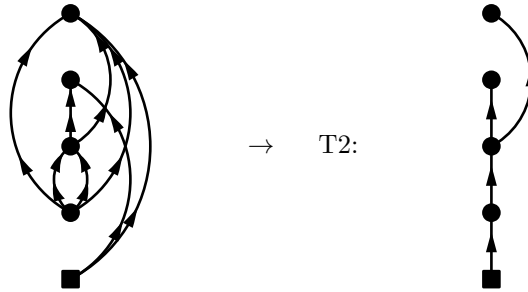
$$a_2 = \epsilon_{k_3 k_4 k_5 k_6}$$

$$a_3 = \epsilon_{k_3 k_4}$$

$$a_4 = \epsilon_{k_2 k_5 k_6 k_7}$$

**Diagram 175:**

$$\begin{aligned}
 \text{PO4.175} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_7 k_1}^{02} \Omega_{k_8 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_1 k_7}} e^{-\tau_4 \epsilon_{k_2 k_5 k_6}} \\
 &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_7 k_1}^{02} \Omega_{k_8 k_5 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_2 k_5 k_6} \epsilon_{k_7 k_8 k_3 k_4} \epsilon_{k_1 k_7} \epsilon_{k_2 k_5 k_6 k_8}}
 \end{aligned} \quad (363)$$



$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (364)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

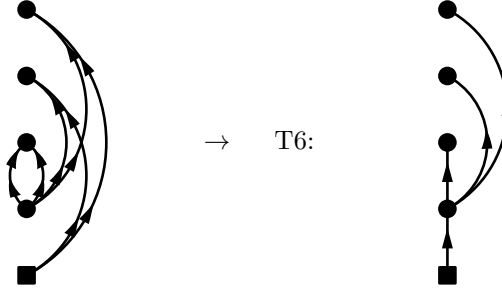
$$a_2 = \epsilon^{k_7 k_8}_{k_3 k_4}$$

$$a_3 = \epsilon_{k_1 k_7}$$

$$a_4 = \epsilon_{k_2 k_5 k_6 k_8}$$

**Diagram 176:**

$$\begin{aligned} \text{PO4.176} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_3 k_4}^{02} \Omega_{k_5 k_1}^{02} \Omega_{k_6 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4}} e^{-\tau_3 \epsilon_{k_1 k_5}} e^{-\tau_4 \epsilon_{k_2 k_6}} \\ &= \frac{-(-1)^4}{2(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_3 k_4}^{02} \Omega_{k_5 k_1}^{02} \Omega_{k_6 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_1 k_5} \epsilon_{k_2 k_6}} \end{aligned} \quad (365)$$



→ T6:

$$T6 = \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2a_3a_4} \quad (366)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

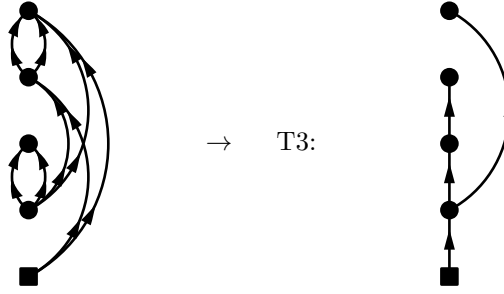
$$a_2 = \epsilon_{k_3 k_4}$$

$$a_3 = \epsilon_{k_1 k_5}$$

$$a_4 = \epsilon_{k_2 k_6}$$

**Diagram 177:**

$$\begin{aligned}
\text{PO4.177} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_3 k_4}^{02} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_7 k_8 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4}} e^{-\tau_3 \epsilon_{k_1 k_5}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_2 k_6 k_7}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_3 k_4}^{02} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_7 k_8 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_3 k_4 k_1 k_5}^{k_7 k_8} \epsilon_{k_2 k_6 k_7 k_8}}
\end{aligned} \tag{367}$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \tag{368}$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

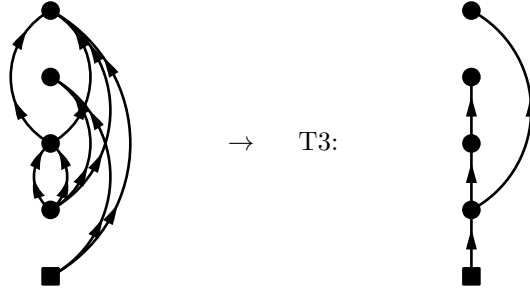
$$a_2 = \epsilon_{k_1 k_5}^{k_7 k_8}$$

$$a_3 = \epsilon_{k_3 k_4}$$

$$a_4 = \epsilon_{k_2 k_6 k_7 k_8}$$

**Diagram 178:**

$$\begin{aligned}
\text{PO4.178} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_5 k_1}^{02} \Omega_{k_7 k_8 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_1 k_5}} e^{-\tau_4 \epsilon_{k_2 k_6 k_7}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_5 k_1}^{02} \Omega_{k_7 k_8 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_3 k_4}^{k_7 k_8} \epsilon_{k_3 k_4 k_1 k_5}^{k_7 k_8} \epsilon_{k_2 k_6 k_7 k_8}}
\end{aligned} \tag{369}$$



→ T3:

$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (370)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

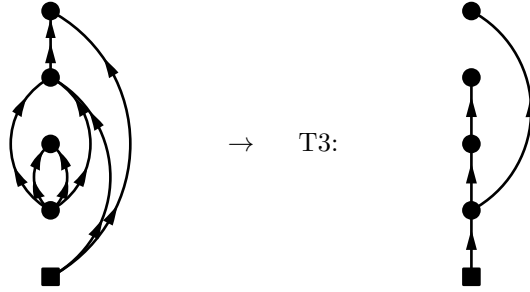
$$a_2 = \epsilon_{k_1 k_5}$$

$$a_3 = \epsilon^{k_7 k_8}_{k_3 k_4}$$

$$a_4 = \epsilon_{k_2 k_6 k_7 k_8}$$

**Diagram 179:**

$$\begin{aligned} \text{PO4.179} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_3 k_4}^{02} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_7 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4}} e^{-\tau_3 \epsilon^{k_7}_{k_1 k_5 k_6}} e^{-\tau_4 \epsilon_{k_2 k_7}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_3 k_4}^{02} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_7 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_1 k_5 k_6 k_2} \epsilon_{k_2 k_7}} \end{aligned} \quad (371)$$



→ T3:

$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (372)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

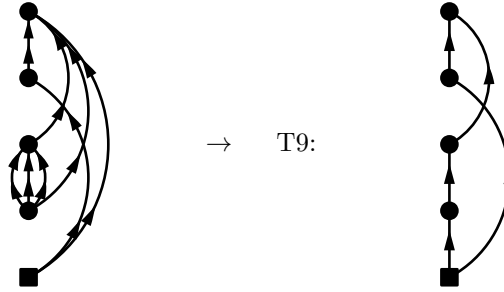
$$a_2 = \epsilon^{k_7}_{k_1 k_5 k_6}$$

$$a_3 = \epsilon_{k_2 k_7}$$

$$a_4 = \epsilon_{k_3 k_4}$$

**Diagram 180:**

$$\begin{aligned} \text{PO4.180} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_1}^{11} \Omega_{k_8 k_7 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7}_{k_3 k_4 k_5}} e^{-\tau_3 \epsilon^{k_8}_{k_1}} e^{-\tau_4 \epsilon_{k_2 k_6 k_7 k_8}} \\ &= \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_1}^{11} \Omega_{k_8 k_7 k_6 k_2}^{04} \left[ \frac{1}{\epsilon_{k_2 k_8} \epsilon_{k_3 k_4 k_5 k_2 k_6 k_8} \epsilon_{k_1 k_2} \epsilon_{k_2 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_2 k_6 k_8} \epsilon_{k_3 k_4 k_5 k_1 k_2 k_6} \epsilon_{k_2 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_1 k_2 k_6} \epsilon_{k_2 k_6 k_7 k_8}} \right] \end{aligned} \quad (373)$$

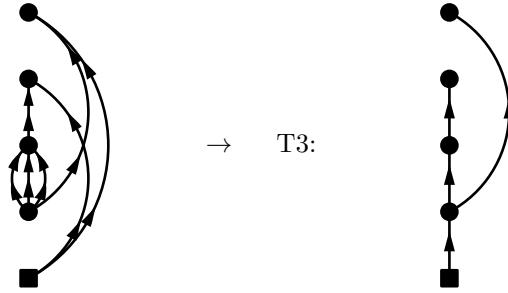


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (374)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
a_2 &= \epsilon^{k_7 k_3 k_4 k_5} \\
a_3 &= \epsilon^{k_8 k_1} \\
a_4 &= \epsilon_{k_2 k_6 k_7 k_8}
\end{aligned}$$

**Diagram 181:**

$$\begin{aligned}
\text{PO4.181} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_7 k_1}^{02} \Omega_{k_6 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_3 k_4 k_5}} e^{-\tau_3 \epsilon_{k_1 k_7}} e^{-\tau_4 \epsilon_{k_2 k_6}} \\
&= \frac{-(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_7 k_1}^{02} \Omega_{k_6 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_1} \epsilon_{k_1 k_7} \epsilon_{k_2 k_6}}
\end{aligned} \tag{375}$$

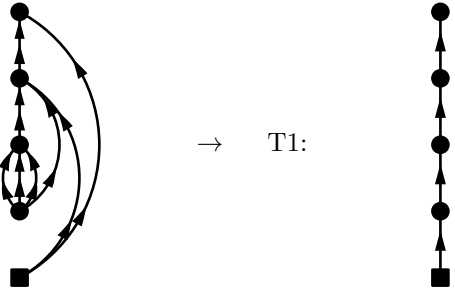


$$\text{T3} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \tag{376}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
a_2 &= \epsilon^{k_7 k_3 k_4 k_5} \\
a_3 &= \epsilon_{k_1 k_7} \\
a_4 &= \epsilon_{k_2 k_6}
\end{aligned}$$

**Diagram 182:**

$$\begin{aligned}
\text{PO4.182} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_7 k_6 k_1}^{13} \Omega_{k_8 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_3 k_4 k_5}} e^{-\tau_3 \epsilon^{k_8 k_1 k_6 k_7}} e^{-\tau_4 \epsilon^{k_2 k_8}} \\
&= \frac{(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_7 k_6 k_1}^{13} \Omega_{k_8 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_1 k_6 k_2} \epsilon_{k_1 k_6 k_7 k_2} \epsilon_{k_2 k_8}}
\end{aligned} \tag{377}$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{378}$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

$$a_2 = \epsilon^{k_7 k_3 k_4 k_5}$$

$$a_3 = \epsilon^{k_8 k_1 k_6 k_7}$$

$$a_4 = \epsilon_{k_2 k_8}$$

**Diagram 183:**

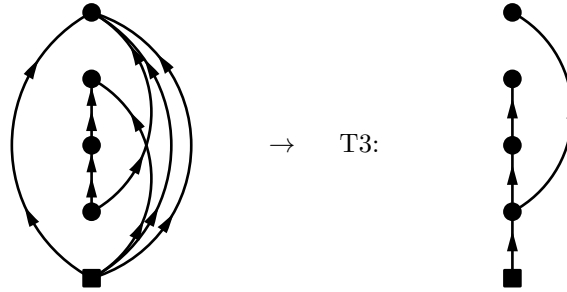
$$\begin{aligned}
\text{PO4.183} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8}^{20} \Omega_{k_7 k_8 k_5 k_1}^{04} \Omega_{k_6 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_1 k_5 k_7 k_8}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_6}} \\
&= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8}^{20} \Omega_{k_7 k_8 k_5 k_1}^{04} \Omega_{k_6 k_2 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_7 k_8 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_7 k_8} \epsilon_{k_2 k_3 k_4 k_6}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5} \epsilon_{k_1 k_5 k_7 k_8} \epsilon_{k_2 k_3 k_4 k_6}} \right]
\end{aligned} \tag{379}$$

$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (380)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_2 k_3 k_4 k_6} \\ a_3 &= \epsilon^{k_7 k_8} \\ a_4 &= \epsilon_{k_1 k_5 k_7 k_8} \end{aligned}$$

**Diagram 184:**

$$\begin{aligned} PO4.184 &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5}^{11} \Omega_{k_7 k_1}^{02} \Omega_{k_6 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_1 k_7}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_6}} \\ &= \frac{-(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5}^{11} \Omega_{k_7 k_1}^{02} \Omega_{k_6 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_1} \epsilon_{k_1 k_7} \epsilon_{k_2 k_3 k_4 k_6}} \end{aligned} \quad (381)$$



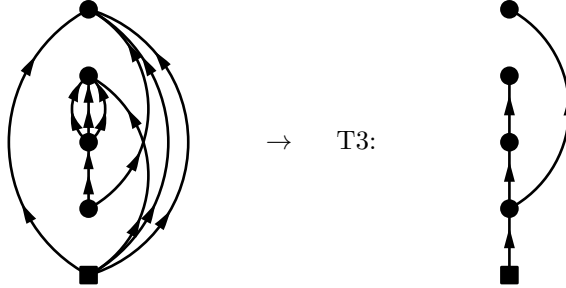


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (382)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7} \\ a_3 &= \epsilon_{k_1 k_7} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_6} \end{aligned}$$

**Diagram 185:**

$$\begin{aligned} \text{PO4.185} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_8 k_9 k_1}^{04} \Omega_{k_6 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_1 k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_6}} \\ &= \frac{-(-1)^4}{(3!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_8 k_9 k_1}^{04} \Omega_{k_6 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5}^{k_7 k_8 k_9} \epsilon_{k_5 k_2 k_3 k_4 k_6} \epsilon_{k_1 k_7 k_8 k_9} \epsilon_{k_2 k_3 k_4 k_6}} \end{aligned} \quad (383)$$

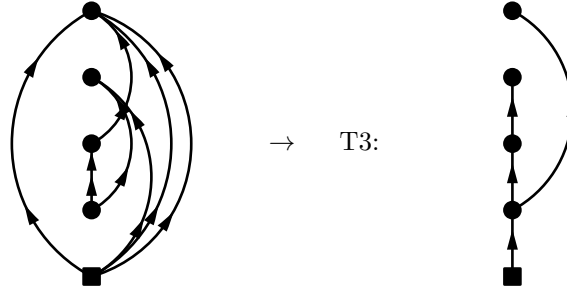


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (384)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7 k_8 k_9} \\ a_3 &= \epsilon_{k_2 k_3 k_4 k_6} \\ a_4 &= \epsilon_{k_1 k_7 k_8 k_9} \end{aligned}$$

**Diagram 186:**

$$\begin{aligned}
\text{PO4.186} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5}^{11} \Omega_{k_6 k_1}^{02} \Omega_{k_7 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_1 k_6}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_7}} \\
&= \frac{(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5}^{11} \Omega_{k_6 k_1}^{02} \Omega_{k_7 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_1 k_6} \epsilon_{k_2 k_3 k_4 k_7}}
\end{aligned} \tag{385}$$

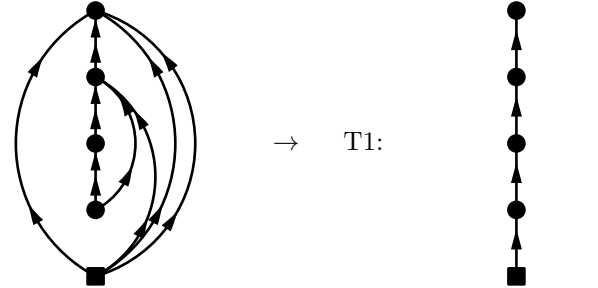


$$\text{T3} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \tag{386}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon_{k_5}^{k_7} \\
a_3 &= \epsilon_{k_2 k_3 k_4 k_7} \\
a_4 &= \epsilon_{k_1 k_6}
\end{aligned}$$

**Diagram 187:**

$$\begin{aligned}
\text{PO4.187} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_7 k_6 k_1}^{13} \Omega_{k_8 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_1 k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_8}} \\
&= \frac{(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_7 k_6 k_1}^{13} \Omega_{k_8 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_1 k_6 k_2 k_3 k_4} \epsilon_{k_1 k_6 k_7 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_8}}
\end{aligned} \tag{387}$$

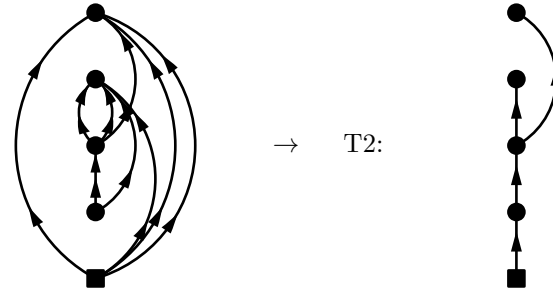


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (388)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon^{k_7} \\ a_3 &= \epsilon^{k_8} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_8} \end{aligned}$$

**Diagram 188:**

$$\begin{aligned} \text{PO4.188} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_8 k_6 k_1}^{04} \Omega_{k_9 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_8 k_6 k_1}^{04} \Omega_{k_9 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_1 k_6 k_2 k_3 k_4} \epsilon_{k_1 k_6 k_7 k_8} \epsilon_{k_2 k_3 k_4 k_9}} \end{aligned} \quad (389)$$

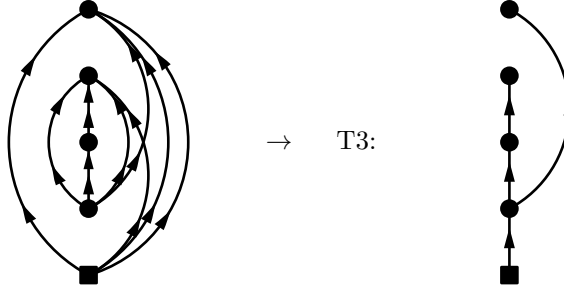


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (390)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7 k_8 k_9} \\ a_3 &= \epsilon_{k_1 k_6 k_7 k_8} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_9} \end{aligned}$$

**Diagram 189:**

$$\begin{aligned} \text{PO4.189} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5}^{11} \Omega_{k_9 k_6 k_7 k_1}^{04} \Omega_{k_8 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_5}^{k_9}} e^{-\tau_3 \epsilon_{k_1 k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_9}} \\ &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5}^{11} \Omega_{k_9 k_6 k_7 k_1}^{04} \Omega_{k_8 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5}^{k_9} \epsilon_{k_5 k_2 k_3 k_4 k_8} \epsilon_{k_1 k_6 k_7 k_9} \epsilon_{k_2 k_3 k_4 k_8}} \end{aligned} \quad (391)$$

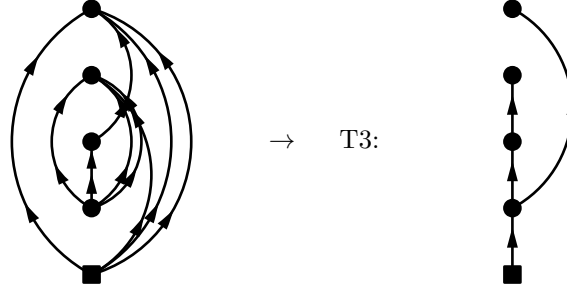


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (392)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6 k_7 k_8} \\ a_2 &= \epsilon_{k_5}^{k_9} \\ a_3 &= \epsilon_{k_2 k_3 k_4 k_8} \\ a_4 &= \epsilon_{k_1 k_6 k_7 k_9} \end{aligned}$$

**Diagram 190:**

$$\begin{aligned}
 \text{PO4.190} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5}^{11} \Omega_{k_6 k_7 k_8 k_1}^{04} \Omega_{k_9 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_5}^{k_9}} e^{-\tau_3 \epsilon_{k_1 k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_9}} \\
 &= \frac{(-1)^4}{(3!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5}^{11} \Omega_{k_6 k_7 k_8 k_1}^{04} \Omega_{k_9 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5}^{k_9} \epsilon_{k_5 k_1 k_6 k_7 k_8}^{k_9} \epsilon_{k_2 k_3 k_4 k_9}}
 \end{aligned} \tag{393}$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \tag{394}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

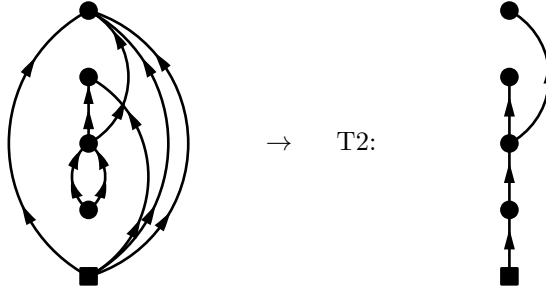
$$a_2 = \epsilon_{k_1 k_6 k_7 k_8}$$

$$a_3 = \epsilon_{k_5}^{k_9}$$

$$a_4 = \epsilon_{k_2 k_3 k_4 k_9}$$

**Diagram 191:**

$$\begin{aligned}
 \text{PO4.191} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_7 k_1}^{02} \Omega_{k_8 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_1 k_7}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_8}} \\
 &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_7 k_1}^{02} \Omega_{k_8 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_1 k_2 k_3 k_4} \epsilon_{k_1 k_7} \epsilon_{k_2 k_3 k_4 k_8}}
 \end{aligned} \tag{395}$$

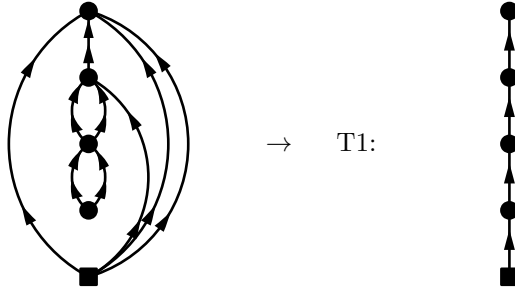


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (396)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon^{k_7 k_8} \\ a_3 &= \epsilon_{k_1 k_7} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_8} \end{aligned}$$

**Diagram 192:**

$$\begin{aligned} \text{PO4.192} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_7 k_8 k_1}^{13} \Omega_{k_9 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon^{k_9}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_9}} \\ &= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_7 k_8 k_1}^{13} \Omega_{k_9 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_1 k_2 k_3 k_4} \epsilon_{k_1 k_7 k_8 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_9}} \end{aligned} \quad (397)$$

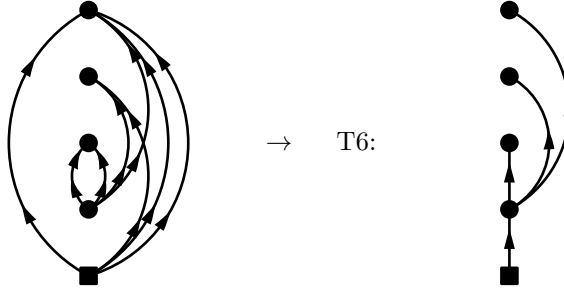


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (398)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon^{k_7 k_8} \\ a_3 &= \epsilon^{k_9} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_9} \end{aligned}$$

**Diagram 193:**

$$\begin{aligned} \text{PO4.193} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6}^{02} \Omega_{k_7 k_1}^{02} \Omega_{k_8 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_5 k_6}} e^{-\tau_3 \epsilon_{k_1 k_7}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_8}} \\ &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6}^{02} \Omega_{k_7 k_1}^{02} \Omega_{k_8 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_1 k_7} \epsilon_{k_2 k_3 k_4 k_8}} \end{aligned} \quad (399)$$

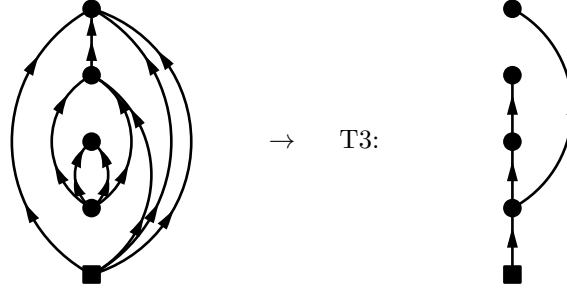


$$T6 = \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2 a_3 a_4} \quad (400)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6 k_7 k_8} \\ a_2 &= \epsilon_{k_5 k_6} \\ a_3 &= \epsilon_{k_1 k_7} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_8} \end{aligned}$$

**Diagram 194:**

$$\begin{aligned}
\text{PO4.194} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6}^{02} \Omega_{k_9 k_7 k_8 k_1}^{13} \Omega_{k_9 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_5 k_6}} e^{-\tau_3 \epsilon_{k_1 k_7 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_9}} \\
&= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6}^{02} \Omega_{k_9 k_7 k_8 k_1}^{13} \Omega_{k_9 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_1 k_7 k_8 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_9}}
\end{aligned} \tag{401}$$



$$\text{T3} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \tag{402}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

$$a_2 = \epsilon_{k_1 k_7 k_8}^{k_9}$$

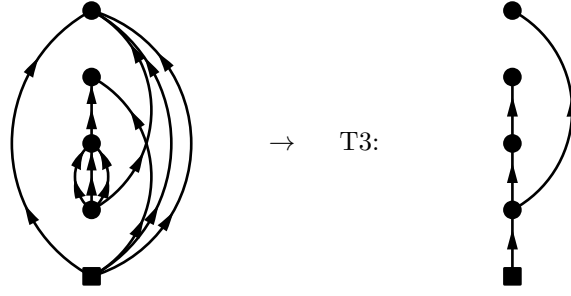
$$a_3 = \epsilon_{k_2 k_3 k_4 k_9}$$

$$a_4 = \epsilon_{k_5 k_6}$$

**Diagram 195:**

$$\begin{aligned}
\text{PO4.195} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_7}^{13} \Omega_{k_9 k_1}^{02} \Omega_{k_8 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_5 k_6 k_7}^{k_9}} e^{-\tau_3 \epsilon_{k_1 k_9}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_8}} \\
&= \frac{-(-1)^4}{(3!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_7}^{13} \Omega_{k_9 k_1}^{02} \Omega_{k_8 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_2 k_3 k_4 k_8}^{k_9} \epsilon_{k_1 k_9} \epsilon_{k_2 k_3 k_4 k_8}}
\end{aligned} \tag{403}$$



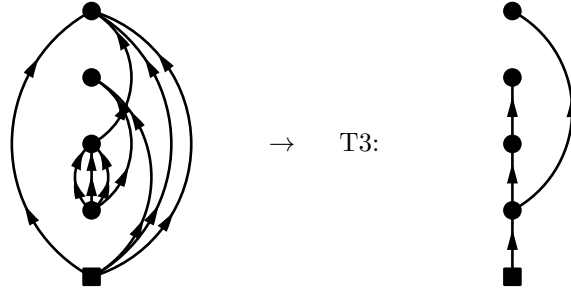


$$\text{T3} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (404)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6 k_7 k_8} \\ a_2 &= \epsilon^{k_9}_{k_5 k_6 k_7} \\ a_3 &= \epsilon_{k_2 k_3 k_4 k_8} \\ a_4 &= \epsilon_{k_1 k_9} \end{aligned}$$

**Diagram 196:**

$$\begin{aligned} \text{PO4.196} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_7}^{13} \Omega_{k_8 k_1}^{02} \Omega_{k_9 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon^{k_9}_{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_1 k_8}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_9}} \\ &= \frac{(-1)^4}{(3!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_7}^{13} \Omega_{k_8 k_1}^{02} \Omega_{k_9 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7}^{k_9} \epsilon_{k_5 k_6 k_7 k_1 k_8}^{k_9} \epsilon_{k_2 k_3 k_4 k_9}} \end{aligned} \quad (405)$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (406)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

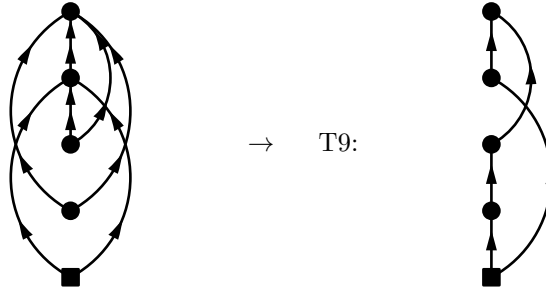
$$a_2 = \epsilon_{k_1 k_8}$$

$$a_3 = \epsilon_{k_5 k_6 k_7}^{k_9}$$

$$a_4 = \epsilon_{k_2 k_3 k_4 k_9}$$

**Diagram 197:**

$$\begin{aligned} \text{PO4.197} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_7 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_1 k_2 k_5}^{k_7}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_7}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_7 k_6 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2 k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_5 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_6 k_7}} + \frac{1}{\epsilon_{k_6 k_7} \epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_5 k_6} \epsilon_{k_3 k_4 k_6 k_7}} \right] \end{aligned} \quad (407)$$

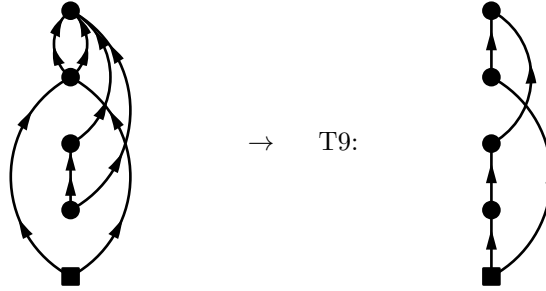


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (408)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon_{k_1 k_2 k_5}^{k_7} \\
a_3 &= \epsilon^{k_3 k_4} \\
a_4 &= \epsilon_{k_3 k_4 k_6 k_7}
\end{aligned}$$

**Diagram 198:**

$$\begin{aligned}
\text{PO4.198} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_7 k_1 k_2}^{22} \Omega_{k_6 k_7 k_5 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\
&\quad e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5}} e^{-\tau_3 \epsilon_{k_1 k_2}^{k_6 k_7}} e^{-\tau_4 \epsilon_{k_4 k_5 k_6 k_7}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_7 k_1 k_2}^{22} \Omega_{k_6 k_7 k_5 k_4}^{04} \left[ \frac{1}{\epsilon_{k_5 k_6 k_7}^{k_3} \epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_5}^{k_3} \epsilon_{k_4 k_5 k_6 k_7}} + \frac{1}{\epsilon_{k_5 k_6 k_7}^{k_3} \epsilon_{k_6 k_7} \epsilon_{k_1 k_2} \epsilon_{k_4 k_5 k_6 k_7}} + \frac{1}{\epsilon_{k_6 k_7} \epsilon_{k_3 k_4 k_6 k_7} \epsilon_{k_1 k_2} \epsilon_{k_4 k_5 k_6 k_7}} \right] \\
&\hspace{15cm} (409)
\end{aligned}$$



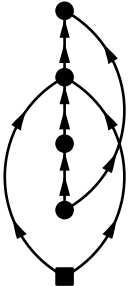

$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4}$$

(410)

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_6 k_7} \\
a_2 &= \epsilon^{k_3 k_4} \\
a_3 &= \epsilon_{k_3}^{k_5} \\
a_4 &= \epsilon_{k_4 k_5 k_6 k_7}
\end{aligned}$$

**Diagram 199:**

$$\begin{aligned}
\text{PO4.199} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_5 k_1 k_2}^{13} \Omega_{k_6 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5}} e^{-\tau_3 \epsilon_{k_1 k_2 k_5}^{k_6}} e^{-\tau_4 \epsilon_{k_4 k_6}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_5 k_1 k_2}^{13} \Omega_{k_6 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_4} \epsilon_{k_1 k_2 k_5 k_4} \epsilon_{k_4 k_6}}
\end{aligned} \tag{411}$$

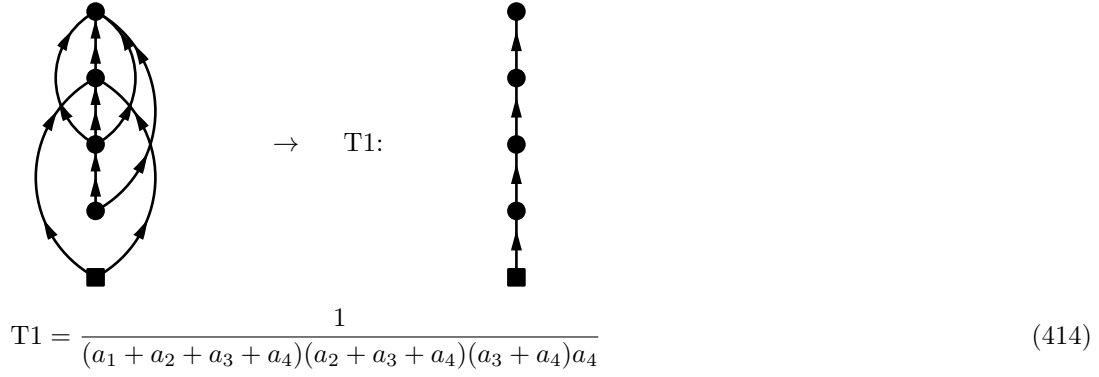

→ T1:


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{412}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon_{k_3}^{k_5} \\
a_3 &= \epsilon_{k_1 k_2 k_5}^{k_6} \\
a_4 &= \epsilon_{k_4 k_6}
\end{aligned}$$

**Diagram 200:**

$$\begin{aligned}
\text{PO4.200} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_5 k_1 k_2}^{13} \Omega_{k_8 k_6 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_1 k_2 k_5}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_6 k_7 k_8}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_5 k_1 k_2}^{13} \Omega_{k_8 k_6 k_7 k_4}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_4} \epsilon_{k_1 k_2 k_5 k_4 k_6 k_7} \epsilon_{k_4 k_6 k_7 k_8}}
\end{aligned} \tag{413}$$

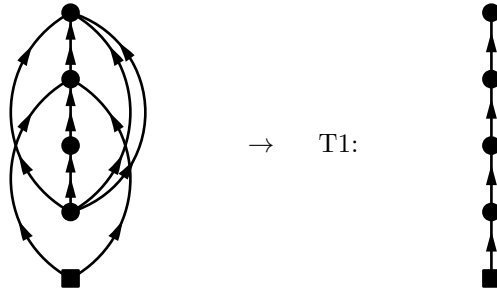


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (414)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon^{k_5 k_6 k_7} \\ a_3 &= \epsilon^{k_8} \\ a_4 &= \epsilon_{k_4 k_6 k_7 k_8} \end{aligned}$$

**Diagram 201:**

$$\begin{aligned} \text{PO4.201} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_8 k_7 k_1 k_2}^{13} \Omega_{k_8 k_4 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) \\ &\quad e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3}^{k_7}} e^{-\tau_3 \epsilon_{k_1 k_2 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_5 k_6 k_8}} \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_8 k_7 k_1 k_2}^{13} \Omega_{k_8 k_4 k_5 k_6}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_4 k_5 k_6} \epsilon_{k_1 k_2 k_7 k_4 k_5 k_6} \epsilon_{k_4 k_5 k_6 k_8}} \end{aligned} \quad (415)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (416)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

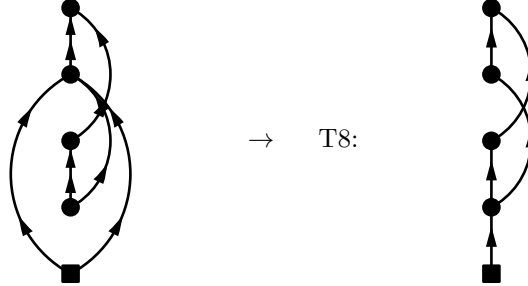
$$a_2 = \epsilon_{k_3}^{k_7}$$

$$a_3 = \epsilon_{k_1 k_2 k_7}^{k_8}$$

$$a_4 = \epsilon_{k_4 k_5 k_6 k_8}$$

**Diagram 202:**

$$\begin{aligned} \text{PO4.202} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_4 k_1 k_2}^{13} \Omega_{k_6 k_5}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\ &\quad e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5}} e^{-\tau_3 \epsilon_{k_1 k_2 k_4}^{k_6}} e^{-\tau_4 \epsilon_{k_5 k_6}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_4 k_1 k_2}^{13} \Omega_{k_6 k_5}^{02} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_6} \epsilon_{k_3 k_1 k_2 k_4} \epsilon_{k_5 k_6}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_4} \epsilon_{k_1 k_2 k_4 k_5} \epsilon_{k_5 k_6}} \right] \end{aligned} \quad (417)$$



$\rightarrow$  T8:

$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (418)$$

$$a_1 = \epsilon^{k_3 k_4}$$

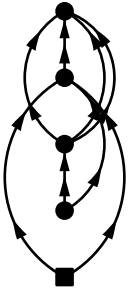

$$a_2 = \epsilon_{k_3}^{k_5}$$

$$a_3 = \epsilon_{k_1 k_2 k_4}^{k_6}$$

$$a_4 = \epsilon_{k_5 k_6}$$

**Diagram 203:**

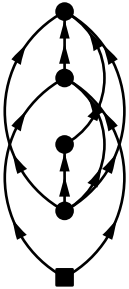

$$\begin{aligned}
\text{PO4.203} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_4 k_1 k_2}^{13} \Omega_{k_8 k_5 k_6 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon^{k_8}} e^{-\tau_4 \epsilon^{k_5 k_6 k_7}} \\
&= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_4 k_1 k_2}^{13} \Omega_{k_8 k_5 k_6 k_7}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_8} \epsilon_{k_3 k_1 k_2 k_4} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_4} \epsilon_{k_1 k_2 k_4 k_5 k_6 k_7} \epsilon_{k_5 k_6 k_7 k_8}} \right]
\end{aligned} \tag{419}$$


→ T8:


$$\begin{aligned}
\text{T8} &= \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \\
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon^{k_5 k_6 k_7} \\
a_3 &= \epsilon^{k_8} \\
a_4 &= \epsilon^{k_5 k_6 k_7 k_8}
\end{aligned} \tag{420}$$

**Diagram 204:**

$$\begin{aligned}
\text{PO4.204} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_8 k_4 k_1 k_2}^{13} \Omega_{k_8 k_7 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7}} e^{-\tau_3 \epsilon^{k_8}} e^{-\tau_4 \epsilon^{k_5 k_6 k_7 k_8}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3}^{11} \Omega_{k_8 k_4 k_1 k_2}^{13} \Omega_{k_8 k_7 k_5 k_6}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_5 k_6 k_8} \epsilon_{k_3 k_1 k_2 k_4 k_5 k_6} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_1 k_2 k_4 k_5 k_6} \epsilon_{k_1 k_2 k_4 k_5 k_6 k_7} \epsilon_{k_5 k_6 k_7 k_8}} \right]
\end{aligned} \tag{421}$$

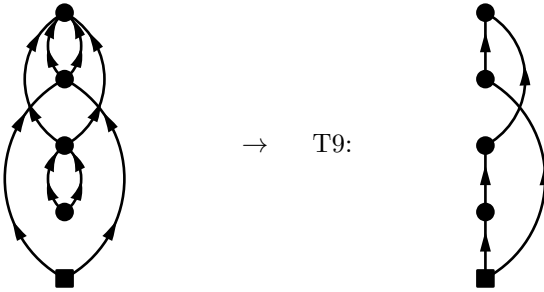

→ T8:


$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (422)$$

$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$   
 $a_2 = \epsilon_{k_3}^{k_7}$   
 $a_3 = \epsilon_{k_1 k_2 k_4}^{k_8}$   
 $a_4 = \epsilon_{k_5 k_6 k_7 k_8}$

**Diagram 205:**

$$\begin{aligned}
 \text{PO4.205} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_1 k_2}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7 k_8}} \\
 &= \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{04} \left[ \frac{1}{\epsilon_{k_7 k_8} \epsilon_{k_3 k_4 k_7 k_8} \epsilon_{k_1 k_2} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_7 k_8} \epsilon_{k_3 k_4 k_1 k_2} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_2} \epsilon_{k_1 k_2 k_5 k_6} \epsilon_{k_5 k_6 k_7 k_8}} \right] \quad (423)
 \end{aligned}$$



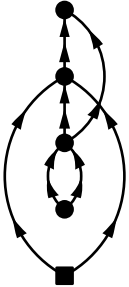



$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (424)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon^{k_5 k_6} \\ a_3 &= \epsilon^{k_7 k_8} \\ a_4 &= \epsilon_{k_5 k_6 k_7 k_8} \end{aligned}$$

**Diagram 206:**

$$\begin{aligned} \text{PO4.206} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_7 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6}} e^{-\tau_3 \epsilon^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_7 k_6}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_1 k_2} \epsilon_{k_5 k_6 k_3 k_4} \epsilon_{k_7 k_5 k_1 k_2} \epsilon_{k_6 k_7}} \end{aligned} \quad (425)$$

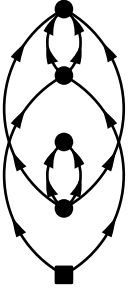


→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (426)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon^{k_5 k_6} \\ a_3 &= \epsilon_{k_1 k_2 k_5} \\ a_4 &= \epsilon_{k_6 k_7} \end{aligned}$$

**Diagram 207:**

$$\begin{aligned}
\text{PO4.207} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_3 k_4}^{02} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4}} e^{-\tau_3 \epsilon_{k_1 k_2}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7 k_8}} \\
&= \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_3 k_4}^{02} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2}^{k_5 k_6 k_7 k_8} \epsilon_{k_3 k_4} \epsilon_{k_1 k_2}^{k_7 k_8} \epsilon_{k_1 k_2}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_1 k_2}^{k_7 k_8} \epsilon_{k_3 k_4 k_5 k_6 k_7 k_8}} \right] \quad (427)
\end{aligned}$$

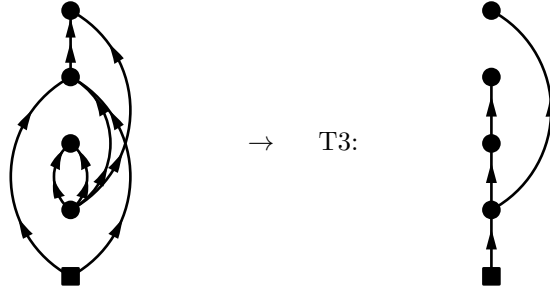

→ T10:


$$\text{T10} = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (428)$$

$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$   
 $a_2 = \epsilon_{k_1 k_2}^{k_7 k_8}$   
 $a_3 = \epsilon_{k_5 k_6 k_7 k_8}$   
 $a_4 = \epsilon_{k_3 k_4}$

**Diagram 208:**

$$\begin{aligned}
\text{PO4.208} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_3 k_4}^{02} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_7 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4}} e^{-\tau_3 \epsilon_{k_1 k_2 k_5}^{k_7}} e^{-\tau_4 \epsilon_{k_6 k_7}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_3 k_4}^{02} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_7 k_6}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_1 k_2 k_5 k_6} \epsilon_{k_6 k_7}} \quad (429)
\end{aligned}$$

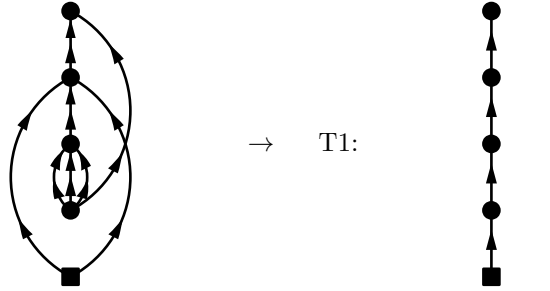


$$\text{T3} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (430)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\ a_2 &= \epsilon^{k_7}_{k_1 k_2 k_5} \\ a_3 &= \epsilon_{k_6 k_7} \\ a_4 &= \epsilon_{k_3 k_4} \end{aligned}$$

**Diagram 209:**

$$\begin{aligned} \text{PO4.209} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_7 k_1 k_2}^{13} \Omega_{k_8 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) \\ &\quad e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7}_{k_3 k_4 k_5}} e^{-\tau_3 \epsilon^{k_8}_{k_1 k_2 k_7}} e^{-\tau_4 \epsilon_{k_6 k_8}} \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_7 k_1 k_2}^{13} \Omega_{k_8 k_6}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_1 k_2 k_6} \epsilon_{k_1 k_2 k_7 k_6} \epsilon_{k_6 k_8}} \end{aligned} \quad (431)$$

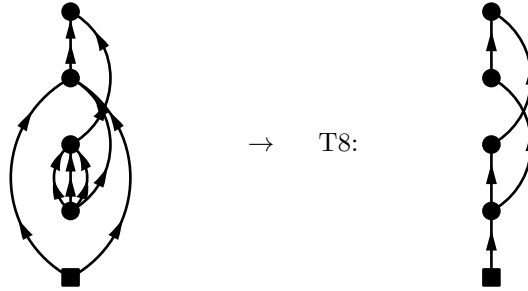


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (432)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\ a_2 &= \epsilon^{k_7}_{k_3 k_4 k_5} \\ a_3 &= \epsilon^{k_8}_{k_1 k_2 k_7} \\ a_4 &= \epsilon_{k_6 k_8} \end{aligned}$$

**Diagram 210:**

$$\begin{aligned} \text{PO4.210} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_6 k_1 k_2}^{13} \Omega_{k_8 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\ &\quad e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7}_{k_3 k_4 k_5}} e^{-\tau_3 \epsilon^{k_8}_{k_1 k_2 k_6}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\ &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_5}^{13} \Omega_{k_8 k_6 k_1 k_2}^{13} \Omega_{k_8 k_7}^{02} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_8} \epsilon_{k_3 k_4 k_5 k_1 k_2 k_6} \epsilon_{k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_1 k_2 k_6} \epsilon_{k_1 k_2 k_6 k_7} \epsilon_{k_7 k_8}} \right] \end{aligned} \quad (433)$$

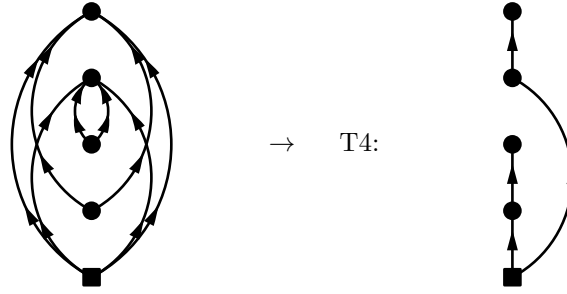


$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (434)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
a_2 &= \epsilon^{k_7 k_4 k_5} \\
a_3 &= \epsilon^{k_8 k_1 k_2 k_6} \\
a_4 &= \epsilon^{k_7 k_8}
\end{aligned}$$

**Diagram 211:**

$$\begin{aligned}
\text{PO4.211} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{2(2!)^4} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8}^{20} \Omega_{k_7 k_8 k_1 k_2}^{04} \Omega_{k_5 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_1 k_2 k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_5 k_6}} \\
&= \frac{(-1)^4}{2(2!)^4} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8}^{20} \Omega_{k_7 k_8 k_1 k_2}^{04} \Omega_{k_5 k_6 k_3 k_4}^{04}}{\epsilon^{k_5 k_6 k_7 k_8} \epsilon^{k_7 k_8} \epsilon_{k_1 k_2 k_7 k_8 k_3 k_4 k_5 k_6} \epsilon_{k_3 k_4 k_5 k_6}}
\end{aligned} \tag{435}$$

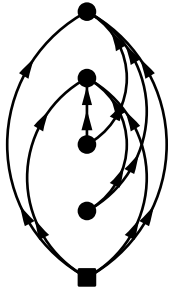
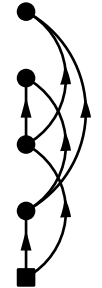


$$T4 = \frac{1}{(a_1 + a_2) a_2 (a_3 + a_4) a_4} \tag{436}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon^{k_7 k_8} \\
a_3 &= \epsilon_{k_1 k_2 k_7 k_8} \\
a_4 &= \epsilon_{k_3 k_4 k_5 k_6}
\end{aligned}$$

**Diagram 212:**

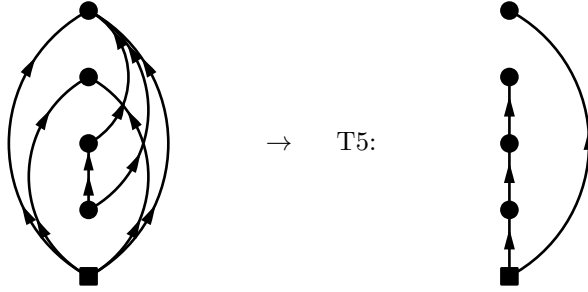
$$\begin{aligned}
\text{PO4.212} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{4(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8}^{20} \Omega_{k_7 k_5 k_1 k_2}^{04} \Omega_{k_8 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_1 k_2 k_5 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_8}} \\
&= \frac{-(-1)^4}{4(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8}^{20} \Omega_{k_7 k_5 k_1 k_2}^{04} \Omega_{k_8 k_6 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_7 k_3 k_4 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_7} \epsilon_{k_3 k_4 k_6 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_3 k_4 k_6} \epsilon_{k_1 k_2 k_5 k_7} \epsilon_{k_3 k_4 k_6 k_8}} \right] \\
&\quad (437)
\end{aligned}$$


→ T11:


$$\begin{aligned}
\text{T11} &= \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3 a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \\
&\quad (438) \\
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon^{k_7 k_8} \\
a_3 &= \epsilon_{k_1 k_2 k_5 k_7} \\
a_4 &= \epsilon_{k_3 k_4 k_6 k_8}
\end{aligned}$$

**Diagram 213:**

$$\begin{aligned}
\text{PO4.213} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5}^{11} \Omega_{k_1 k_2}^{02} \Omega_{k_7 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_1 k_2}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_7}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5}^{11} \Omega_{k_1 k_2}^{02} \Omega_{k_7 k_6 k_3 k_4}^{04}}{\epsilon_{k_1 k_2}^{k_6 k_7} \epsilon_{k_5 k_1 k_2}^{k_7} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_6 k_7}} \\
&\quad (439)
\end{aligned}$$

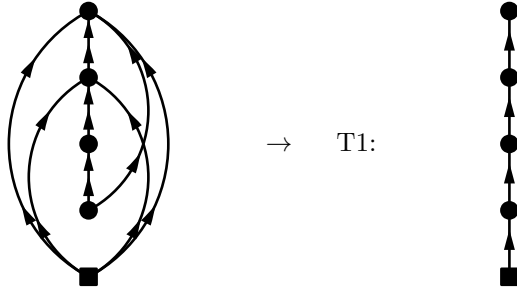


$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (440)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon^{k_7} \\ a_3 &= \epsilon_{k_1 k_2} \\ a_4 &= \epsilon_{k_3 k_4 k_6 k_7} \end{aligned}$$

**Diagram 214:**

$$\begin{aligned} \text{PO4.214} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_7 k_1 k_2}^{13} \Omega_{k_8 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) \\ &\quad e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_1 k_2}^{k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_8}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_7 k_1 k_2}^{13} \Omega_{k_8 k_6 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_1 k_2 k_3 k_4 k_6} \epsilon_{k_1 k_2 k_7 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_6 k_8}} \end{aligned} \quad (441)$$

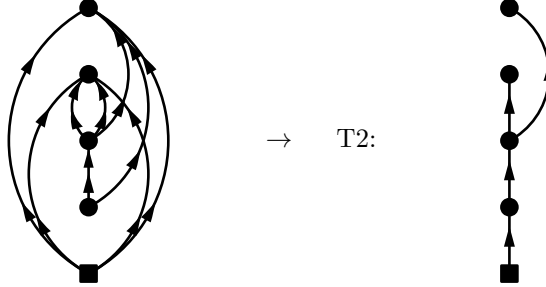


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (442)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7} \\ a_3 &= \epsilon_{k_1 k_2 k_7}^{k_8} \\ a_4 &= \epsilon_{k_3 k_4 k_6 k_8} \end{aligned}$$

**Diagram 215:**

$$\begin{aligned} \text{PO4.215} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_8 k_1 k_2}^{04} \Omega_{k_9 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_1 k_2 k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_8}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_8 k_1 k_2}^{04} \Omega_{k_9 k_6 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_1 k_2 k_3 k_4 k_6} \epsilon_{k_5 k_1 k_2 k_3 k_4 k_6} \epsilon_{k_1 k_2 k_7 k_8} \epsilon_{k_3 k_4 k_6 k_9}} \end{aligned} \quad (443)$$



→ T2:

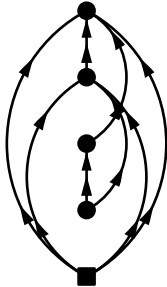

$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \quad (444)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7 k_8 k_9} \\ a_3 &= \epsilon_{k_1 k_2 k_7 k_8} \\ a_4 &= \epsilon_{k_3 k_4 k_6 k_9} \end{aligned}$$



**Diagram 216:**

$$\begin{aligned}
 \text{PO4.216} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_6 k_1 k_2}^{13} \Omega_{k_8 k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_1 k_2 k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\
 &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_6 k_1 k_2}^{13} \Omega_{k_8 k_7 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_4 k_8} \epsilon_{k_5 k_1 k_2 k_6 k_3 k_4} \epsilon_{k_3 k_4 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_1 k_2 k_6 k_3 k_4} \epsilon_{k_1 k_2 k_6 k_3 k_4 k_7} \epsilon_{k_3 k_4 k_7 k_8}} \right] \\
 &\quad (445)
 \end{aligned}$$

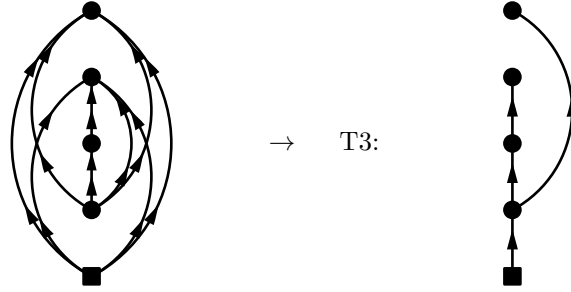

→ T8:


$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (446)$$

$$\begin{aligned}
 a_1 &= \epsilon^{k_5 k_6} \\
 a_2 &= \epsilon_{k_5}^{k_7} \\
 a_3 &= \epsilon_{k_1 k_2 k_6}^{k_8} \\
 a_4 &= \epsilon_{k_3 k_4 k_7 k_8}
 \end{aligned}$$

**Diagram 217:**

$$\begin{aligned}
 \text{PO4.217} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5}^{11} \Omega_{k_9 k_6 k_1 k_2}^{04} \Omega_{k_7 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_5}^{k_9}} e^{-\tau_3 \epsilon_{k_1 k_2 k_6 k_9}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5}^{11} \Omega_{k_9 k_6 k_1 k_2}^{04} \Omega_{k_7 k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5}^{k_9} \epsilon_{k_1 k_2 k_6 k_9} \epsilon_{k_5 k_3 k_4 k_7 k_8}} \quad (447)
 \end{aligned}$$



→ T3:

$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (448)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

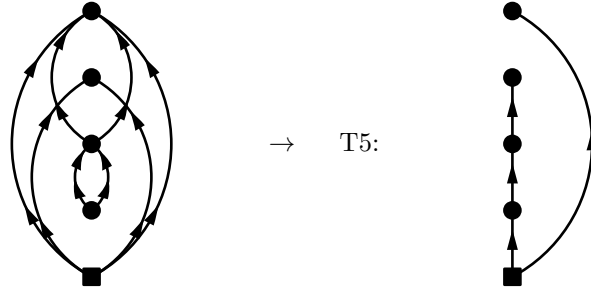
$$a_2 = \epsilon_{k_3 k_4 k_7 k_8}$$

$$a_3 = \epsilon_{k_5}^{k_9}$$

$$a_4 = \epsilon_{k_1 k_2 k_6 k_9}$$

**Diagram 218:**

$$\begin{aligned} \text{PO4.218} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_1 k_2}^{02} \Omega_{k_7 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_1 k_2}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)^4} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_1 k_2}^{02} \Omega_{k_7 k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2}^{k_7 k_8} \epsilon_{k_5 k_6 k_1 k_2}^{k_7 k_8} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_7 k_8}} \end{aligned} \quad (449)$$



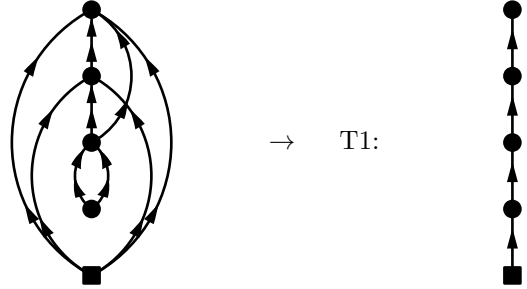
→ T5:

$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (450)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_5 k_6}^{k_7 k_8} \\ a_3 &= \epsilon_{k_1 k_2} \\ a_4 &= \epsilon_{k_3 k_4 k_7 k_8} \end{aligned}$$

**Diagram 219:**

$$\begin{aligned} \text{PO4.219} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_7 k_1 k_2}^{13} \Omega_{k_9 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_1 k_2}^{k_9}} e^{-\tau_4 \epsilon_{k_3 k_4 k_8}^{k_9}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_7 k_1 k_2}^{13} \Omega_{k_9 k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_7 k_3 k_4 k_8} \epsilon_{k_3 k_4 k_8 k_9}} \end{aligned} \quad (451)$$

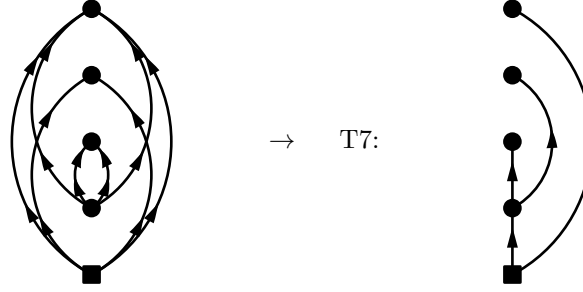


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (452)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_5 k_6}^{k_7 k_8} \\ a_3 &= \epsilon_{k_1 k_2 k_7}^{k_9} \\ a_4 &= \epsilon_{k_3 k_4 k_8 k_9} \end{aligned}$$

**Diagram 220:**

$$\begin{aligned}
 \text{PO4.220} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6}^{02} \Omega_{k_1 k_2}^{02} \Omega_{k_7 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_5 k_6}} e^{-\tau_3 \epsilon_{k_1 k_2}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\
 &= \frac{(-1)^4}{(2!)^4} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6}^{02} \Omega_{k_1 k_2}^{02} \Omega_{k_7 k_8 k_3 k_4}^{04}}{\epsilon_{k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_7 k_8}}
 \end{aligned} \tag{453}$$



$$T7 = \frac{1}{(a_1 + a_2 + a_3) a_2 a_3 a_4} \tag{454}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

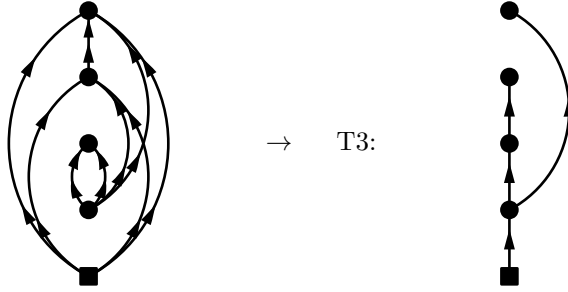
$$a_2 = \epsilon_{k_5 k_6}$$

$$a_3 = \epsilon_{k_3 k_4 k_7 k_8}$$

$$a_4 = \epsilon_{k_1 k_2}$$

**Diagram 221:**

$$\begin{aligned}
 \text{PO4.221} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6}^{02} \Omega_{k_9 k_7 k_1 k_2}^{13} \Omega_{k_9 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_5 k_6}} e^{-\tau_3 \epsilon_{k_1 k_2 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4 k_8 k_9}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6}^{02} \Omega_{k_9 k_7 k_1 k_2}^{13} \Omega_{k_9 k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_1 k_2 k_7 k_3 k_4 k_8} \epsilon_{k_3 k_4 k_8 k_9}}
 \end{aligned} \tag{455}$$

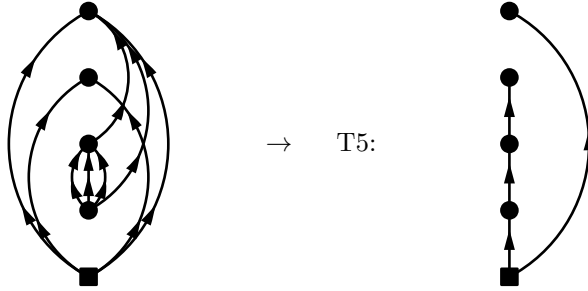


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (456)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6 k_7 k_8} \\ a_2 &= \epsilon^{k_9}_{k_1 k_2 k_7} \\ a_3 &= \epsilon_{k_3 k_4 k_8 k_9} \\ a_4 &= \epsilon_{k_5 k_6} \end{aligned}$$

**Diagram 222:**

$$\begin{aligned} \text{PO4.222} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_7}^{13} \Omega_{k_1 k_2}^{02} \Omega_{k_9 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon^{k_9}_{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_1 k_2}} e^{-\tau_4 \epsilon_{k_3 k_4 k_8 k_9}} \\ &= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_7}^{13} \Omega_{k_1 k_2}^{02} \Omega_{k_9 k_8 k_3 k_4}^{04}}{\epsilon_{k_3 k_4} \epsilon_{k_5 k_6 k_7 k_3 k_4 k_8} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_8 k_9}} \end{aligned} \quad (457)$$



$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (458)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

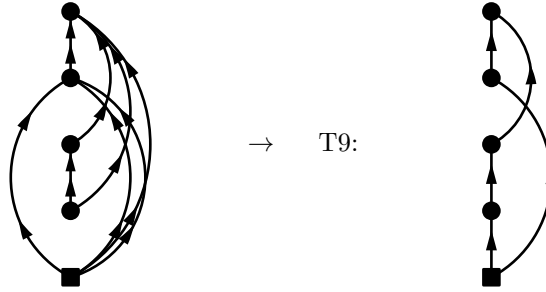
$$a_2 = \epsilon^{k_9}_{k_5 k_6 k_7}$$

$$a_3 = \epsilon_{k_3 k_4 k_8 k_9}$$

$$a_4 = \epsilon_{k_1 k_2}$$

**Diagram 223:**

$$\begin{aligned} \text{PO4.223} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_1 k_2 k_3}^{13} \Omega_{k_8 k_7 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon^{k_7}_{k_5}} e^{-\tau_3 \epsilon^{k_8}_{k_1 k_2 k_3}} e^{-\tau_4 \epsilon_{k_4 k_6 k_7 k_8}} \\ &= \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_1 k_2 k_3}^{13} \Omega_{k_8 k_7 k_6 k_4}^{04} \left[ \frac{1}{\epsilon_{k_4 k_8} \epsilon_{k_5 k_4 k_6 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_4 k_6 k_8} \epsilon_{k_5 k_1 k_2 k_3 k_4 k_6} \epsilon_{k_4 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_1 k_2 k_3 k_4 k_6} \epsilon_{k_4 k_6 k_7 k_8}} \right] \end{aligned} \quad (459)$$

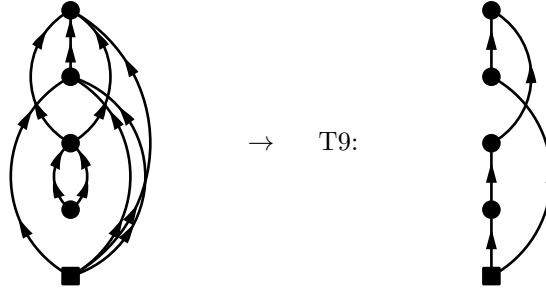


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (460)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon_{k_5}^{k_7} \\
a_3 &= \epsilon_{k_1 k_2 k_3}^{k_8} \\
a_4 &= \epsilon_{k_4 k_6 k_7 k_8}
\end{aligned}$$

**Diagram 224:**

$$\begin{aligned}
\text{PO4.224} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2 (3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_1 k_2 k_3}^{13} \Omega_{k_9 k_7 k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_1 k_2 k_3}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_7 k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^2 (3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_1 k_2 k_3}^{13} \Omega_{k_9 k_7 k_8 k_4}^{04} \left[ \frac{1}{\epsilon_{k_4 k_9} \epsilon_{k_5 k_6 k_4 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_4 k_9} \epsilon_{k_5 k_6 k_1 k_2 k_3 k_4} \epsilon_{k_4 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_4 k_9} \epsilon_{k_5 k_6 k_1 k_2 k_3 k_4} \epsilon_{k_4 k_7 k_8 k_9}} \right] \\
&\quad (461)
\end{aligned}$$

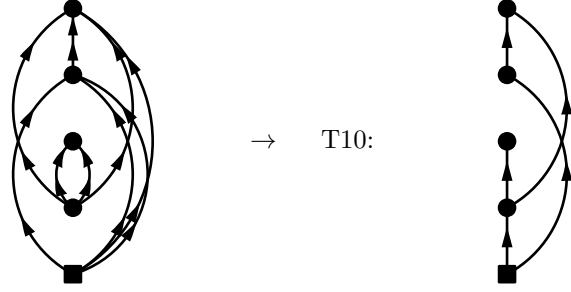


$$\begin{aligned}
\text{T9} &= \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \\
&\quad (462)
\end{aligned}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon_{k_5 k_6}^{k_7 k_8} \\
a_3 &= \epsilon_{k_1 k_2 k_3}^{k_9} \\
a_4 &= \epsilon_{k_4 k_7 k_8 k_9}
\end{aligned}$$

**Diagram 225:**

$$\begin{aligned}
\text{PO4.225} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6}^{02} \Omega_{k_9 k_1 k_2 k_3}^{13} \Omega_{k_9 k_7 k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_5 k_6}} e^{-\tau_3 \epsilon_{k_1 k_2 k_3}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_7 k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6}^{02} \Omega_{k_9 k_1 k_2 k_3}^{13} \Omega_{k_9 k_7 k_8 k_4}^{04} \left[ \frac{1}{\epsilon_{k_4 k_9} \epsilon_{k_5 k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_1 k_2 k_3 k_4 k_7 k_8} \epsilon_{k_4 k_7 k_8 k_9}} \right] \\
&\quad (463)
\end{aligned}$$



$$\text{T10} = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (464)$$

$$a_1 = \epsilon_{k_5 k_6 k_7 k_8}$$

$$a_2 = \epsilon_{k_5 k_6}$$

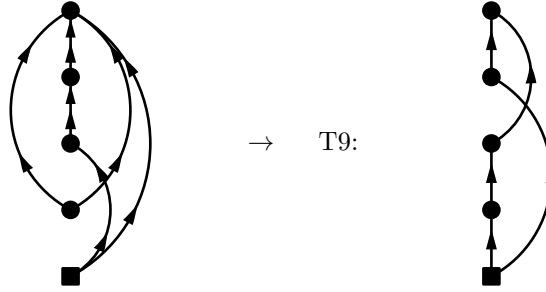
$$a_3 = \epsilon_{k_1 k_2 k_3}^{k_9}$$

$$a_4 = \epsilon_{k_4 k_7 k_8 k_9}$$

**Diagram 226:**

$$\begin{aligned}
\text{PO4.226} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_6 k_3 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_3 k_4}} e^{-\tau_2 \epsilon_{k_5}^{k_5}} e^{-\tau_3 \epsilon_{k_5}^{k_6}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_6}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_6 k_3 k_4 k_2}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_6}} + \frac{1}{\epsilon_{k_5 k_2} \epsilon_{k_1 k_2} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_6}} + \frac{1}{\epsilon_{k_2 k_6} \epsilon_{k_1 k_2} \epsilon_{k_5 k_2} \epsilon_{k_2 k_3 k_4 k_6}} \right] \\
&\quad (465)
\end{aligned}$$



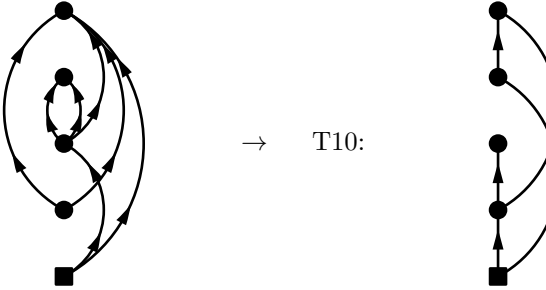


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (466)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_5}^{k_6} \\ a_3 &= \epsilon^{k_3 k_4} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_6} \end{aligned}$$

**Diagram 227:**

$$\begin{aligned} \text{PO4.227} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_7 k_3 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_5 k_6}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_7}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_7 k_3 k_4 k_2}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_2 k_3 k_4 k_7}} + \frac{1}{\epsilon_{k_2 k_7} \epsilon_{k_1 k_2} \epsilon_{k_5 k_6} \epsilon_{k_2 k_3 k_4 k_7}} \right] \quad (467) \end{aligned}$$

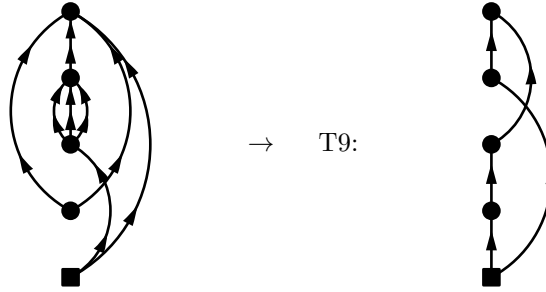


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (468)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_5 k_6} \\ a_3 &= \epsilon^{k_3 k_4} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_7} \end{aligned}$$

**Diagram 228:**

$$\begin{aligned} \text{PO4.228} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_8 k_3 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_5 k_6 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_8}} \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_8 k_3 k_4 k_2}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_8}^{k_5 k_6 k_7} \epsilon_{k_1 k_2 k_3 k_4 k_8}^{k_5 k_6 k_7} \epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_4 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4 k_8}^{k_5 k_6 k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_2 k_3} \epsilon_{k_5 k_6 k_7 k_2 k_3}} \right] \end{aligned} \quad (469)$$

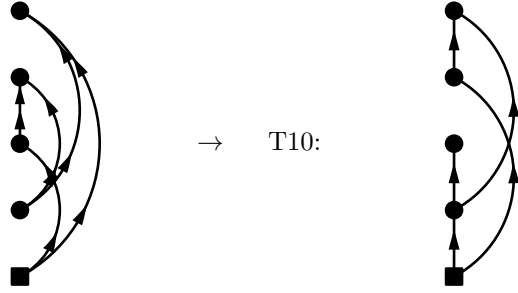


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (470)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_3 &= \epsilon_{k_5 k_6 k_7}^{k_8} \\
a_4 &= \epsilon_{k_2 k_3 k_4 k_8}
\end{aligned}$$

**Diagram 229:**

$$\begin{aligned}
\text{PO4.229} &= \lim_{\tau \rightarrow \infty} (-1)^4 \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_5 k_3}^{02} \Omega_{k_4 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5}} e^{-\tau_3 \epsilon_{k_3 k_5}} e^{-\tau_4 \epsilon_{k_2 k_4}} \\
&= (-1)^4 \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_5 k_3}^{02} \Omega_{k_4 k_2}^{02} \left[ \frac{1}{\epsilon^{k_3 k_4} \epsilon_{k_1}^{k_4} \epsilon_{k_3 k_5} \epsilon_{k_1 k_2}} + \frac{1}{\epsilon^{k_3 k_4} \epsilon_{k_1 k_2} \epsilon_{k_3 k_5} \epsilon_{k_3 k_5 k_2 k_4}} \right]
\end{aligned} \tag{471}$$



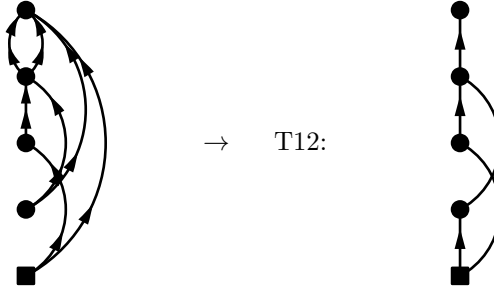
$\rightarrow$  T10:

$$\text{T10} = \frac{1}{(a_1 + a_2 + a_4) a_2 (a_3 + a_1 + a_2 + a_4) a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4) a_2 (a_3 + a_4) a_4} \tag{472}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon^{k_3 k_4} \\
a_3 &= \epsilon_{k_2 k_4} \\
a_4 &= \epsilon_{k_3 k_5}
\end{aligned}$$

**Diagram 230:**

$$\begin{aligned}
 \text{PO4.230} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_3}^{22} \Omega_{k_6 k_7 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5}} e^{-\tau_3 \epsilon_{k_3 k_5}^{k_6 k_7}} e^{-\tau_4 \epsilon_{k_2 k_4 k_6 k_7}} \\
 &= \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_3}^{22} \Omega_{k_6 k_7 k_4 k_2}^{04} \left[ \frac{1}{\epsilon_{k_5 k_2} \epsilon_{k_1 k_2} \epsilon_{k_3 k_5 k_2 k_4} \epsilon_{k_2 k_4 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_2 k_4} \epsilon_{k_3 k_5 k_2 k_4} \epsilon_{k_2 k_4 k_6 k_7}} \right] \quad (473)
 \end{aligned}$$



$$\text{T12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (474)$$

$$\begin{aligned}
 a_1 &= \epsilon^{k_3 k_4} \\
 a_2 &= \epsilon_{k_1}^{k_5} \\
 a_3 &= \epsilon_{k_3 k_5}^{k_6 k_7} \\
 a_4 &= \epsilon_{k_2 k_4 k_6 k_7}
 \end{aligned}$$

**Diagram 231:**

$$\begin{aligned}
 \text{PO4.231} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_3}^{02} \Omega_{k_6 k_7 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_3 k_5}^{k_6 k_7}} e^{-\tau_4 \epsilon_{k_2 k_4 k_6 k_7}} \\
 &= \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_3}^{02} \Omega_{k_6 k_7 k_4 k_2}^{04} \left[ \frac{1}{\epsilon_{k_5 k_2 k_6 k_7} \epsilon_{k_1 k_2} \epsilon_{k_3 k_5} \epsilon_{k_2 k_4 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_2 k_4} \epsilon_{k_3 k_5} \epsilon_{k_2 k_4 k_6 k_7}} \right] \quad (475)
 \end{aligned}$$

→ T11:

$$T11 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (476)$$

$$a_1 = \epsilon^{k_3 k_4}$$

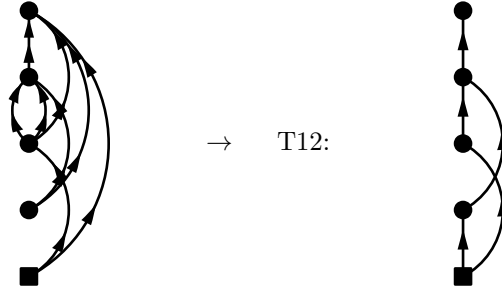
$$a_2 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

$$a_3 = \epsilon_{k_3 k_5}$$

$$a_4 = \epsilon_{k_2 k_4 k_6 k_7}$$

**Diagram 232:**

$$\begin{aligned}
 \text{PO4.232} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_3}^{13} \Omega_{k_8 k_7 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_3 k_5 k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_2 k_4 k_7 k_8}^{k_8}} \\
 &= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_3}^{13} \Omega_{k_8 k_7 k_4 k_2}^{04} \left[ \frac{1}{\epsilon_{k_5 k_6 k_2 k_7} \epsilon_{k_1 k_2} \epsilon_{k_3 k_5 k_6 k_2 k_4 k_7} \epsilon_{k_2 k_4 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_2 k_4} \epsilon_{k_3 k_5 k_6 k_2 k_4 k_7} \epsilon_{k_2 k_4 k_7 k_8}} \right] \quad (477)
 \end{aligned}$$

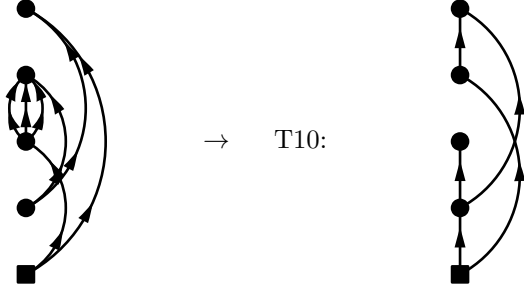


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (478)$$

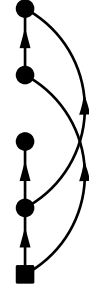
$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_3 &= \epsilon_{k_3 k_5 k_6}^{k_8} \\ a_4 &= \epsilon_{k_2 k_4 k_7 k_8} \end{aligned}$$

**Diagram 233:**

$$\begin{aligned} \text{PO4.233} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6 k_7 k_3}^{04} \Omega_{k_4 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_3 k_5 k_6 k_7}} e^{-\tau_4 \epsilon_{k_2 k_4}} \\ &= \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6 k_7 k_3}^{04} \Omega_{k_4 k_2}^{02} \left[ \frac{1}{\epsilon_{k_1 k_2}^{k_3 k_5 k_6 k_7} \epsilon_{k_1}^{k_5 k_6 k_7} \epsilon_{k_1 k_2} \epsilon_{k_2 k_4}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1}^{k_5 k_6 k_7} \epsilon_{k_3 k_5 k_6 k_7 k_2 k_4} \epsilon_{k_2 k_4}} \right] \end{aligned} \quad (479)$$



$\rightarrow$  T10:

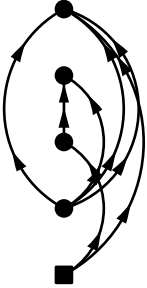
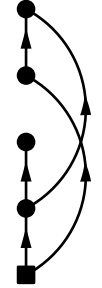


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (480)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_3 &= \epsilon_{k_3 k_5 k_6 k_7} \\ a_4 &= \epsilon_{k_2 k_4} \end{aligned}$$

**Diagram 234:**

$$\begin{aligned}
\text{PO4.234} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_1}^{11} \Omega_{k_7 k_3}^{02} \Omega_{k_4 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7}} e^{-\tau_3 \epsilon_{k_3 k_7}} e^{-\tau_4 \epsilon_{k_2 k_4 k_5 k_6}} \\
&= \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_1}^{11} \Omega_{k_7 k_3}^{02} \Omega_{k_4 k_5 k_6 k_2}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2}^{k_3 k_7} \epsilon_{k_1}^{k_7} \epsilon_{k_1 k_2} \epsilon_{k_2 k_4 k_5 k_6}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1}^{k_7} \epsilon_{k_3 k_7 k_2 k_4 k_5 k_6} \epsilon_{k_2 k_4 k_5 k_6}} \right] \quad (481)
\end{aligned}$$

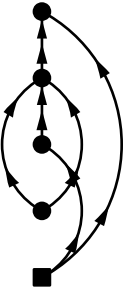


→ T10:


$$\text{T10} = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (482)$$

$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$   
 $a_2 = \epsilon_{k_1}^{k_7}$   
 $a_3 = \epsilon_{k_3 k_7}$   
 $a_4 = \epsilon_{k_2 k_4 k_5 k_6}$

**Diagram 235:**

$$\begin{aligned}
\text{PO4.235} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5 k_3 k_4}^{13} \Omega_{k_6 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5}} e^{-\tau_3 \epsilon_{k_3 k_4 k_5}} e^{-\tau_4 \epsilon_{k_2 k_6}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5 k_3 k_4}^{13} \Omega_{k_6 k_2}^{02} \left[ \frac{1}{\epsilon_{k_5 k_2} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_2} \epsilon_{k_2 k_6}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_2} \epsilon_{k_3 k_4 k_5 k_2} \epsilon_{k_2 k_6}} \right] \quad (483)
\end{aligned}$$

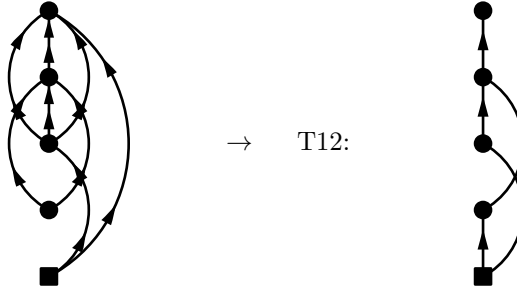

→ T12:


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (484)$$

$a_1 = \epsilon^{k_3 k_4}$   
 $a_2 = \epsilon^{k_5}$   
 $a_3 = \epsilon^{k_6}$   
 $a_4 = \epsilon^{k_2 k_6}$

**Diagram 236:**

$$\begin{aligned}
 PO4.236 &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_3 k_4}^{13} \Omega_{k_8 k_6 k_7 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon^{k_8 k_3 k_4 k_5}} e^{-\tau_4 \epsilon^{k_2 k_6 k_7 k_8}} \\
 &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_3 k_4}^{13} \Omega_{k_8 k_6 k_7 k_2}^{04} \left[ \frac{1}{\epsilon_{k_5 k_2 k_6 k_7} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_2 k_6 k_7} \epsilon_{k_2 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_2} \epsilon_{k_3 k_4 k_5 k_2 k_6 k_7} \epsilon_{k_2 k_6 k_7 k_8}} \right] \quad (485)
 \end{aligned}$$



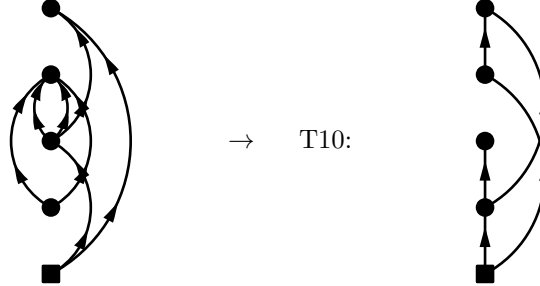


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (486)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_3 &= \epsilon_{k_3 k_4 k_5}^{k_8} \\ a_4 &= \epsilon_{k_2 k_6 k_7 k_8} \end{aligned}$$

**Diagram 237:**

$$\begin{aligned} \text{PO4.237} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6 k_3 k_4}^{04} \Omega_{k_7 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_3 k_4 k_5 k_6}} e^{-\tau_4 \epsilon_{k_2 k_7}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6 k_3 k_4}^{04} \Omega_{k_7 k_2}^{02} \left[ \frac{1}{\epsilon^{k_3 k_4} \epsilon_{k_1 k_2}^{k_3 k_4 k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_2 k_7}} + \frac{1}{\epsilon^{k_3 k_4} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_6 k_2 k_7} \epsilon_{k_2 k_7}} \right] \end{aligned} \quad (487)$$

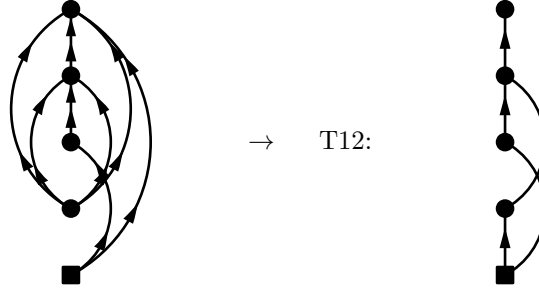


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (488)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon^{k_3 k_4} \\ a_3 &= \epsilon_{k_3 k_4 k_5 k_6} \\ a_4 &= \epsilon_{k_2 k_7} \end{aligned}$$

**Diagram 238:**

$$\begin{aligned}
\text{PO4.238} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_7 k_3 k_4}^{13} \Omega_{k_8 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7}} e^{-\tau_3 \epsilon_{k_3 k_4 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_2 k_5 k_6 k_8}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_7 k_3 k_4}^{13} \Omega_{k_8 k_5 k_6 k_2}^{04} \left[ \frac{1}{\epsilon_{k_7 k_2} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_7 k_2 k_5 k_6} \epsilon_{k_2 k_5 k_6 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_2 k_5 k_6} \epsilon_{k_3 k_4 k_7 k_2 k_5 k_6} \epsilon_{k_2 k_5 k_6 k_8}} \right]
\end{aligned} \tag{489}$$



$$\text{T12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{490}$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

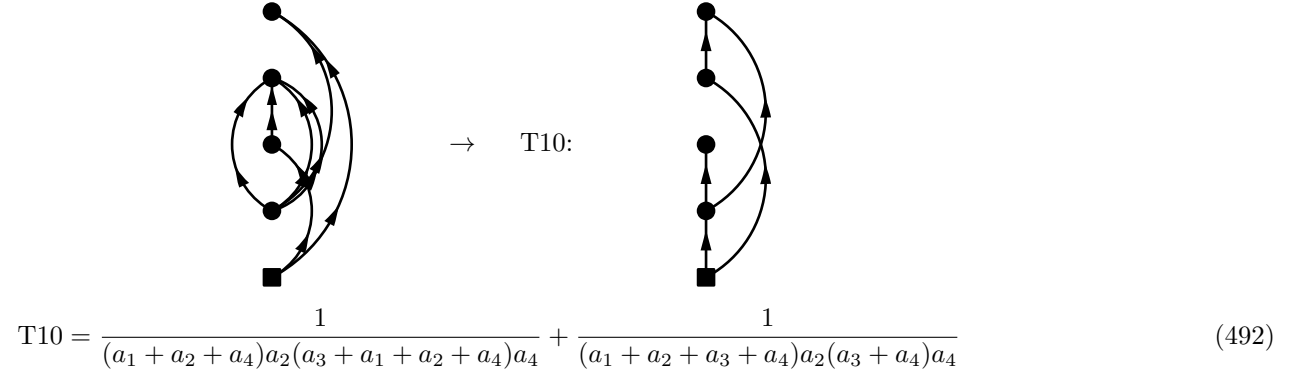
$$a_2 = \epsilon_{k_1}^{k_7}$$

$$a_3 = \epsilon_{k_3 k_4 k_7}^{k_8}$$

$$a_4 = \epsilon_{k_2 k_5 k_6 k_8}$$

**Diagram 239:**

$$\begin{aligned}
\text{PO4.239} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_1}^{11} \Omega_{k_7 k_3 k_4 k_5}^{04} \Omega_{k_6 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7}} e^{-\tau_3 \epsilon_{k_3 k_4 k_5 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_2 k_6}^{k_8}} \\
&= \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_1}^{11} \Omega_{k_7 k_3 k_4 k_5}^{04} \Omega_{k_6 k_2}^{02} \left[ \frac{1}{\epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_1 k_2}^{k_3 k_4 k_5 k_7} \epsilon_{k_1 k_2} \epsilon_{k_2 k_6}} + \frac{1}{\epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_7 k_2 k_6} \epsilon_{k_2 k_6}} \right]
\end{aligned} \tag{491}$$

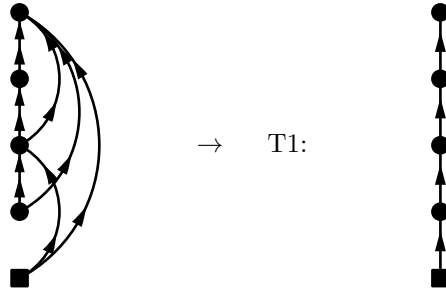


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (492)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_7} \\ a_2 &= \epsilon_{k_3 k_4 k_5 k_6} \\ a_3 &= \epsilon_{k_3 k_4 k_5 k_7} \\ a_4 &= \epsilon_{k_2 k_6} \end{aligned}$$

**Diagram 240:**

$$\begin{aligned} PO4.240 &= \lim_{\tau \rightarrow \infty} -(-1)^4 \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_7 k_6 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\ &\quad e^{-\tau_1 \epsilon_{k_3 k_4}} e^{-\tau_2 \epsilon_{k_5 k_6}} e^{-\tau_3 \epsilon_{k_5 k_7}} e^{-\tau_4 \epsilon_{k_2 k_4 k_6}} \\ &= -(-1)^4 \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_7 k_6 k_4 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_2 k_4} \epsilon_{k_5 k_2 k_4 k_6} \epsilon_{k_2 k_4 k_6 k_7}} \end{aligned} \quad (493)$$

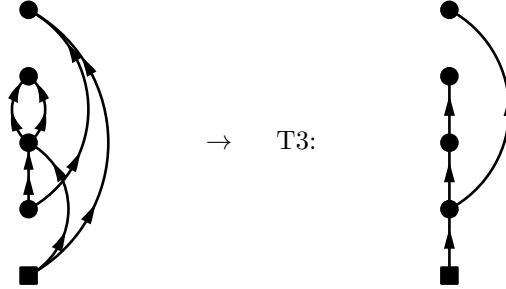


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (494)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon_{k_1 k_3}^{k_5 k_6} \\ a_3 &= \epsilon_{k_5}^{k_7} \\ a_4 &= \epsilon_{k_2 k_4 k_6 k_7} \end{aligned}$$

**Diagram 241:**

$$\begin{aligned} \text{PO4.241} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_5 k_6}^{02} \Omega_{k_4 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1 k_3}^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_5 k_6}} e^{-\tau_4 \epsilon_{k_2 k_4}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_5 k_6}^{02} \Omega_{k_4 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3} \epsilon_{k_5 k_6} \epsilon_{k_2 k_4}} \end{aligned} \quad (495)$$





$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \quad (496)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon_{k_1 k_3}^{k_5 k_6} \\ a_3 &= \epsilon_{k_5 k_6} \\ a_4 &= \epsilon_{k_2 k_4} \end{aligned}$$

**Diagram 242:**

$$\begin{aligned}
\text{PO4.242} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_7 k_8 k_4 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6}} e^{-\tau_3 \epsilon^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_2 k_4 k_7 k_8}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_7 k_8 k_4 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_2 k_4} \epsilon_{k_5 k_6 k_2 k_4} \epsilon_{k_2 k_4 k_7 k_8}}
\end{aligned} \tag{497}$$


→ T1:


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{498}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon^{k_5 k_6} \\
a_3 &= \epsilon^{k_7 k_8} \\
a_4 &= \epsilon_{k_2 k_4 k_7 k_8}
\end{aligned}$$

**Diagram 243:**

$$\begin{aligned}
\text{PO4.243} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_7 k_8}^{02} \Omega_{k_4 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_1 k_3}} e^{-\tau_4 \epsilon_{k_2 k_4 k_5 k_6}} \\
&= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_7 k_8}^{02} \Omega_{k_4 k_5 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3} \epsilon_{k_7 k_8} \epsilon_{k_2 k_4 k_5 k_6}}
\end{aligned} \tag{499}$$

$\rightarrow \quad \text{T3:}$

$$\text{T3} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (500)$$

$$\begin{aligned}
 a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
 a_2 &= \epsilon^{k_7 k_8} \\
 a_3 &= \epsilon_{k_7 k_8} \\
 a_4 &= \epsilon_{k_2 k_4 k_5 k_6}
 \end{aligned}$$

**Diagram 244:**

$$\begin{aligned}
 \text{PO4.244} &= \lim_{\tau \rightarrow \infty} (-1)^4 \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_5 k_4}^{02} \Omega_{k_6 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \\
 &\quad e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1 k_3}^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_4 k_5}} e^{-\tau_4 \epsilon_{k_2 k_6}} \\
 &= (-1)^4 \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_5 k_4}^{02} \Omega_{k_6 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_2} \epsilon_{k_4 k_5} \epsilon_{k_2 k_6}} \quad (501)
 \end{aligned}$$

$\rightarrow \quad \text{T2:}$

$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (502)$$

$$a_1 = \epsilon^{k_3k_4}$$

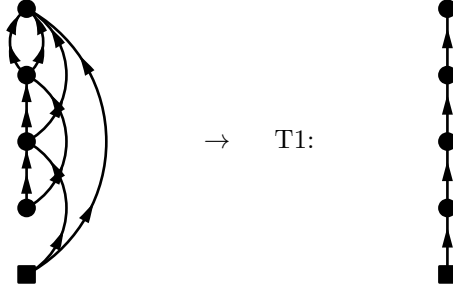
$$a_2 = \epsilon_{k_1k_3}^{k_5k_6}$$

$$a_3 = \epsilon_{k_4k_5}$$

$$a_4 = \epsilon_{k_2k_6}$$

**Diagram 245:**

$$\begin{aligned} \text{PO4.245} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1k_2}^{20} \Omega_{k_3k_4}^{20} \Omega_{k_5k_6k_3k_1}^{22} \Omega_{k_7k_8k_5k_4}^{22} \Omega_{k_7k_8k_6k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3k_4}} e^{-\tau_2 \epsilon_{k_1k_3}^{k_5k_6}} e^{-\tau_3 \epsilon_{k_4k_5}^{k_7k_8}} e^{-\tau_4 \epsilon_{k_2k_6}^{k_7k_8}} \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1k_2}^{20} \Omega_{k_3k_4}^{20} \Omega_{k_5k_6k_3k_1}^{22} \Omega_{k_7k_8k_5k_4}^{22} \Omega_{k_7k_8k_6k_2}^{04}}{\epsilon_{k_1k_2} \epsilon_{k_1k_3k_4k_2} \epsilon_{k_4k_5k_2k_6} \epsilon_{k_2k_6k_7k_8}} \end{aligned} \quad (503)$$



$\rightarrow$  T1:

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (504)$$

$$a_1 = \epsilon^{k_3k_4}$$

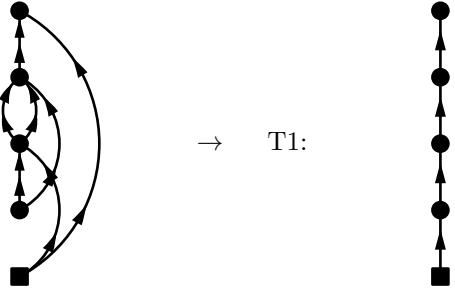
$$a_2 = \epsilon_{k_1k_3}^{k_5k_6}$$

$$a_3 = \epsilon_{k_4k_5}^{k_7k_8}$$

$$a_4 = \epsilon_{k_2k_6k_7k_8}$$

**Diagram 246:**

$$\begin{aligned}
\text{PO4.246} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_7 k_5 k_6 k_4}^{13} \Omega_{k_7 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1 k_3}^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_4 k_5 k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_2 k_7}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_7 k_5 k_6 k_4}^{13} \Omega_{k_7 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_2} \epsilon_{k_4 k_5 k_6 k_2} \epsilon_{k_2 k_7}}
\end{aligned} \tag{505}$$



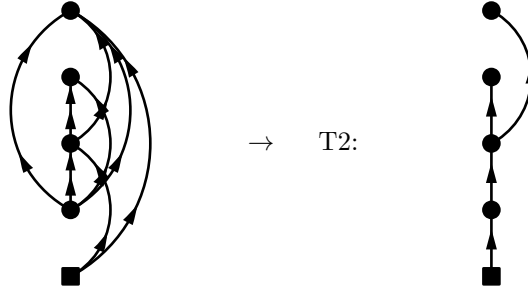
$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{506}$$

$a_1 = \epsilon^{k_3 k_4}$   
 $a_2 = \epsilon_{k_1 k_3}^{k_5 k_6}$   
 $a_3 = \epsilon_{k_4 k_5 k_6}^{k_7}$   
 $a_4 = \epsilon_{k_2 k_7}$

**Diagram 247:**

$$\begin{aligned}
\text{PO4.247} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_7 k_4}^{02} \Omega_{k_8 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_3}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_4 k_7}} e^{-\tau_4 \epsilon_{k_5 k_6 k_8}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_7 k_4}^{02} \Omega_{k_8 k_5 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_2 k_5 k_6} \epsilon_{k_4 k_7} \epsilon_{k_2 k_5 k_6 k_8}}
\end{aligned} \tag{507}$$



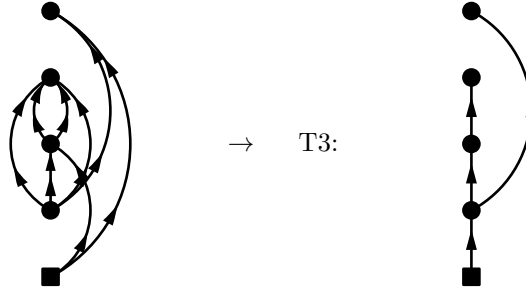


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (508)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\ a_2 &= \epsilon^{k_7 k_8} \\ a_3 &= \epsilon_{k_4 k_7} \\ a_4 &= \epsilon_{k_2 k_5 k_6 k_8} \end{aligned}$$

**Diagram 248:**

$$\begin{aligned} \text{PO4.248} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_7 k_8 k_4 k_5}^{04} \Omega_{k_6 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_3}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_4 k_5 k_7 k_8}} e^{-\tau_4 \epsilon_{k_2 k_6}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_7 k_8 k_4 k_5}^{04} \Omega_{k_6 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_5} \epsilon_{k_4 k_5 k_7 k_8} \epsilon_{k_2 k_6}} \end{aligned} \quad (509)$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (510)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

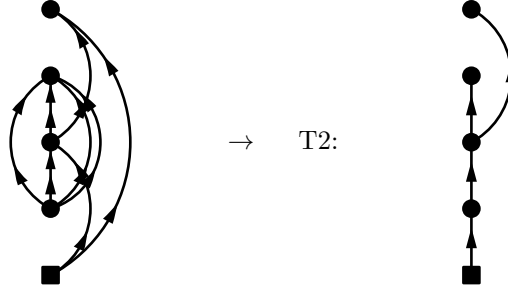
$$a_2 = \epsilon^{k_7 k_8}_{k_1 k_3}$$

$$a_3 = \epsilon_{k_4 k_5 k_7 k_8}$$

$$a_4 = \epsilon_{k_2 k_6}$$

**Diagram 249:**

$$\begin{aligned} \text{PO4.249} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_7 k_4 k_5 k_6}^{04} \Omega_{k_8 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \\ &\quad e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}_{k_1 k_3}} e^{-\tau_3 \epsilon_{k_4 k_5 k_6 k_7}} e^{-\tau_4 \epsilon_{k_2 k_8}} \\ &= \frac{(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_3 k_1}^{22} \Omega_{k_7 k_4 k_5 k_6}^{04} \Omega_{k_8 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_5 k_6 k_2} \epsilon_{k_4 k_5 k_6 k_7} \epsilon_{k_2 k_8}} \end{aligned} \quad (511)$$



$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (512)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

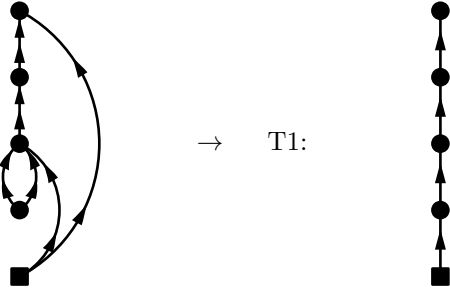

$$a_2 = \epsilon^{k_7 k_8}_{k_1 k_3}$$

$$a_3 = \epsilon_{k_4 k_5 k_6 k_7}$$

$$a_4 = \epsilon_{k_2 k_8}$$

**Diagram 250:**

$$\begin{aligned}
\text{PO4.250} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3 k_4 k_1}^{13} \Omega_{k_6 k_5}^{11} \Omega_{k_6 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1 k_3 k_4}^{k_5}} e^{-\tau_3 \epsilon_{k_5}^{k_6}} e^{-\tau_4 \epsilon_{k_2 k_6}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3 k_4 k_1}^{13} \Omega_{k_6 k_5}^{11} \Omega_{k_6 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_2} \epsilon_{k_5 k_2} \epsilon_{k_2 k_6}}
\end{aligned} \tag{513}$$


→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{514}$$

$a_1 = \epsilon^{k_3 k_4}$   
 $a_2 = \epsilon_{k_1 k_3 k_4}^{k_5}$   
 $a_3 = \epsilon_{k_5}^{k_6}$   
 $a_4 = \epsilon_{k_2 k_6}$

**Diagram 251:**

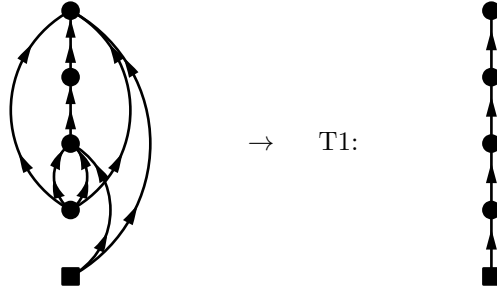
$$\begin{aligned}
\text{PO4.251} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3 k_4 k_1}^{13} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_6 k_7 k_8 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1 k_3 k_4}^{k_5}} e^{-\tau_3 \epsilon_{k_5}^{k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_2 k_6 k_7 k_8}} \\
&= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3 k_4 k_1}^{13} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_6 k_7 k_8 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_2} \epsilon_{k_5 k_2} \epsilon_{k_2 k_6 k_7 k_8}}
\end{aligned} \tag{515}$$

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (516)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon^{k_5 k_3 k_4} \\ a_3 &= \epsilon^{k_6 k_7 k_8} \\ a_4 &= \epsilon_{k_2 k_6 k_7 k_8} \end{aligned}$$

**Diagram 252:**

$$\begin{aligned} \text{PO4.252} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_1}^{13} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_3 k_4}^{k_7}} e^{-\tau_3 \epsilon_{k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_2 k_5 k_6 k_8}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_1}^{13} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_5 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_2 k_5 k_6} \epsilon_{k_7 k_2 k_5 k_6} \epsilon_{k_2 k_5 k_6 k_8}} \end{aligned} \quad (517)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (518)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

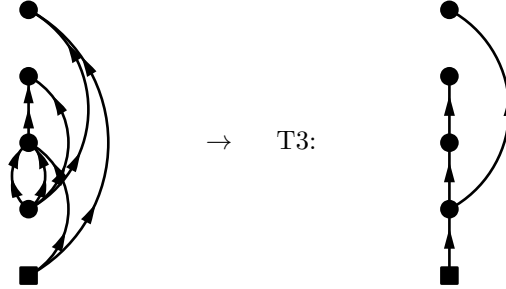
$$a_2 = \epsilon^{k_7}_{k_1 k_3 k_4}$$

$$a_3 = \epsilon^{k_8}_{k_7}$$

$$a_4 = \epsilon_{k_2 k_5 k_6 k_8}$$

**Diagram 253:**

$$\begin{aligned} \text{PO4.253} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_1}^{13} \Omega_{k_7 k_5}^{02} \Omega_{k_6 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7}_{k_1 k_3 k_4}} e^{-\tau_3 \epsilon_{k_5 k_7}} e^{-\tau_4 \epsilon_{k_2 k_6}} \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_1}^{13} \Omega_{k_7 k_5}^{02} \Omega_{k_6 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_5} \epsilon_{k_5 k_7} \epsilon_{k_2 k_6}} \end{aligned} \quad (519)$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \quad (520)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

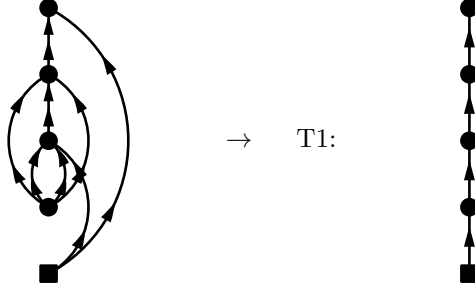
$$a_2 = \epsilon^{k_7}_{k_1 k_3 k_4}$$

$$a_3 = \epsilon_{k_5 k_7}$$

$$a_4 = \epsilon_{k_2 k_6}$$

**Diagram 254:**

$$\begin{aligned}
\text{PO4.254} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_1}^{13} \Omega_{k_8 k_7 k_5 k_6}^{13} \Omega_{k_8 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_3 k_4}^{k_7}} e^{-\tau_3 \epsilon_{k_5 k_6 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_2 k_8}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_1}^{13} \Omega_{k_8 k_7 k_5 k_6}^{13} \Omega_{k_8 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_5 k_6 k_2} \epsilon_{k_5 k_6 k_7 k_2} \epsilon_{k_2 k_8}}
\end{aligned} \tag{521}$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{522}$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

$$a_2 = \epsilon_{k_1 k_3 k_4}^{k_7}$$

$$a_3 = \epsilon_{k_5 k_6 k_7}^{k_8}$$

$$a_4 = \epsilon_{k_2 k_8}$$

**Diagram 255:**

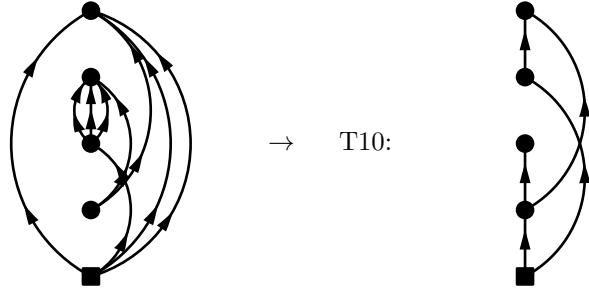
$$\begin{aligned}
\text{PO4.255} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_7 k_5}^{02} \Omega_{k_6 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7}} e^{-\tau_3 \epsilon_{k_5 k_7}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_6}} \\
&= \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_7 k_5}^{02} \Omega_{k_6 k_2 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4}^{k_5 k_7} \epsilon_{k_1}^{k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_6}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1}^{k_7} \epsilon_{k_5 k_7 k_2 k_3 k_4 k_6} \epsilon_{k_2 k_3 k_4 k_6}} \right]
\end{aligned} \tag{523}$$

$$\text{T10} = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (524)$$

$$\begin{aligned}
 a_1 &= \epsilon^{k_5 k_6} \\
 a_2 &= \epsilon_{k_1}^{k_7} \\
 a_3 &= \epsilon_{k_5 k_7} \\
 a_4 &= \epsilon_{k_2 k_3 k_4 k_6}
 \end{aligned}$$

**Diagram 256:**

$$\begin{aligned}
 \text{PO4.256} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_9 k_1}^{31} \Omega_{k_7 k_8 k_9 k_5}^{04} \Omega_{k_6 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_5 k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_6}} \\
 &= \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_9 k_1}^{31} \Omega_{k_7 k_8 k_9 k_5}^{04} \Omega_{k_6 k_2 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4}^{k_5 k_7 k_8 k_9} \epsilon_{k_1}^{k_7 k_8 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_6}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1}^{k_7 k_8 k_9} \epsilon_{k_5 k_7 k_8 k_9 k_2 k_3 k_4 k_6} \epsilon_{k_2 k_3 k_4 k_6}} \right] \quad (525)
 \end{aligned}$$

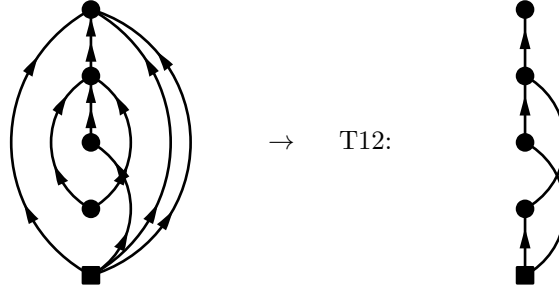


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (526)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_1}^{k_7 k_8 k_9} \\ a_3 &= \epsilon_{k_5 k_7 k_8 k_9} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_6} \end{aligned}$$

**Diagram 257:**

$$\begin{aligned} \text{PO4.257} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_7 k_5 k_6}^{13} \Omega_{k_8 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7}} e^{-\tau_3 \epsilon_{k_5 k_6 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_8}} \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_7 k_5 k_6}^{13} \Omega_{k_8 k_2 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_7 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_8}} \right] \end{aligned} \quad (527)$$



→ T12:

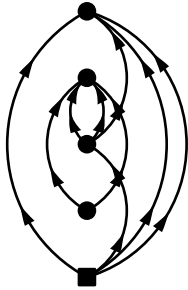
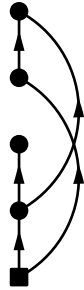
$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (528)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_1}^{k_7} \\ a_3 &= \epsilon_{k_5 k_6 k_7}^{k_8} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_8} \end{aligned}$$



**Diagram 258:**

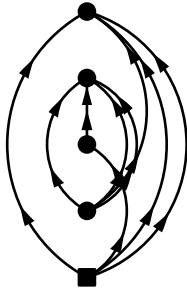
$$\begin{aligned}
\text{PO4.258} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_9 k_1}^{31} \Omega_{k_7 k_8 k_5 k_6}^{04} \Omega_{k_9 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_5 k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_9}} \\
&= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_9 k_1}^{31} \Omega_{k_7 k_8 k_5 k_6}^{04} \Omega_{k_9 k_2 k_3 k_4}^{04} \left[ \frac{1}{\epsilon^{k_5 k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_9}} + \frac{1}{\epsilon^{k_5 k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_8 k_2 k_3 k_4 k_9} \epsilon_{k_2 k_3 k_4 k_9}} \right]
\end{aligned} \tag{529}$$


→ T10:


$$\begin{aligned}
\text{T10} &= \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \\
a_1 &= \epsilon_{k_1}^{k_7 k_8 k_9} \\
a_2 &= \epsilon^{k_5 k_6} \\
a_3 &= \epsilon_{k_5 k_6 k_7 k_8} \\
a_4 &= \epsilon_{k_2 k_3 k_4 k_9}
\end{aligned} \tag{530}$$

**Diagram 259:**

$$\begin{aligned}
\text{PO4.259} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_1}^{11} \Omega_{k_9 k_5 k_6 k_7}^{04} \Omega_{k_8 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1}^{k_9}} e^{-\tau_3 \epsilon_{k_5 k_6 k_7 k_9}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_8}} \\
&= \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_1}^{11} \Omega_{k_9 k_5 k_6 k_7}^{04} \Omega_{k_8 k_2 k_3 k_4}^{04} \left[ \frac{1}{\epsilon^{k_5 k_6 k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_8}} + \frac{1}{\epsilon^{k_5 k_6 k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_9 k_2 k_3 k_4 k_8} \epsilon_{k_2 k_3 k_4 k_8}} \right]
\end{aligned} \tag{531}$$

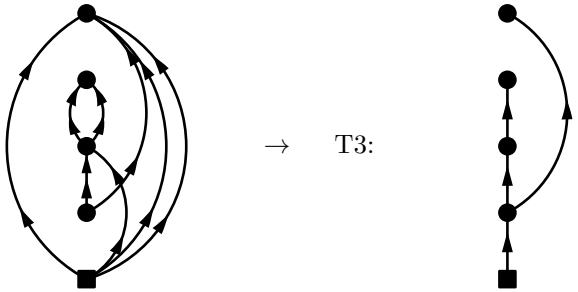


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (532)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_9} \\ a_2 &= \epsilon_{k_5 k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_5 k_6 k_7 k_9} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_8} \end{aligned}$$

**Diagram 260:**

$$\begin{aligned} PO4.260 &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_7 k_8}^{02} \Omega_{k_6 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_7 k_8}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_6}} \\ &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_7 k_8}^{02} \Omega_{k_6 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5} \epsilon_{k_7 k_8} \epsilon_{k_2 k_3 k_4 k_6}} \end{aligned} \quad (533)$$

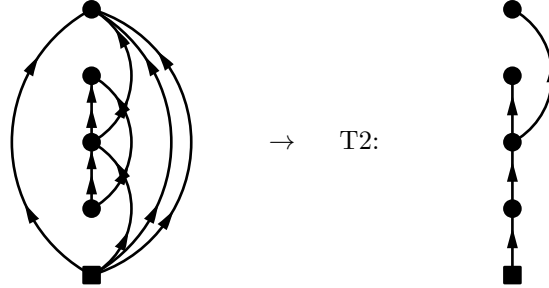


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (534)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_1 k_5}^{k_7 k_8} \\ a_3 &= \epsilon_{k_7 k_8} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_6} \end{aligned}$$

**Diagram 261:**

$$\begin{aligned} \text{PO4.261} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_7 k_6}^{02} \Omega_{k_8 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \\ &\quad e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_6 k_7}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_8}} \\ &= \frac{(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_7 k_6}^{02} \Omega_{k_8 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_4} \epsilon_{k_6 k_7} \epsilon_{k_2 k_3 k_4 k_8}} \end{aligned} \quad (535)$$



$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (536)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_1 k_5}^{k_7 k_8} \\ a_3 &= \epsilon_{k_6 k_7} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_8} \end{aligned}$$

**Diagram 262:**

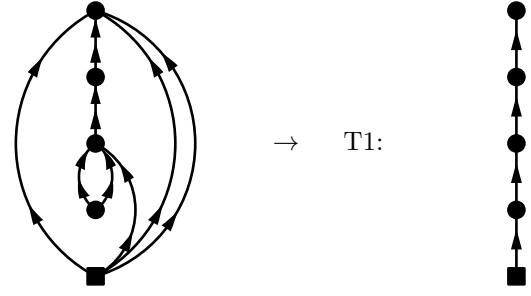
$$\begin{aligned}
 \text{PO4.262} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_9 k_7 k_8 k_6}^{13} \Omega_{k_9 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon^{k_9}} e^{-\tau_4 \epsilon^{k_2 k_3}} \\
 &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_9 k_7 k_8 k_6}^{13} \Omega_{k_9 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_9}}
 \end{aligned} \tag{537}$$

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{538}$$

$$\begin{aligned}
 a_1 &= \epsilon^{k_5 k_6} \\
 a_2 &= \epsilon^{k_7 k_8} \\
 a_3 &= \epsilon^{k_9} \\
 a_4 &= \epsilon_{k_2 k_3 k_4 k_9}
 \end{aligned}$$

**Diagram 263:**

$$\begin{aligned}
 \text{PO4.263} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon^{k_9}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_8}} \\
 &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_4} \epsilon_{k_7 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_8}}
 \end{aligned} \tag{539}$$

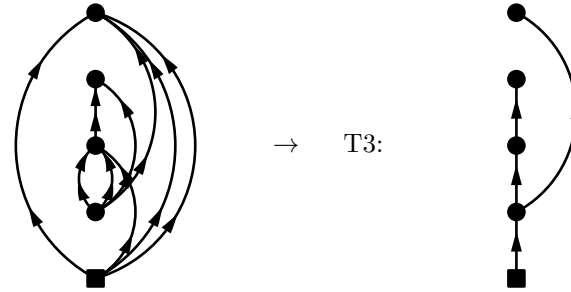


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (540)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon^{k_7 k_1 k_5 k_6} \\ a_3 &= \epsilon^{k_8 k_7} \\ a_4 &= \epsilon^{k_2 k_3 k_4 k_8} \end{aligned}$$

**Diagram 264:**

$$\begin{aligned} \text{PO4.264} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_9 k_7}^{02} \Omega_{k_8 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5 k_6}^{k_9}} e^{-\tau_3 \epsilon_{k_7 k_9}} e^{-\tau_4 \epsilon_{k_8 k_2 k_3 k_4}} \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_9 k_7}^{02} \Omega_{k_8 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6}^{k_9} \epsilon_{k_7 k_9} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_4}^{k_9}} \end{aligned} \quad (541)$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (542)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

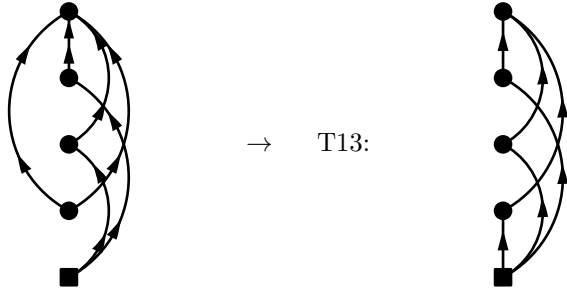
$$a_2 = \epsilon_{k_2 k_3 k_4 k_8}$$

$$a_3 = \epsilon_{k_1 k_5 k_6}^{k_9}$$

$$a_4 = \epsilon_{k_7 k_9}$$

**Diagram 265:**

$$\begin{aligned} \text{PO4.265} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_6 k_5 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5}} e^{-\tau_3 \epsilon_{k_2}^{k_6}} e^{-\tau_4 \epsilon_{k_3 k_4 k_5 k_6}} \\ &= \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_6 k_5 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_6} \epsilon_{k_1 k_3 k_4 k_6} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_6}} + \frac{1}{\epsilon_{k_5 k_6} \epsilon_{k_1 k_6} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_6}} + \frac{1}{\epsilon_{k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_2 k_5} \epsilon_{k_3 k_4 k_5 k_6}} + \frac{1}{\epsilon_{k_2 k_5} \epsilon_{k_1 k_2} \epsilon_{k_2 k_3}} \right] \end{aligned} \quad (543)$$

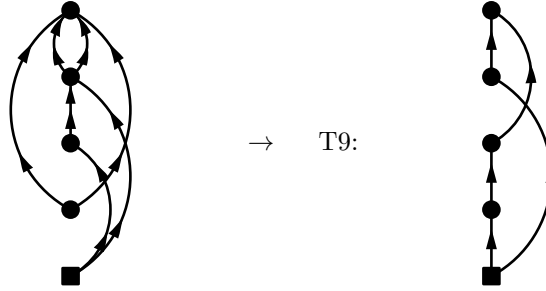


$$T13 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_4)(a_2 + a_1 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_1 + a_4)a_4} + \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} \quad (544)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon_{k_1}^{k_5} \\
a_3 &= \epsilon_{k_2}^{k_6} \\
a_4 &= \epsilon_{k_3 k_4 k_5 k_6}
\end{aligned}$$

**Diagram 266:**

$$\begin{aligned}
\text{PO4.266} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_6 k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5}} e^{-\tau_3 \epsilon_{k_2}^{k_6 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4 k_5 k_6} k_7} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_6 k_7 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_6 k_7}^{k_5} \epsilon_{k_1 k_3 k_4 k_6 k_7}^{k_5} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_6 k_7}^{k_5} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_4} \epsilon_{k_3 k_4 k_6 k_7}} \right]
\end{aligned} \tag{545}$$

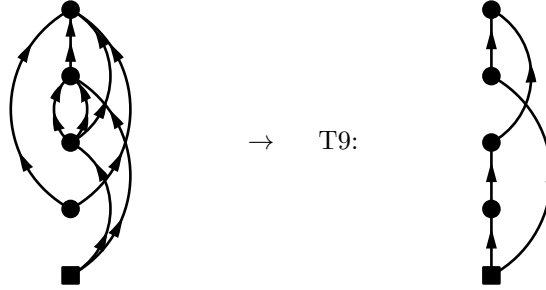


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{546}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon_{k_1}^{k_5} \\
a_3 &= \epsilon_{k_2}^{k_6 k_7} \\
a_4 &= \epsilon_{k_3 k_4 k_6 k_7}
\end{aligned}$$

**Diagram 267:**

$$\begin{aligned}
\text{PO4.267} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_8 k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_2 k_5 k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7}^{k_8}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_8 k_7 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_8}^{k_5 k_6} \epsilon_{k_1 k_3 k_4 k_8}^{k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_8}^{k_5 k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_3 k_4 k_7} \epsilon_{k_3 k_4 k_7 k_8}} \right]
\end{aligned} \tag{547}$$



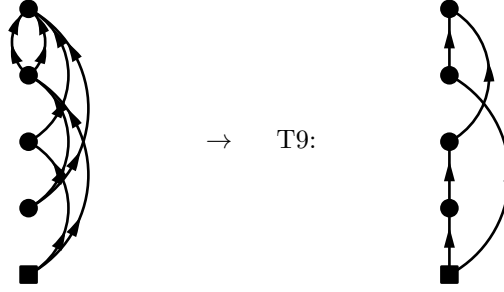
$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{548}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_3 &= \epsilon_{k_2 k_5 k_6}^{k_8} \\
a_4 &= \epsilon_{k_3 k_4 k_7 k_8}
\end{aligned}$$



**Diagram 268:**

$$\begin{aligned}
\text{PO4.268} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_3 k_2}^{22} \Omega_{k_6 k_7 k_5 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5}} e^{-\tau_3 \epsilon_{k_2 k_3}^{k_6 k_7}} e^{-\tau_4 \epsilon_{k_4 k_5 k_6 k_7}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_3 k_2}^{22} \Omega_{k_6 k_7 k_5 k_4}^{04} \left[ \frac{1}{\epsilon_{k_5 k_6 k_7}^{k_3} \epsilon_{k_1 k_6 k_7}^{k_3} \epsilon_{k_1 k_2} \epsilon_{k_4 k_5 k_6 k_7}} + \frac{1}{\epsilon_{k_5 k_6 k_7}^{k_3} \epsilon_{k_1 k_2} \epsilon_{k_2 k_5} \epsilon_{k_4 k_5 k_6 k_7}} + \frac{1}{\epsilon_{k_2 k_5} \epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_4 k_5 k_6 k_7}} \right] \\
&\quad (549)
\end{aligned}$$





$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (550)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon^{k_3 k_4} \\
a_3 &= \epsilon_{k_2 k_3}^{k_6 k_7} \\
a_4 &= \epsilon_{k_4 k_5 k_6 k_7}
\end{aligned}$$

**Diagram 269:**

$$\begin{aligned}
\text{PO4.269} &= \lim_{\tau \rightarrow \infty} -(-1)^4 \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5 k_3 k_2}^{13} \Omega_{k_6 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5}} e^{-\tau_3 \epsilon_{k_2 k_3 k_5}^{k_6}} e^{-\tau_4 \epsilon_{k_4 k_6}} \\
&= -(-1)^4 \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5 k_3 k_2}^{13} \Omega_{k_6 k_4}^{02} \left[ \frac{1}{\epsilon_{k_2 k_5} \epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_5 k_4} \epsilon_{k_4 k_6}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_4} \epsilon_{k_4 k_6}} \right] \\
&\quad (551)
\end{aligned}$$

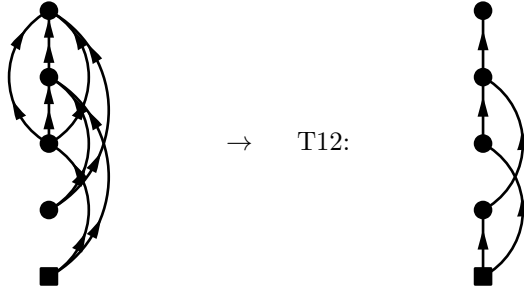

→ T12:


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (552)$$

$a_1 = \epsilon^{k_3 k_4}$   
 $a_2 = \epsilon_{k_1}^{k_5}$   
 $a_3 = \epsilon_{k_2 k_3 k_5}^{k_6}$   
 $a_4 = \epsilon_{k_4 k_6}$

**Diagram 270:**

$$\begin{aligned}
 PO4.270 &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_3 k_2}^{13} \Omega_{k_8 k_6 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\
 &\quad e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_2 k_3 k_5}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_6}^{k_8}} \\
 &= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_3 k_2}^{13} \Omega_{k_8 k_6 k_7 k_4}^{04} \left[ \frac{1}{\epsilon_{k_2 k_5 k_6 k_7} \epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_5 k_4 k_6 k_7} \epsilon_{k_4 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_4 k_6 k_7} \epsilon_{k_4 k_6 k_7 k_8}} \right] \quad (553)
 \end{aligned}$$

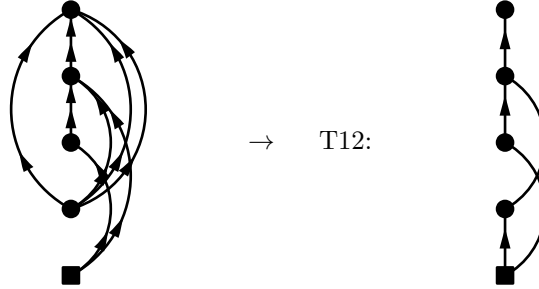


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (554)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_3 &= \epsilon_{k_2 k_3 k_5}^{k_8} \\ a_4 &= \epsilon_{k_4 k_6 k_7 k_8} \end{aligned}$$

**Diagram 271:**

$$\begin{aligned} \text{PO4.271} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_7 k_3 k_2}^{13} \Omega_{k_8 k_4 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7}} e^{-\tau_3 \epsilon_{k_2 k_3 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_5 k_6}^{k_8}} \\ &= \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_7 k_3 k_2}^{13} \Omega_{k_8 k_4 k_5 k_6}^{04} \left[ \frac{1}{\epsilon_{k_2 k_7} \epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_7 k_4 k_5 k_6} \epsilon_{k_4 k_5 k_6 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6} \epsilon_{k_2 k_3 k_7 k_4 k_5 k_6} \epsilon_{k_4 k_5 k_6 k_8}} \right] \end{aligned} \quad (555)$$



$\rightarrow$  T12:

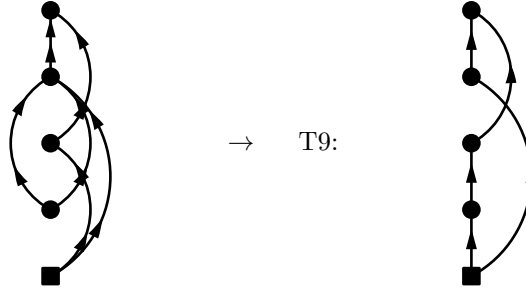


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (556)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
a_2 &= \epsilon_{k_1}^{k_7} \\
a_3 &= \epsilon_{k_2 k_3 k_7}^{k_8} \\
a_4 &= \epsilon_{k_4 k_5 k_6 k_8}
\end{aligned}$$

**Diagram 272:**

$$\begin{aligned}
\text{PO4.272} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_3 k_4 k_2}^{13} \Omega_{k_6 k_5}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5}} e^{-\tau_3 \epsilon_{k_2 k_3 k_4}^{k_6}} e^{-\tau_4 \epsilon_{k_5 k_6}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_3 k_4 k_2}^{13} \Omega_{k_6 k_5}^{02} \left[ \frac{1}{\epsilon_{k_1 k_6}^{k_3 k_4} \epsilon_{k_1 k_6} \epsilon_{k_1 k_2} \epsilon_{k_5 k_6}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_5 k_6}} \right] \\
&\hspace{15cm} (557)
\end{aligned}$$

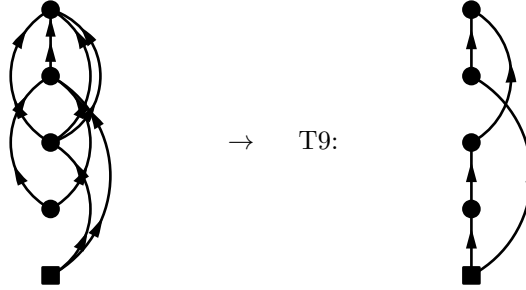


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (558)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon_{k_1}^{k_5} \\
a_3 &= \epsilon_{k_2 k_3 k_4}^{k_6} \\
a_4 &= \epsilon_{k_5 k_6}
\end{aligned}$$

**Diagram 273:**

$$\begin{aligned}
\text{PO4.273} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_3 k_4 k_2}^{13} \Omega_{k_8 k_5 k_6 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_2 k_3 k_4}^{k_8}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7 k_8}} \\
&= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_3 k_4 k_2}^{13} \Omega_{k_8 k_5 k_6 k_7}^{04} \left[ \frac{1}{\epsilon_{k_1 k_8}^{k_3 k_4} \epsilon_{k_1 k_8} \epsilon_{k_1 k_2} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5 k_6 k_7} \epsilon_{k_5 k_6 k_7 k_8}} \right] \\
&\quad (559)
\end{aligned}$$

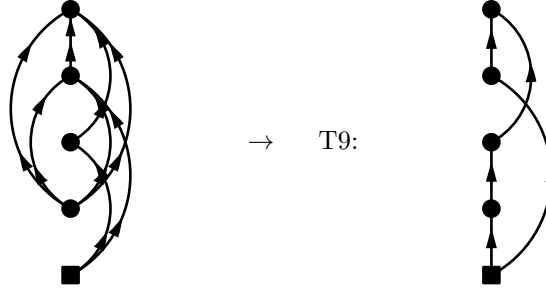


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (560)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_3 &= \epsilon_{k_2 k_3 k_4}^{k_8} \\
a_4 &= \epsilon_{k_5 k_6 k_7 k_8}
\end{aligned}$$

**Diagram 274:**

$$\begin{aligned}
\text{PO4.274} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_3 k_4 k_2}^{13} \Omega_{k_8 k_7 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7}} e^{-\tau_3 \epsilon_{k_2 k_3 k_4}^{k_8}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7}^{k_8}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_3 k_4 k_2}^{13} \Omega_{k_8 k_7 k_5 k_6}^{04} \left[ \frac{1}{\epsilon_{k_1 k_8}^{k_3 k_4} \epsilon_{k_1 k_5 k_6 k_8} \epsilon_{k_1 k_2} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_5 k_6 k_8} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6} \epsilon_{k_2 k_3 k_4 k_5 k_6}} \right]
\end{aligned} \tag{561}$$



$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{562}$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

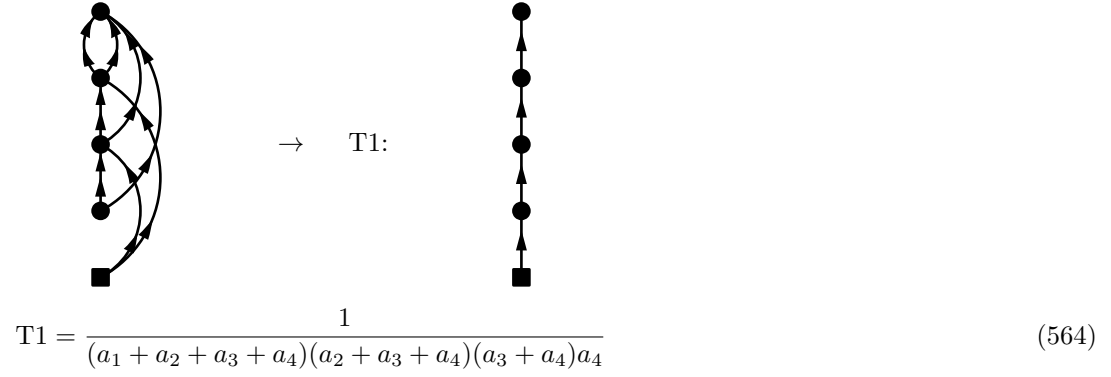
$$a_2 = \epsilon_{k_1}^{k_7}$$

$$a_3 = \epsilon_{k_2 k_3 k_4}^{k_8}$$

$$a_4 = \epsilon_{k_5 k_6 k_7 k_8}$$

**Diagram 275:**

$$\begin{aligned}
\text{PO4.275} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_7 k_8 k_5 k_2}^{22} \Omega_{k_7 k_8 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1 k_3}^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_2 k_5}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_6 k_7}^{k_8}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_7 k_8 k_5 k_2}^{22} \Omega_{k_7 k_8 k_6 k_4}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_2 k_4} \epsilon_{k_2 k_5 k_4 k_6} \epsilon_{k_4 k_6 k_7 k_8}}
\end{aligned} \tag{563}$$

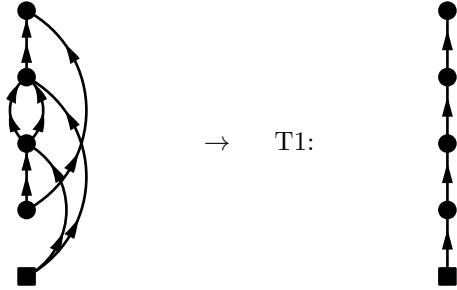


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (564)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon^{k_5 k_6} \\ a_3 &= \epsilon^{k_7 k_8} \\ a_4 &= \epsilon_{k_4 k_6 k_7 k_8} \end{aligned}$$

**Diagram 276:**

$$\begin{aligned} \text{PO4.276} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_7 k_5 k_6 k_2}^{13} \Omega_{k_7 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_7 k_5 k_6 k_2}^{13} \Omega_{k_7 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_2 k_4} \epsilon_{k_2 k_5 k_6 k_4} \epsilon_{k_4 k_7}} \end{aligned} \quad (565)$$

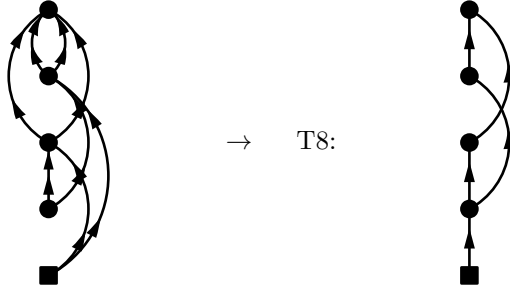


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (566)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon^{k_5 k_6} \\ a_3 &= \epsilon^{k_7} \\ a_4 &= \epsilon_{k_2 k_5 k_6} \end{aligned}$$

**Diagram 277:**

$$\begin{aligned} \text{PO4.277} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_7 k_8 k_4 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\ &= \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_7 k_8 k_4 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_7 k_8} \epsilon_{k_1 k_3 k_2 k_4} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_2 k_4} \epsilon_{k_2 k_4 k_5 k_6} \epsilon_{k_5 k_6 k_7 k_8}} \right] \end{aligned} \quad (567)$$



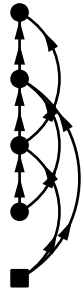

$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (568)$$



$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon_{k_1 k_3}^{k_5 k_6} \\
a_3 &= \epsilon_{k_2 k_4}^{k_7 k_8} \\
a_4 &= \epsilon_{k_5 k_6 k_7 k_8}
\end{aligned}$$

**Diagram 278:**

$$\begin{aligned}
\text{PO4.278} &= \lim_{\tau \rightarrow \infty} -(-1)^4 \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_7 k_5 k_4 k_2}^{13} \Omega_{k_7 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1 k_3}^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_2 k_4 k_5}^{k_7}} e^{-\tau_4 \epsilon_{k_6}} \\
&= -(-1)^4 \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_3 k_1}^{22} \Omega_{k_7 k_5 k_4 k_2}^{13} \Omega_{k_7 k_6}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_2 k_4} \epsilon_{k_2 k_4 k_5 k_6} \epsilon_{k_6 k_7}}
\end{aligned} \tag{569}$$




→ T1:


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{570}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon_{k_1 k_3}^{k_5 k_6} \\
a_3 &= \epsilon_{k_2 k_4 k_5}^{k_7} \\
a_4 &= \epsilon_{k_6 k_7}
\end{aligned}$$

**Diagram 279:**

$$\begin{aligned}
 \text{PO4.279} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3 k_4 k_1}^{13} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_6 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1}^{k_5}} e^{-\tau_3 \epsilon_{k_2}^{k_6 k_7}} e^{-\tau_4 \epsilon_{k_6} k_7} \\
 &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3 k_4 k_1}^{13} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_6 k_7}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_2} \epsilon_{k_2 k_5} \epsilon_{k_6 k_7}}
 \end{aligned} \tag{571}$$

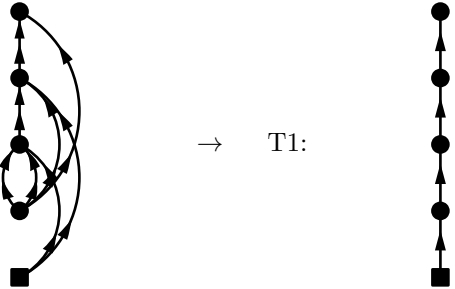

→ T1:


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{572}$$

$$\begin{aligned}
 a_1 &= \epsilon^{k_3 k_4} \\
 a_2 &= \epsilon_{k_1}^{k_5} \epsilon_{k_3 k_4} \\
 a_3 &= \epsilon_{k_2}^{k_6 k_7} \\
 a_4 &= \epsilon_{k_6 k_7}
 \end{aligned}$$

**Diagram 280:**

$$\begin{aligned}
 \text{PO4.280} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_1}^{13} \Omega_{k_8 k_7 k_5 k_2}^{13} \Omega_{k_8 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7}} e^{-\tau_3 \epsilon_{k_2}^{k_8}} \\
 &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_1}^{13} \Omega_{k_8 k_7 k_5 k_2}^{13} \Omega_{k_8 k_6}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_2 k_5 k_6} \epsilon_{k_2 k_5 k_7 k_6} \epsilon_{k_6 k_8}}
 \end{aligned} \tag{573}$$



$$\rightarrow \quad \text{T1:}$$

$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (574)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

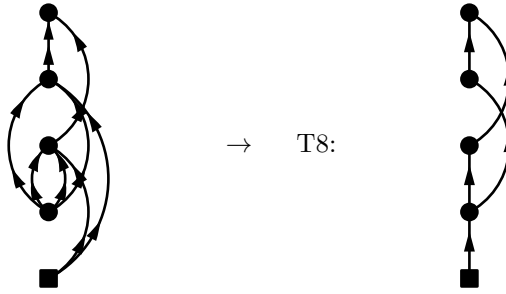
$$a_2 = \epsilon^{k_7 k_1 k_3 k_4}$$

$$a_3 = \epsilon^{k_8 k_2 k_5 k_7}$$

$$a_4 = \epsilon_{k_6 k_8}$$

**Diagram 281:**

$$\begin{aligned} \text{PO4.281} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_1}^{13} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_8 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\ &\quad e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_3 k_4}^{k_7}} e^{-\tau_3 \epsilon_{k_2 k_5 k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_7}} \\ &= \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_4 k_1}^{13} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_8 k_7}^{02} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_8} \epsilon_{k_1 k_3 k_4 k_2 k_5 k_6} \epsilon_{k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_3 k_4 k_2 k_5 k_6} \epsilon_{k_2 k_5 k_6 k_7} \epsilon_{k_7 k_8}} \right] \end{aligned} \quad (575)$$



$\rightarrow \quad \text{T8:}$

$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (576)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

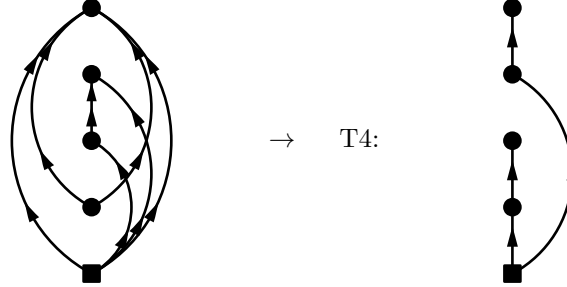
$$a_2 = \epsilon_{k_1 k_3 k_4}^{k_7}$$

$$a_3 = \epsilon_{k_2 k_5 k_6}^{k_8}$$

$$a_4 = \epsilon_{k_7 k_8}$$

**Diagram 282:**

$$\begin{aligned} \text{PO4.282} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_7 k_2}^{02} \Omega_{k_5 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7}} e^{-\tau_3 \epsilon_{k_2 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4 k_5 k_6}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_7 k_2}^{02} \Omega_{k_5 k_6 k_3 k_4}^{04}}{\epsilon_{k_1}^{k_5 k_6 k_7} \epsilon_{k_1}^{k_7} \epsilon_{k_2 k_7 k_3 k_4 k_5 k_6} \epsilon_{k_3 k_4 k_5 k_6}} \end{aligned} \quad (577)$$



$$\text{T4} = \frac{1}{(a_1 + a_2)a_2(a_3 + a_4)a_4} \quad (578)$$

$$a_1 = \epsilon^{k_5 k_6}$$

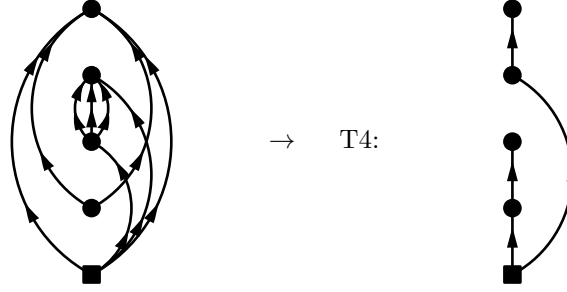
$$a_2 = \epsilon_{k_1}^{k_7}$$

$$a_3 = \epsilon_{k_2 k_7}$$

$$a_4 = \epsilon_{k_3 k_4 k_5 k_6}$$

**Diagram 283:**

$$\begin{aligned}
\text{PO4.283} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_9 k_1}^{31} \Omega_{k_7 k_8 k_9 k_2}^{04} \Omega_{k_5 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_2 k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_3 k_4 k_5 k_6}} \\
&= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_9 k_1}^{31} \Omega_{k_7 k_8 k_9 k_2}^{04} \Omega_{k_5 k_6 k_3 k_4}^{04}}{\epsilon_{k_1}^{k_5 k_6 k_7 k_8 k_9} \epsilon_{k_1}^{k_7 k_8 k_9} \epsilon_{k_2 k_7 k_8 k_9 k_3 k_4 k_5 k_6} \epsilon_{k_3 k_4 k_5 k_6}}
\end{aligned} \tag{579}$$

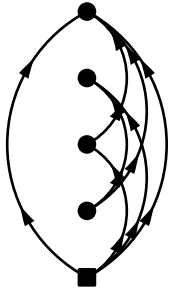
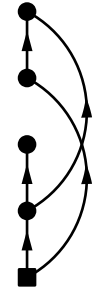


$$T4 = \frac{1}{(a_1 + a_2)a_2(a_3 + a_4)a_4} \tag{580}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon_{k_1}^{k_7 k_8 k_9} \\
a_3 &= \epsilon_{k_2 k_7 k_8 k_9} \\
a_4 &= \epsilon_{k_3 k_4 k_5 k_6}
\end{aligned}$$

**Diagram 284:**

$$\begin{aligned}
\text{PO4.284} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_5 k_2}^{02} \Omega_{k_7 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7}} e^{-\tau_3 \epsilon_{k_2 k_5}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_7}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_5 k_2}^{02} \Omega_{k_7 k_6 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2}^{k_6 k_7} \epsilon_{k_1}^{k_7} \epsilon_{k_2 k_5} \epsilon_{k_1 k_2 k_3 k_4}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1}^{k_7} \epsilon_{k_2 k_5} \epsilon_{k_2 k_5 k_3 k_4 k_6 k_7}} \right]
\end{aligned} \tag{581}$$

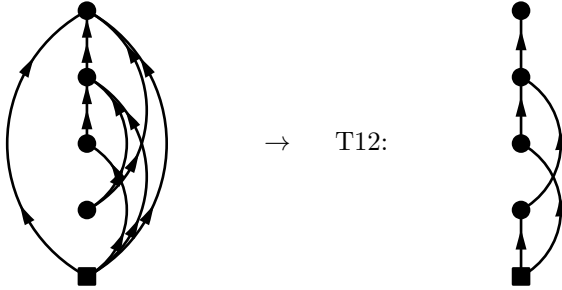

→ T10:


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (582)$$

$a_1 = \epsilon^{k_5 k_6}$   
 $a_2 = \epsilon_{k_1}^{k_7}$   
 $a_3 = \epsilon_{k_3 k_4 k_6 k_7}$   
 $a_4 = \epsilon_{k_2 k_5}$

**Diagram 285:**

$$\begin{aligned}
 \text{PO4.285} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_7 k_5 k_2}^{13} \Omega_{k_8 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) \\
 &\quad e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7}} e^{-\tau_3 \epsilon_{k_2 k_5 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_8}} \\
 &= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_7 k_5 k_2}^{13} \Omega_{k_8 k_6 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_2 k_7 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_7 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_6 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_3 k_4 k_6} \epsilon_{k_2 k_5 k_7 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_6 k_8}} \right] \quad (583)
 \end{aligned}$$

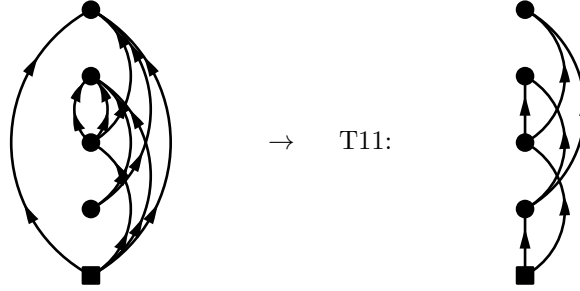


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (584)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_1}^{k_7} \\ a_3 &= \epsilon_{k_2 k_5 k_7}^{k_8} \\ a_4 &= \epsilon_{k_3 k_4 k_6 k_8} \end{aligned}$$

**Diagram 286:**

$$\begin{aligned} \text{PO4.286} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_9 k_1}^{31} \Omega_{k_7 k_8 k_5 k_2}^{04} \Omega_{k_9 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_2 k_5 k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_8}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_9 k_1}^{31} \Omega_{k_7 k_8 k_5 k_2}^{04} \Omega_{k_9 k_6 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_2 k_7 k_8 k_3 k_4 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_7 k_8} \epsilon_{k_3 k_4 k_6 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_3 k_4 k_6} \epsilon_{k_2 k_5 k_7 k_8} \epsilon_{k_3 k_4 k_6 k_9}} \right] \end{aligned} \quad (585)$$



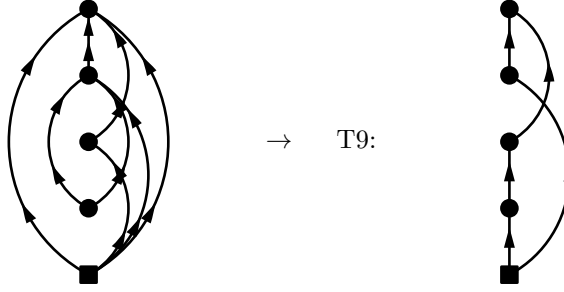
→ T11:

$$T11 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3 a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \quad (586)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_1}^{k_7 k_8 k_9} \\ a_3 &= \epsilon_{k_2 k_5 k_7 k_8} \\ a_4 &= \epsilon_{k_3 k_4 k_6 k_9} \end{aligned}$$

**Diagram 287:**

$$\begin{aligned}
 \text{PO4.287} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_8 k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7}} e^{-\tau_3 \epsilon_{k_2 k_5 k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\
 &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_8 k_7 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_3 k_4 k_8}^{k_5 k_6} \epsilon_{k_1 k_3 k_4 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_3 k_4 k_8} \epsilon_{k_1 k_2 k_5 k_6 k_3 k_4} \epsilon_{k_3 k_4 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_6 k_3 k_4} \epsilon_{k_3 k_4 k_7 k_8}} \right] \\
 &\quad (587)
 \end{aligned}$$



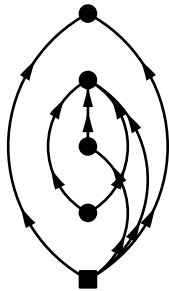
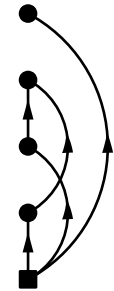
$$\begin{aligned}
 \text{T9} &= \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \\
 &\quad (588)
 \end{aligned}$$

$$\begin{aligned}
 a_1 &= \epsilon^{k_5 k_6} \\
 a_2 &= \epsilon_{k_1}^{k_7} \\
 a_3 &= \epsilon_{k_2 k_5 k_6}^{k_8} \\
 a_4 &= \epsilon_{k_3 k_4 k_7 k_8}
 \end{aligned}$$

**Diagram 288:**

$$\begin{aligned}
 \text{PO4.288} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_7 k_5 k_6 k_2}^{04} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7}} e^{-\tau_3 \epsilon_{k_2 k_5 k_6 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
 &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_7 k_5 k_6 k_2}^{04} \Omega_{k_3 k_4}^{02} \left[ \frac{1}{\epsilon_{k_2 k_7} \epsilon_{k_1 k_2} \epsilon_{k_2 k_5 k_6 k_7} \epsilon_{k_3 k_4}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_5 k_6} \epsilon_{k_2 k_5 k_6 k_7} \epsilon_{k_3 k_4}} \right] \\
 &\quad (589)
 \end{aligned}$$



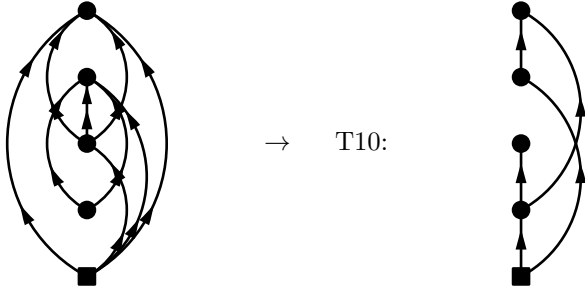

→ T14:


$$T14 = \frac{1}{(a_1 + a_3)(a_2 + a_1 + a_3)a_3a_4} + \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (590)$$

$a_1 = \epsilon^{k_5 k_6}$   
 $a_2 = \epsilon_{k_1}^{k_7}$   
 $a_3 = \epsilon_{k_2 k_5 k_6 k_7}$   
 $a_4 = \epsilon_{k_3 k_4}$

**Diagram 289:**

$$\begin{aligned}
 \text{PO4.289} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_9 k_1}^{31} \Omega_{k_7 k_5 k_6 k_2}^{04} \Omega_{k_8 k_9 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_2 k_5 k_6 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4 k_8 k_9}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_9 k_1}^{31} \Omega_{k_7 k_5 k_6 k_2}^{04} \Omega_{k_8 k_9 k_3 k_4}^{04} \left[ \frac{1}{\epsilon^{k_5 k_6} \epsilon_{k_1 k_2}^{k_8 k_9} \epsilon_{k_2 k_5 k_6 k_7} \epsilon_{k_1 k_2 k_3 k_4}} + \frac{1}{\epsilon^{k_5 k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_7} \epsilon_{k_2 k_5 k_6 k_7 k_3 k_4 k_8 k_9}} \right] \quad (591)
 \end{aligned}$$



$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (592)$$

$$a_1 = \epsilon_{k_1}^{k_7 k_8 k_9}$$

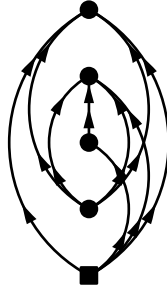
$$a_2 = \epsilon_{k_5 k_6}$$

$$a_3 = \epsilon_{k_3 k_4 k_8 k_9}$$

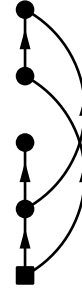
$$a_4 = \epsilon_{k_2 k_5 k_6 k_7}$$

**Diagram 290:**

$$\begin{aligned} \text{PO4.290} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_1}^{11} \Omega_{k_9 k_5 k_6 k_2}^{04} \Omega_{k_7 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1}^{k_9}} e^{-\tau_3 \epsilon_{k_2 k_5 k_6 k_9}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_1}^{11} \Omega_{k_9 k_5 k_6 k_2}^{04} \Omega_{k_7 k_8 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_5 k_6 k_7 k_8} \epsilon_{k_1 k_3 k_4}^{k_5 k_6 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_7 k_8}} + \frac{1}{\epsilon_{k_5 k_6 k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_9 k_3 k_4 k_7 k_8} \epsilon_{k_3 k_4 k_7 k_8}} \right] \end{aligned} \quad (593)$$



→ T10:



$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (594)$$

$$a_1 = \epsilon_{k_1}^{k_9}$$

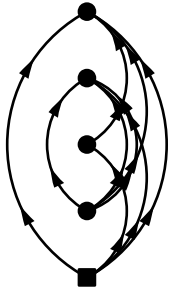
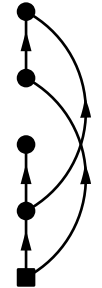
$$a_2 = \epsilon_{k_5 k_6 k_7 k_8}$$

$$a_3 = \epsilon_{k_2 k_5 k_6 k_9}$$

$$a_4 = \epsilon_{k_3 k_4 k_7 k_8}$$

**Diagram 291:**

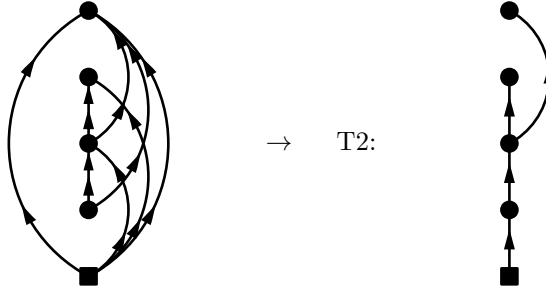
$$\begin{aligned}
\text{PO4.291} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_1}^{11} \Omega_{k_5 k_6 k_7 k_2}^{04} \Omega_{k_9 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1}^{k_9}} e^{-\tau_3 \epsilon_{k_2 k_5 k_6 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4 k_8 k_9}} \\
&= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_1}^{11} \Omega_{k_5 k_6 k_7 k_2}^{04} \Omega_{k_9 k_8 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2}^{k_8 k_9} \epsilon_{k_1}^{k_9} \epsilon_{k_2 k_5 k_6 k_7} \epsilon_{k_1 k_2 k_3 k_4}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1}^{k_9} \epsilon_{k_2 k_5 k_6 k_7} \epsilon_{k_2 k_5 k_6 k_7 k_3 k_4 k_8 k_9}} \right] \\
&\hspace{15cm} (595)
\end{aligned}$$


→ T10:


$$\begin{aligned}
\text{T10} &= \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \\
&\hspace{15cm} (596) \\
a_1 &= \epsilon^{k_5 k_6 k_7 k_8} \\
a_2 &= \epsilon_{k_1}^{k_9} \\
a_3 &= \epsilon_{k_3 k_4 k_8 k_9} \\
a_4 &= \epsilon_{k_2 k_5 k_6 k_7}
\end{aligned}$$

**Diagram 292:**

$$\begin{aligned}
\text{PO4.292} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_7 k_2}^{02} \Omega_{k_8 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_2 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_8}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_7 k_2}^{02} \Omega_{k_8 k_6 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_2 k_3 k_4 k_6} \epsilon_{k_2 k_7} \epsilon_{k_3 k_4 k_6 k_8}} \\
&\hspace{15cm} (597)
\end{aligned}$$

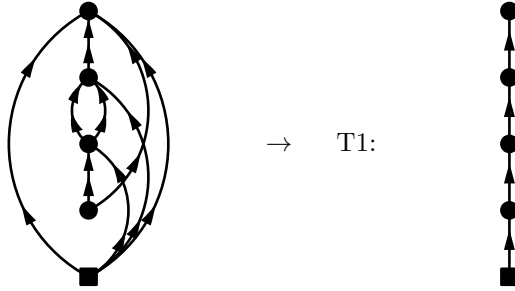


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (598)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon^{k_7 k_8} \\ a_3 &= \epsilon_{k_2 k_7} \\ a_4 &= \epsilon_{k_3 k_4 k_6 k_8} \end{aligned}$$

**Diagram 293:**

$$\begin{aligned} \text{PO4.293} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_9 k_7 k_8 k_2}^{13} \Omega_{k_9 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) \\ &\quad e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_2 k_7 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_9 k_7 k_8 k_2}^{13} \Omega_{k_9 k_6 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_2 k_3 k_4 k_6} \epsilon_{k_2 k_7 k_8 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_6 k_9}} \end{aligned} \quad (599)$$

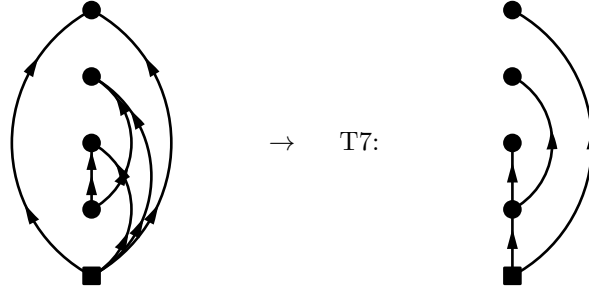


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (600)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_1 k_5}^{k_7 k_8} \\ a_3 &= \epsilon_{k_2 k_7 k_8}^{k_9} \\ a_4 &= \epsilon_{k_3 k_4 k_6 k_9} \end{aligned}$$

**Diagram 294:**

$$\begin{aligned} \text{PO4.294} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_5 k_1}^{02} \Omega_{k_6 k_2}^{02} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5}} e^{-\tau_3 \epsilon_{k_2 k_6}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\ &= \frac{-(-1)^4}{2(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_5 k_1}^{02} \Omega_{k_6 k_2}^{02} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_5} \epsilon_{k_2 k_6} \epsilon_{k_3 k_4}} \end{aligned} \quad (601)$$



→ T7:

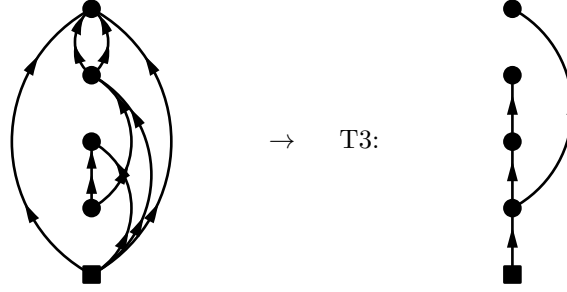


$$T7 = \frac{1}{(a_1 + a_2 + a_3)a_2 a_3 a_4} \quad (602)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_1 k_5} \\ a_3 &= \epsilon_{k_2 k_6} \\ a_4 &= \epsilon_{k_3 k_4} \end{aligned}$$

**Diagram 295:**

$$\begin{aligned}
\text{PO4.295} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_5 k_1}^{02} \Omega_{k_7 k_8 k_6 k_2}^{22} \Omega_{k_7 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5}} e^{-\tau_3 \epsilon_{k_2 k_6}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_5 k_1}^{02} \Omega_{k_7 k_8 k_6 k_2}^{22} \Omega_{k_7 k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_2 k_6}^{k_7 k_8} \epsilon_{k_2 k_6}^{k_7 k_8} \epsilon_{k_3 k_4 k_7 k_8}}
\end{aligned} \tag{603}$$



$$\text{T3} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \tag{604}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon_{k_1 k_5} \\
a_3 &= \epsilon_{k_2 k_6}^{k_7 k_8} \\
a_4 &= \epsilon_{k_3 k_4 k_7 k_8}
\end{aligned}$$

**Diagram 296:**

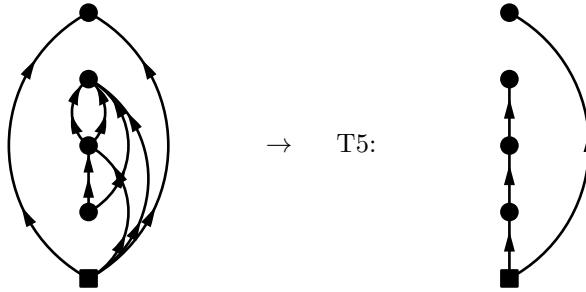
$$\begin{aligned}
\text{PO4.296} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_9 k_7 k_6 k_2}^{13} \Omega_{k_9 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_2 k_6}^{k_9}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_9 k_7 k_6 k_2}^{13} \Omega_{k_9 k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_2 k_6 k_3 k_4} \epsilon_{k_2 k_6 k_7 k_3 k_4 k_8} \epsilon_{k_3 k_4 k_8 k_9}}
\end{aligned} \tag{605}$$

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (606)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon^{k_7 k_8} \\ a_3 &= \epsilon^{k_9} \\ a_4 &= \epsilon_{k_3 k_4 k_8 k_9} \end{aligned}$$

**Diagram 297:**

$$\begin{aligned} \text{PO4.297} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_7 k_8 k_6 k_2}^{04} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_2 k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_7 k_8 k_6 k_2}^{04} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_5 k_2 k_6} \epsilon_{k_2 k_6 k_7 k_8} \epsilon_{k_3 k_4}} \end{aligned} \quad (607)$$

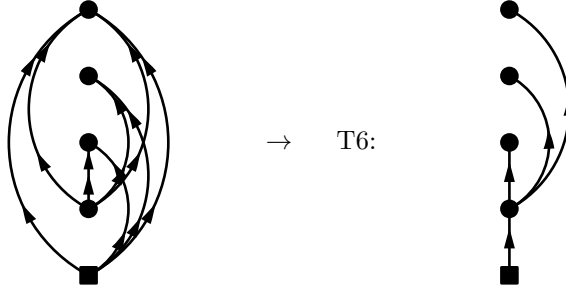


$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (608)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_1 k_5}^{k_7 k_8} \\ a_3 &= \epsilon_{k_2 k_6 k_7 k_8} \\ a_4 &= \epsilon_{k_3 k_4} \end{aligned}$$

**Diagram 298:**

$$\begin{aligned} \text{PO4.298} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_1}^{02} \Omega_{k_6 k_2}^{02} \Omega_{k_7 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5}} e^{-\tau_3 \epsilon_{k_2 k_6}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\ &= \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_1}^{02} \Omega_{k_6 k_2}^{02} \Omega_{k_7 k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5} \epsilon_{k_2 k_6} \epsilon_{k_3 k_4 k_7 k_8}} \end{aligned} \quad (609)$$



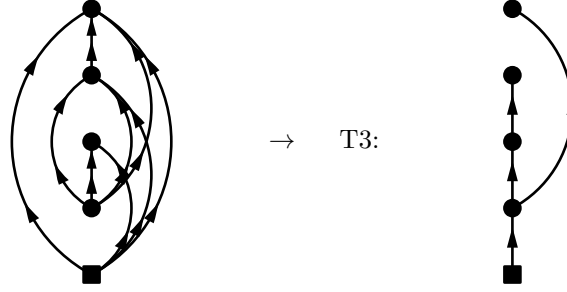
$$T6 = \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2a_3a_4} \quad (610)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6 k_7 k_8} \\ a_2 &= \epsilon_{k_1 k_5} \\ a_3 &= \epsilon_{k_2 k_6} \\ a_4 &= \epsilon_{k_3 k_4 k_7 k_8} \end{aligned}$$



**Diagram 299:**

$$\begin{aligned}
\text{PO4.299} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_1}^{02} \Omega_{k_9 k_6 k_7 k_2}^{13} \Omega_{k_9 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5}} e^{-\tau_3 \epsilon_{k_2 k_6 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_1}^{02} \Omega_{k_9 k_6 k_7 k_2}^{13} \Omega_{k_9 k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5} \epsilon_{k_2 k_6 k_7 k_3 k_4 k_8} \epsilon_{k_3 k_4 k_8 k_9}}
\end{aligned} \tag{611}$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \tag{612}$$

$$a_1 = \epsilon_{k_5 k_6 k_7 k_8}$$

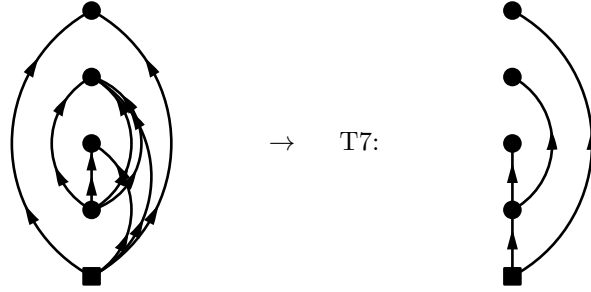
$$a_2 = \epsilon_{k_2 k_6 k_7}^{k_9}$$

$$a_3 = \epsilon_{k_3 k_4 k_8 k_9}$$

$$a_4 = \epsilon_{k_1 k_5}$$

**Diagram 300:**

$$\begin{aligned}
\text{PO4.300} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_1}^{02} \Omega_{k_6 k_7 k_8 k_2}^{04} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) e^{-\tau_1 \epsilon_{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5}} e^{-\tau_3 \epsilon_{k_2 k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
&= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_1}^{02} \Omega_{k_6 k_7 k_8 k_2}^{04} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_5} \epsilon_{k_2 k_6 k_7 k_8} \epsilon_{k_3 k_4}}
\end{aligned} \tag{613}$$

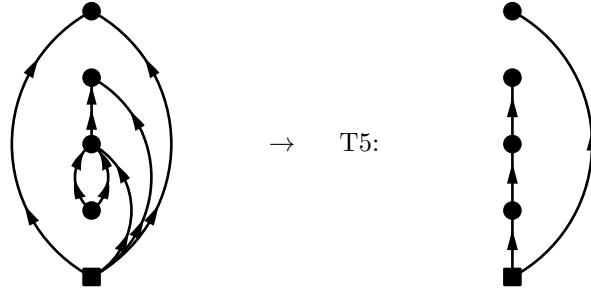


$$T7 = \frac{1}{(a_1 + a_2 + a_3)a_2a_3a_4} \quad (614)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6 k_7 k_8} \\ a_2 &= \epsilon_{k_1 k_5} \\ a_3 &= \epsilon_{k_2 k_6 k_7 k_8} \\ a_4 &= \epsilon_{k_3 k_4} \end{aligned}$$

**Diagram 301:**

$$\begin{aligned} \text{PO4.301} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_7 k_2}^{02} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5 k_6}^{k_7}} e^{-\tau_3 \epsilon_{k_2 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_7 k_2}^{02} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_5 k_6 k_2} \epsilon_{k_2 k_7} \epsilon_{k_3 k_4}} \end{aligned} \quad (615)$$

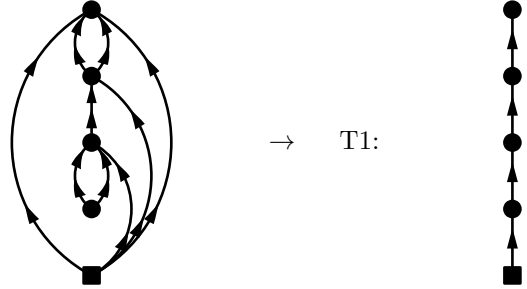


$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (616)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_1 k_5 k_6}^{k_7} \\ a_3 &= \epsilon_{k_2 k_7} \\ a_4 &= \epsilon_{k_3 k_4} \end{aligned}$$

**Diagram 302:**

$$\begin{aligned} \text{PO4.302} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_8 k_9 k_7 k_2}^{22} \Omega_{k_8 k_9 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5 k_6}^{k_7}} e^{-\tau_3 \epsilon_{k_2 k_7}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_3 k_4 k_8 k_9}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_8 k_9 k_7 k_2}^{22} \Omega_{k_8 k_9 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_4} \epsilon_{k_2 k_7 k_3 k_4} \epsilon_{k_3 k_4 k_8 k_9}} \end{aligned} \quad (617)$$

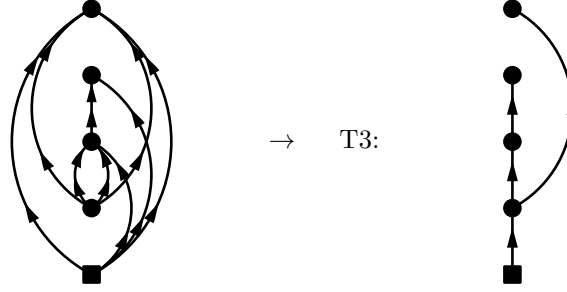


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (618)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_1 k_5 k_6}^{k_7} \\ a_3 &= \epsilon_{k_2 k_7}^{k_8 k_9} \\ a_4 &= \epsilon_{k_3 k_4 k_8 k_9} \end{aligned}$$

**Diagram 303:**

$$\begin{aligned}
 \text{PO4.303} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_9 k_2}^{02} \Omega_{k_7 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5 k_6}^{k_9}} e^{-\tau_3 \epsilon_{k_2 k_9}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_9 k_2}^{02} \Omega_{k_7 k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6}^{k_9} \epsilon_{k_2 k_9} \epsilon_{k_1 k_5 k_6 k_3 k_4 k_7 k_8}^{k_9}}
 \end{aligned} \tag{619}$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \tag{620}$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

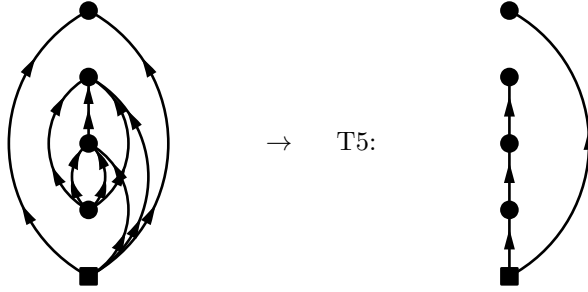
$$a_2 = \epsilon_{k_3 k_4 k_7 k_8}$$

$$a_3 = \epsilon_{k_1 k_5 k_6}^{k_9}$$

$$a_4 = \epsilon_{k_2 k_9}$$

**Diagram 304:**

$$\begin{aligned}
 \text{PO4.304} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_9 k_7 k_8 k_2}^{04} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5 k_6}^{k_9}} e^{-\tau_3 \epsilon_{k_2 k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_6 k_1}^{13} \Omega_{k_9 k_7 k_8 k_2}^{04} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_5 k_6 k_2 k_7 k_8} \epsilon_{k_2 k_7 k_8 k_9} \epsilon_{k_3 k_4}}
 \end{aligned} \tag{621}$$



$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (622)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

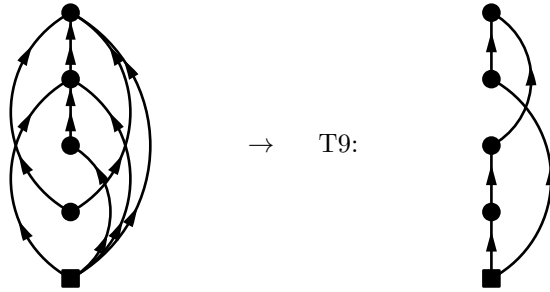
$$a_2 = \epsilon_{k_1 k_5 k_6}^{k_9}$$

$$a_3 = \epsilon_{k_2 k_7 k_8 k_9}$$

$$a_4 = \epsilon_{k_3 k_4}$$

**Diagram 305:**

$$\begin{aligned} \text{PO4.305} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_7 k_2 k_3}^{13} \Omega_{k_8 k_5 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1}^{k_7}} e^{-\tau_3 \epsilon_{k_2 k_3 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_5 k_6 k_8}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_7 k_2 k_3}^{13} \Omega_{k_8 k_5 k_6 k_4}^{04} \left[ \frac{1}{\epsilon_{k_4 k_8} \epsilon_{k_1 k_4 k_8}^{k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_5 k_6 k_8}} + \frac{1}{\epsilon_{k_4 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_7 k_4} \epsilon_{k_4 k_5 k_6 k_8}} + \frac{1}{\epsilon_{k_2 k_3 k_7 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_7 k_4 k_5 k_6 k_8}} \right] \end{aligned} \quad (623)$$

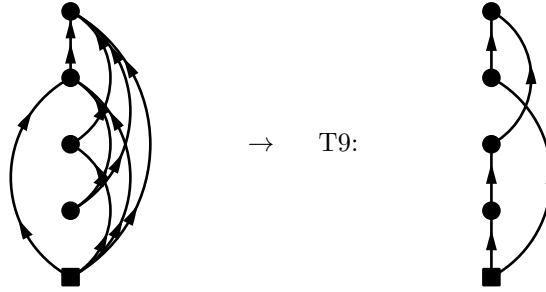


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (624)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_7} \\ a_2 &= \epsilon_{k_5 k_6}^{k_7} \\ a_3 &= \epsilon_{k_2 k_3 k_7}^{k_8} \\ a_4 &= \epsilon_{k_4 k_5 k_6 k_8} \end{aligned}$$

**Diagram 306:**

$$\begin{aligned} \text{PO4.306} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_5 k_2 k_3}^{13} \Omega_{k_8 k_7 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_5 k_6}^{k_7}} e^{-\tau_2 \epsilon_{k_1}^{k_7}} e^{-\tau_3 \epsilon_{k_2 k_3 k_5}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_6 k_7 k_8}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_5 k_2 k_3}^{13} \Omega_{k_8 k_7 k_6 k_4}^{04} \left[ \frac{1}{\epsilon_{k_4 k_7 k_8}^{k_5} \epsilon_{k_1 k_4 k_8}^{k_5} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_4 k_7 k_8}^{k_5} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_7} \epsilon_{k_4 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_2 k_3 k_4 k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5}^{k_8}} \right] \quad (625) \end{aligned}$$

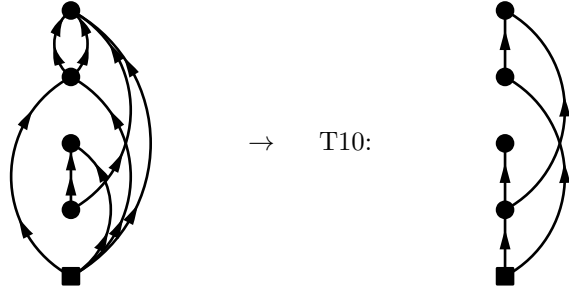


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (626)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_7} \\
a_2 &= \epsilon^{k_5 k_6} \\
a_3 &= \epsilon_{k_2 k_3 k_5}^{k_8} \\
a_4 &= \epsilon_{k_4 k_6 k_7 k_8}
\end{aligned}$$

**Diagram 307:**

$$\begin{aligned}
\text{PO4.307} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_5 k_1}^{02} \Omega_{k_7 k_8 k_2 k_3}^{22} \Omega_{k_7 k_8 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5}} e^{-\tau_3 \epsilon_{k_2 k_3}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_4 k_6 k_7 k_8}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_5 k_1}^{02} \Omega_{k_7 k_8 k_2 k_3}^{22} \Omega_{k_7 k_8 k_6 k_4}^{04} \left[ \frac{1}{\epsilon_{k_2 k_3 k_4}^{k_5} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3}^{k_7 k_8} \epsilon_{k_4 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_4 k_6 k_7 k_8} \epsilon_{k_2 k_3}^{k_7 k_8} \epsilon_{k_4 k_6 k_7 k_8}} \right] \\
&\hspace{15cm} (627)
\end{aligned}$$

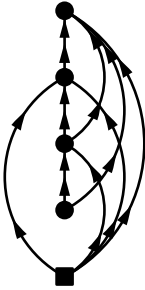



$$\text{T10} = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (628)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon_{k_2 k_3}^{k_7 k_8} \\
a_3 &= \epsilon_{k_1 k_5} \\
a_4 &= \epsilon_{k_4 k_6 k_7 k_8}
\end{aligned}$$

**Diagram 308:**

$$\begin{aligned}
\text{PO4.308} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_9 k_7 k_2 k_3}^{13} \Omega_{k_9 k_8 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_2 k_3}^{k_9}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_9 k_7 k_2 k_3}^{13} \Omega_{k_9 k_8 k_6 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_2 k_3 k_4 k_6} \epsilon_{k_2 k_3 k_7 k_4 k_6 k_8} \epsilon_{k_4 k_6 k_8 k_9}}
\end{aligned} \tag{629}$$


→ T1:


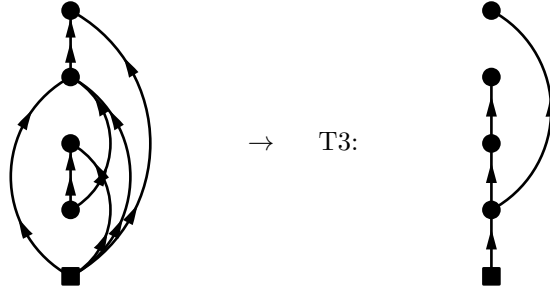
$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{630}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon_{k_1 k_5}^{k_7 k_8} \\
a_3 &= \epsilon_{k_2 k_3 k_7}^{k_9} \\
a_4 &= \epsilon_{k_4 k_6 k_8 k_9}
\end{aligned}$$

**Diagram 309:**

$$\begin{aligned}
\text{PO4.309} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_5 k_1}^{02} \Omega_{k_7 k_6 k_2 k_3}^{13} \Omega_{k_7 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5}} e^{-\tau_3 \epsilon_{k_2 k_3 k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_4 k_7}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_5 k_1}^{02} \Omega_{k_7 k_6 k_2 k_3}^{13} \Omega_{k_7 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_2 k_3 k_6}^{k_7} \epsilon_{k_2 k_3 k_6}^{k_7} \epsilon_{k_4 k_7}}
\end{aligned} \tag{631}$$





$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (632)$$

$$a_1 = \epsilon^{k_5 k_6}$$

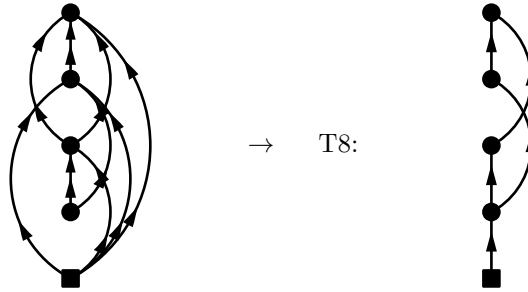
$$a_2 = \epsilon_{k_1 k_5}$$

$$a_3 = \epsilon_{k_2 k_3 k_6}^{k_7}$$

$$a_4 = \epsilon_{k_4 k_7}$$

**Diagram 310:**

$$\begin{aligned} \text{PO4.310} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_9 k_6 k_2 k_3}^{13} \Omega_{k_9 k_7 k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_2 k_3 k_6}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_7}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_9 k_6 k_2 k_3}^{13} \Omega_{k_9 k_7 k_8 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_4 k_9} \epsilon_{k_1 k_5 k_2 k_3 k_6 k_4} \epsilon_{k_4 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_2 k_3 k_6 k_4} \epsilon_{k_2 k_3 k_6 k_4 k_7 k_8} \epsilon_{k_4 k_7 k_8 k_9}} \right] \end{aligned} \quad (633)$$

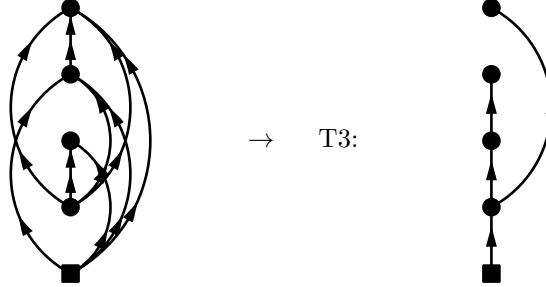


$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (634)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_1 k_5}^{k_7 k_8} \\ a_3 &= \epsilon_{k_2 k_3 k_6}^{k_9} \\ a_4 &= \epsilon_{k_4 k_7 k_8 k_9} \end{aligned}$$

**Diagram 311:**

$$\begin{aligned} \text{PO4.311} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_1}^{02} \Omega_{k_9 k_6 k_2 k_3}^{13} \Omega_{k_9 k_7 k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5}} e^{-\tau_3 \epsilon_{k_2 k_3 k_6}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_7 k_8 k_9}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_1}^{02} \Omega_{k_9 k_6 k_2 k_3}^{13} \Omega_{k_9 k_7 k_8 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_2 k_3 k_6}^{k_9} \epsilon_{k_2 k_3 k_6}^{k_9} \epsilon_{k_4 k_7 k_8 k_9}} \end{aligned} \quad (635)$$

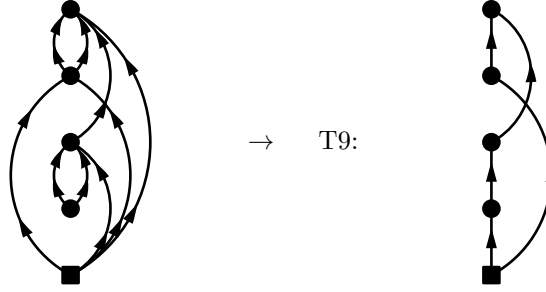


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \quad (636)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6 k_7 k_8} \\ a_2 &= \epsilon_{k_1 k_5} \\ a_3 &= \epsilon_{k_2 k_3 k_6}^{k_9} \\ a_4 &= \epsilon_{k_4 k_7 k_8 k_9} \end{aligned}$$

**Diagram 312:**

$$\begin{aligned}
\text{PO4.312} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_8 k_9 k_2 k_3}^{22} \Omega_{k_8 k_9 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5 k_6}^{k_7}} e^{-\tau_3 \epsilon_{k_2 k_3}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_4 k_7 k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_8 k_9 k_2 k_3}^{22} \Omega_{k_8 k_9 k_7 k_4}^{04} \left[ \frac{1}{\epsilon_{k_2 k_3 k_4 k_7}^{k_5 k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_7} \epsilon_{k_4 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_7} \epsilon_{k_4 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_7} \epsilon_{k_4 k_7 k_8 k_9}} \right] \\
&\quad (637)
\end{aligned}$$

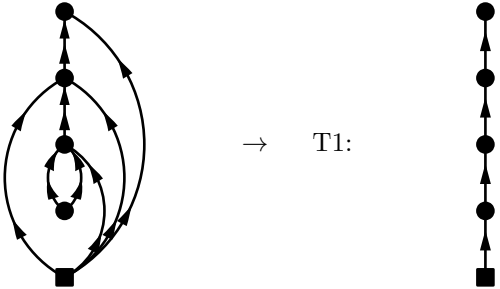


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (638)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon_{k_2 k_3}^{k_8 k_9} \\
a_3 &= \epsilon_{k_1 k_5 k_6}^{k_7} \\
a_4 &= \epsilon_{k_4 k_7 k_8 k_9}
\end{aligned}$$

**Diagram 313:**

$$\begin{aligned}
\text{PO4.313} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_8 k_7 k_2 k_3}^{13} \Omega_{k_8 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5 k_6}^{k_7}} e^{-\tau_3 \epsilon_{k_2 k_3 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_8}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_8 k_7 k_2 k_3}^{13} \Omega_{k_8 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_7 k_4} \epsilon_{k_4 k_8}} \quad (639)
\end{aligned}$$



$$\rightarrow \quad \text{T1:}$$

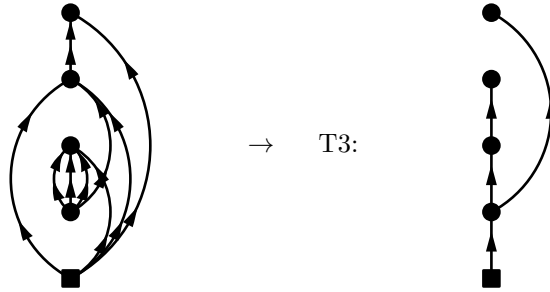
$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (640)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon^{k_1 k_5 k_6} \\ a_3 &= \epsilon^{k_8 k_2 k_3 k_7} \\ a_4 &= \epsilon^{k_4 k_8} \end{aligned}$$

**Diagram 314:**

$$\begin{aligned} \text{PO4.314} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6 k_7 k_1}^{04} \Omega_{k_9 k_8 k_2 k_3}^{13} \Omega_{k_9 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_3) \\ &\quad e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_2 k_3 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_9}} \end{aligned} \quad (641)$$

$$= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6 k_7 k_1}^{04} \Omega_{k_9 k_8 k_2 k_3}^{13} \Omega_{k_9 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_7} \epsilon_{k_2 k_3 k_8 k_4} \epsilon_{k_4 k_9}}$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (642)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

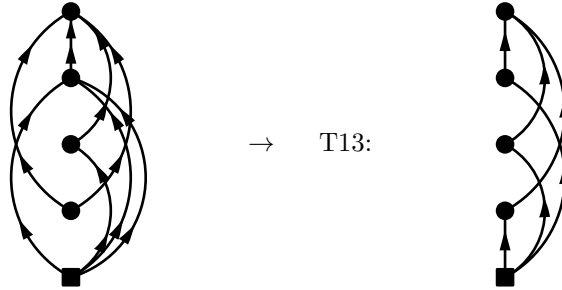
$$a_2 = \epsilon^{k_9}_{k_2 k_3 k_8}$$

$$a_3 = \epsilon_{k_4 k_9}$$

$$a_4 = \epsilon_{k_1 k_5 k_6 k_7}$$

**Diagram 315:**

$$\begin{aligned} \text{PO4.315} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_2 k_3 k_4}^{13} \Omega_{k_8 k_7 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon^{k_7}_{k_1}} e^{-\tau_3 \epsilon^{k_8}_{k_2 k_3 k_4}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7 k_8}} \\ &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1}^{11} \Omega_{k_8 k_2 k_3 k_4}^{13} \Omega_{k_8 k_7 k_5 k_6}^{04} \left[ \frac{1}{\epsilon_{k_1 k_8} \epsilon_{k_1 k_5 k_6 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_7 k_8} \epsilon_{k_1 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_7} \epsilon_{k_5 k_6 k_7 k_8}} \right] \end{aligned} \quad (643)$$

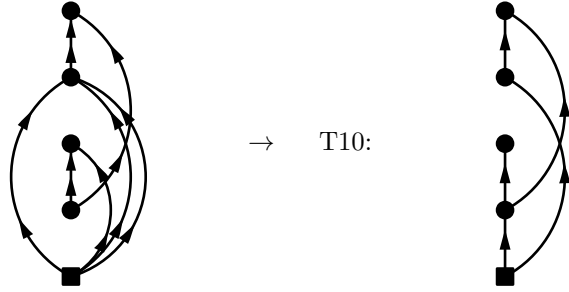


$$T13 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_4)(a_2 + a_1 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_1 + a_4)a_4} + \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_2 + a_4)a_4} \quad (644)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon_{k_1}^{k_7} \\
a_3 &= \epsilon_{k_2 k_3 k_4}^{k_8} \\
a_4 &= \epsilon_{k_5 k_6 k_7 k_8}
\end{aligned}$$

**Diagram 316:**

$$\begin{aligned}
\text{PO4.316} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_5 k_1}^{02} \Omega_{k_7 k_2 k_3 k_4}^{13} \Omega_{k_7 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5}} e^{-\tau_3 \epsilon_{k_2 k_3 k_4}^{k_7}} e^{-\tau_4 \epsilon_{k_6 k_7}} \\
&= \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_5 k_1}^{02} \Omega_{k_7 k_2 k_3 k_4}^{13} \Omega_{k_7 k_6}^{02} \left[ \frac{1}{\epsilon_{k_1 k_7} \epsilon_{k_1 k_5} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5} \epsilon_{k_2 k_3 k_4 k_6} \epsilon_{k_6 k_7}} \right] \quad (645)
\end{aligned}$$

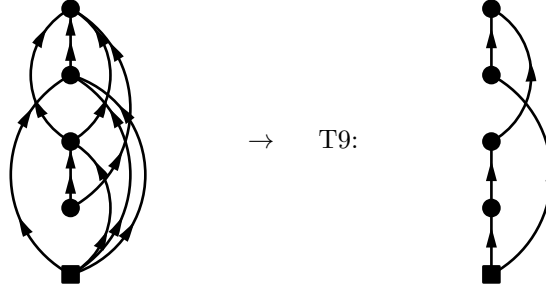


$$\text{T10} = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (646)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon_{k_1 k_5} \\
a_3 &= \epsilon_{k_2 k_3 k_4}^{k_7} \\
a_4 &= \epsilon_{k_6 k_7}
\end{aligned}$$

**Diagram 317:**

$$\begin{aligned}
 \text{PO4.317} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_9 k_2 k_3 k_4}^{13} \Omega_{k_9 k_7 k_8 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon^{k_9}} e^{-\tau_4 \epsilon^{k_6 k_7}} \\
 &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_5 k_1}^{22} \Omega_{k_9 k_2 k_3 k_4}^{13} \Omega_{k_9 k_7 k_8 k_6}^{04} \left[ \frac{1}{\epsilon_{k_1 k_9} \epsilon_{k_1 k_5 k_6 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_9} \epsilon_{k_1 k_5 k_2 k_3 k_4 k_6} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_2 k_3 k_4 k_6} \epsilon_{k_6 k_7 k_8 k_9}} \right] \\
 &\quad (647)
 \end{aligned}$$

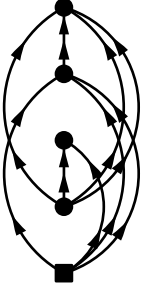
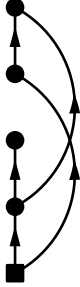


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (648)$$

$$\begin{aligned}
 a_1 &= \epsilon^{k_5 k_6} \\
 a_2 &= \epsilon^{k_7 k_8} \\
 a_3 &= \epsilon^{k_9} \\
 a_4 &= \epsilon_{k_6 k_7 k_8 k_9}
 \end{aligned}$$

**Diagram 318:**

$$\begin{aligned}
\text{PO4.318} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_1}^{02} \Omega_{k_9 k_2 k_3 k_4}^{13} \Omega_{k_9 k_6 k_7 k_8}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5}} e^{-\tau_3 \epsilon_{k_2 k_3 k_4}^{k_9}} e^{-\tau_4 \epsilon_{k_6 k_7 k_8 k_9}} \\
&= \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_1}^{02} \Omega_{k_9 k_2 k_3 k_4}^{13} \Omega_{k_9 k_6 k_7 k_8}^{04} \left[ \frac{1}{\epsilon_{k_1 k_9} \epsilon_{k_1 k_5} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5} \epsilon_{k_2 k_3 k_4 k_6 k_7 k_8} \epsilon_{k_6 k_7 k_8 k_9}} \right]
\end{aligned} \tag{649}$$

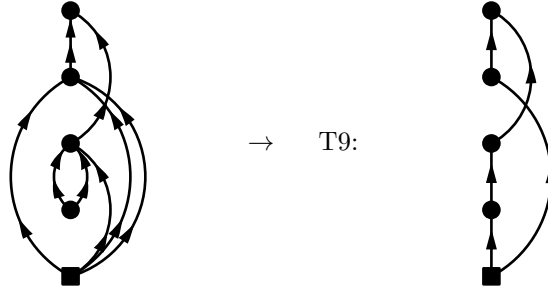

→ T10:


$$\begin{aligned}
\text{T10} &= \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \\
a_1 &= \epsilon^{k_5 k_6 k_7 k_8} \\
a_2 &= \epsilon_{k_1 k_5} \\
a_3 &= \epsilon_{k_2 k_3 k_4}^{k_9} \\
a_4 &= \epsilon_{k_6 k_7 k_8 k_9}
\end{aligned} \tag{650}$$

**Diagram 319:**

$$\begin{aligned}
\text{PO4.319} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_8 k_2 k_3 k_4}^{13} \Omega_{k_8 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_5 k_6}^{k_7}} e^{-\tau_3 \epsilon_{k_2 k_3 k_4}^{k_8}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\
&= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_6 k_1}^{13} \Omega_{k_8 k_2 k_3 k_4}^{13} \Omega_{k_8 k_7}^{02} \left[ \frac{1}{\epsilon_{k_1 k_8} \epsilon_{k_1 k_5 k_6 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_8} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_4} \epsilon_{k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4} \epsilon_{k_7 k_8}} \right]
\end{aligned} \tag{651}$$





$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (652)$$

$$a_1 = \epsilon^{k_5 k_6}$$

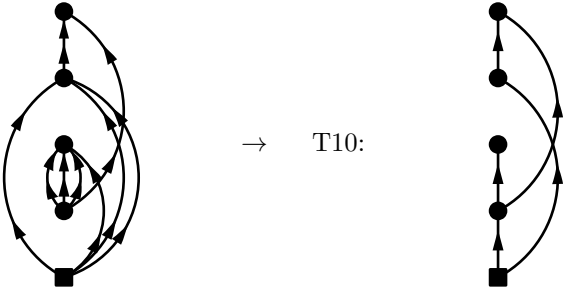
$$a_2 = \epsilon^{k_7}_{k_1 k_5 k_6}$$

$$a_3 = \epsilon^{k_8}_{k_2 k_3 k_4}$$

$$a_4 = \epsilon_{k_7 k_8}$$

**Diagram 320:**

$$\begin{aligned} \text{PO4.320} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6 k_7 k_1}^{04} \Omega_{k_9 k_2 k_3 k_4}^{13} \Omega_{k_9 k_8}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_2 k_3 k_4}^{k_9}} e^{-\tau_4 \epsilon_{k_8 k_9}} \\ &= \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_5 k_6 k_7 k_1}^{04} \Omega_{k_9 k_2 k_3 k_4}^{13} \Omega_{k_9 k_8}^{02} \left[ \frac{1}{\epsilon_{k_1 k_9} \epsilon_{k_1 k_5 k_6 k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_7} \epsilon_{k_2 k_3 k_4 k_8} \epsilon_{k_8 k_9}} \right] \quad (653) \end{aligned}$$



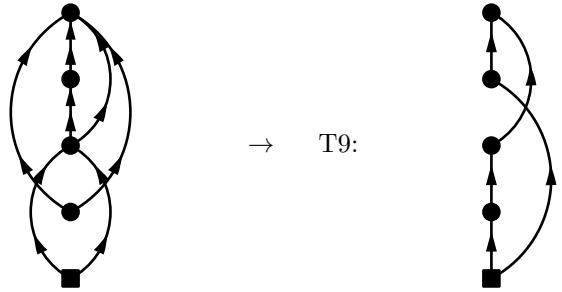
$\rightarrow$  T10:

$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (654)$$

$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$   
 $a_2 = \epsilon_{k_1 k_5 k_6 k_7}$   
 $a_3 = \epsilon_{k_2 k_3 k_4}^{k_9}$   
 $a_4 = \epsilon_{k_8 k_9}$

**Diagram 321:**

$$\begin{aligned}
 PO4.321 &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_7 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\
 &\quad e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_5}^{k_7}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_7}} \\
 &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_7 k_6 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_6 k_7}} + \frac{1}{\epsilon_{k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_5 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_6 k_7}} + \frac{1}{\epsilon_{k_6 k_7} \epsilon_{k_1 k_2} \epsilon_{k_5 k_6} \epsilon_{k_3 k_4 k_6 k_7}} \right] \\
 &\quad (655)
 \end{aligned}$$

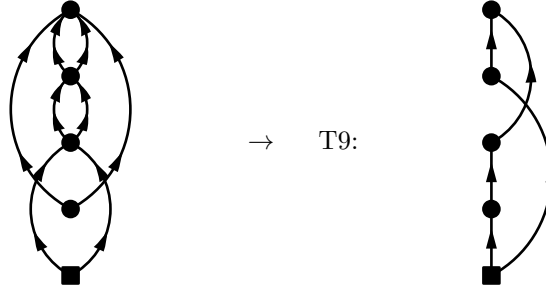


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (656)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7} \\ a_3 &= \epsilon^{k_3 k_4} \\ a_4 &= \epsilon_{k_3 k_4 k_6 k_7} \end{aligned}$$

**Diagram 322:**

$$\begin{aligned} \text{PO4.322} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_7 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_5 k_6}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_7 k_8 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_7 k_8}^{k_5 k_6} \epsilon_{k_1 k_2 k_3 k_4 k_7 k_8}^{k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4 k_7 k_8}^{k_5 k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_8}} \right] \quad (657) \end{aligned}$$

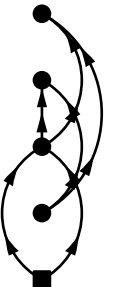
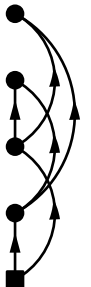


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (658)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_3 &= \epsilon_{k_5 k_6}^{k_7 k_8} \\
a_4 &= \epsilon_{k_3 k_4 k_7 k_8}
\end{aligned}$$

**Diagram 323:**

$$\begin{aligned}
\text{PO4.323} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_5 k_3}^{02} \Omega_{k_6 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_3 k_5}} e^{-\tau_4 \epsilon_{k_4 k_6}} \\
&= \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_5 k_3}^{02} \Omega_{k_6 k_4}^{02} \left[ \frac{1}{\epsilon_{k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_3 k_5} \epsilon_{k_4 k_6}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5} \epsilon_{k_4 k_6}} \right]
\end{aligned} \tag{659}$$

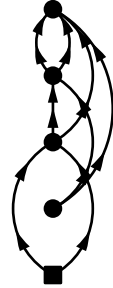
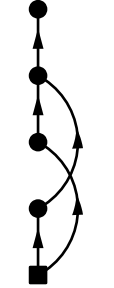

→ T11:


$$\text{T11} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3 a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \tag{660}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4} \\
a_2 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_3 &= \epsilon_{k_3 k_5} \\
a_4 &= \epsilon_{k_4 k_6}
\end{aligned}$$

**Diagram 324:**

$$\begin{aligned}
\text{PO4.324} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_7 k_8 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6}} e^{-\tau_3 \epsilon^{k_7 k_8}} e^{-\tau_4} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_7 k_8 k_6 k_4}^{04} \left[ \frac{1}{\epsilon_{k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_3 k_5 k_4 k_6} \epsilon_{k_4 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_4 k_6} \epsilon_{k_4 k_6 k_7 k_8}} \right]
\end{aligned} \tag{661}$$




→ T12:


$$\text{T12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{662}$$

$a_1 = \epsilon^{k_3 k_4}$   
 $a_2 = \epsilon^{k_5 k_6}$   
 $a_3 = \epsilon^{k_7 k_8}$   
 $a_4 = \epsilon_{k_4 k_6 k_7 k_8}$

**Diagram 325:**

$$\begin{aligned}
\text{PO4.325} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5 k_6 k_3}^{13} \Omega_{k_7 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6}} e^{-\tau_3 \epsilon^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_4 k_7}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5 k_6 k_3}^{13} \Omega_{k_7 k_4}^{02} \left[ \frac{1}{\epsilon_{k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_3 k_5 k_6 k_4} \epsilon_{k_4 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_6 k_4} \epsilon_{k_4 k_7}} \right]
\end{aligned} \tag{663}$$


→ T12:


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (664)$$

$$a_1 = \epsilon^{k_3 k_4}$$

$$a_2 = \epsilon^{k_5 k_6}$$

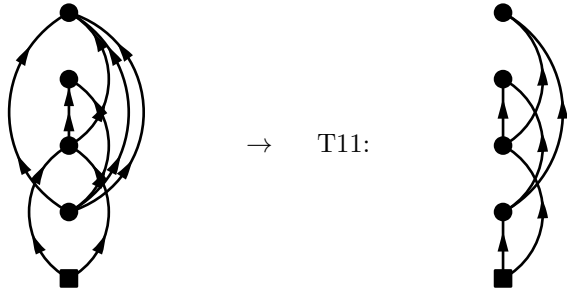
$$a_3 = \epsilon^{k_7}_{k_3 k_5 k_6}$$

$$a_4 = \epsilon_{k_4 k_7}$$

**Diagram 326:**

$$PO4.326 = \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_7 k_3}^{02} \Omega_{k_8 k_4 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}_{k_1 k_2}} e^{-\tau_3 \epsilon_{k_3 k_7}} e^{-\tau_4 \epsilon_{k_4 k_5 k_6}}$$

$$= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_7 k_3}^{02} \Omega_{k_8 k_4 k_5 k_6}^{04} \left[ \frac{1}{\epsilon_{k_7 k_8} \epsilon_{k_1 k_2} \epsilon_{k_3 k_7} \epsilon_{k_4 k_5 k_6 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6} \epsilon_{k_3 k_7} \epsilon_{k_4 k_5 k_6 k_8}} \right] \quad (665)$$



$$T11 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (666)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

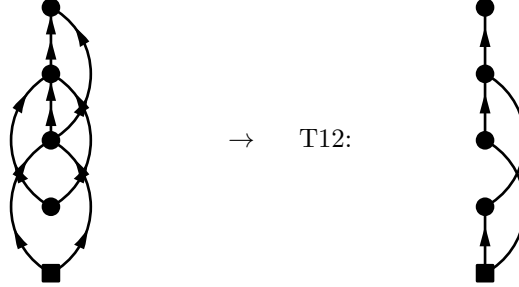
$$a_2 = \epsilon^{k_7 k_8}_{k_1 k_2}$$

$$a_3 = \epsilon_{k_3 k_7}$$

$$a_4 = \epsilon_{k_4 k_5 k_6 k_8}$$

**Diagram 327:**

$$\begin{aligned} \text{PO4.327} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5 k_3 k_4}^{13} \Omega_{k_7 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5 k_6}_{k_1 k_2}} e^{-\tau_3 \epsilon^{k_7}_{k_3 k_4 k_5}} e^{-\tau_4 \epsilon_{k_6 k_7}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5 k_3 k_4}^{13} \Omega_{k_7 k_6}^{02} \left[ \frac{1}{\epsilon_{k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_6 k_7}} \right] \end{aligned} \quad (667)$$



$\rightarrow$  T12:



$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (668)$$

$$a_1 = \epsilon^{k_3 k_4}$$

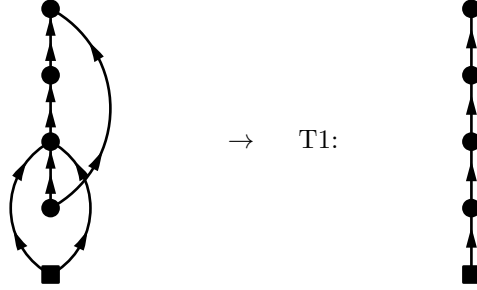
$$a_2 = \epsilon^{k_5 k_6}_{k_1 k_2}$$

$$a_3 = \epsilon^{k_7}_{k_3 k_4 k_5}$$

$$a_4 = \epsilon_{k_6 k_7}$$

**Diagram 328:**

$$\begin{aligned}
\text{PO4.328} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3 k_1 k_2}^{13} \Omega_{k_6 k_5}^{11} \Omega_{k_6 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_5}} e^{-\tau_3 \epsilon_{k_5}^{k_6}} e^{-\tau_4 \epsilon_{k_4 k_6}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3 k_1 k_2}^{13} \Omega_{k_6 k_5}^{11} \Omega_{k_6 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_4} \epsilon_{k_4 k_6}}
\end{aligned} \tag{669}$$



$\rightarrow$  T1:

$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{670}$$

$$a_1 = \epsilon^{k_3 k_4}$$

$$a_2 = \epsilon_{k_1 k_2}^{k_5}$$

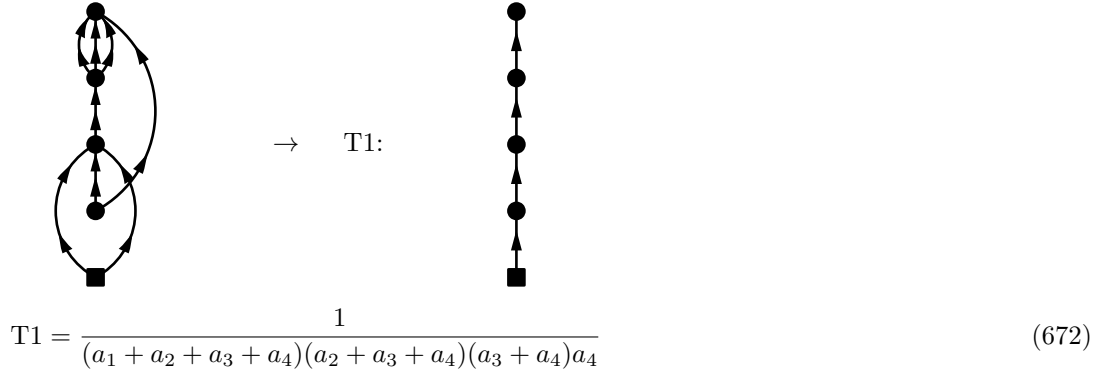
$$a_3 = \epsilon_{k_5}^{k_6}$$

$$a_4 = \epsilon_{k_4 k_6}$$

**Diagram 329:**

$$\begin{aligned}
\text{PO4.329} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3 k_1 k_2}^{13} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_6 k_7 k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_5}} e^{-\tau_3 \epsilon_{k_5}^{k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_4 k_6 k_7 k_8}} \\
&= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3 k_1 k_2}^{13} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_6 k_7 k_8 k_4}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_4} \epsilon_{k_4 k_6 k_7 k_8}}
\end{aligned} \tag{671}$$



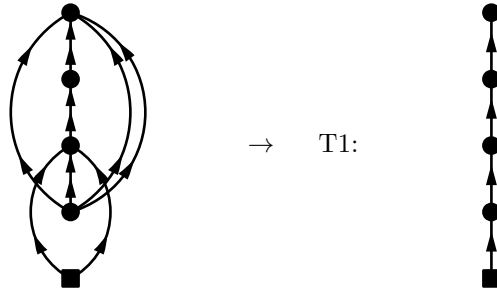


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (672)$$

$$\begin{aligned} a_1 &= \epsilon^{k_3 k_4} \\ a_2 &= \epsilon^{k_5 k_1 k_2 k_3} \\ a_3 &= \epsilon^{k_6 k_7 k_8} \\ a_4 &= \epsilon^{k_4 k_6 k_7 k_8} \end{aligned}$$

**Diagram 330:**

$$\begin{aligned} \text{PO4.330} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_1 k_2}^{13} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_4 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_1 k_2 k_3}} e^{-\tau_3 \epsilon^{k_8 k_7}} e^{-\tau_4 \epsilon^{k_4 k_5 k_6 k_8}} \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_1 k_2}^{13} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_4 k_5 k_6}^{04}}{\epsilon_{k_1 k_2}^{20} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6}^{40} \epsilon_{k_7 k_4 k_5 k_6}^{13} \epsilon_{k_4 k_5 k_6 k_8}^{04}} \end{aligned} \quad (673)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (674)$$

$$a_1 = \epsilon^{k_3 k_4 k_5 k_6}$$

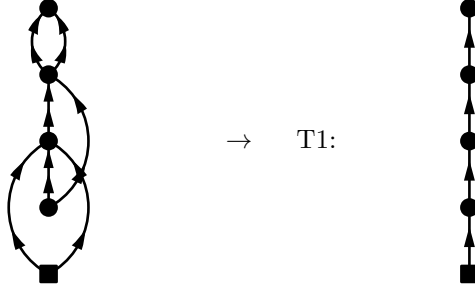
$$a_2 = \epsilon^{k_7}_{k_1 k_2 k_3}$$

$$a_3 = \epsilon^{k_8}_{k_7}$$

$$a_4 = \epsilon_{k_4 k_5 k_6 k_8}$$

**Diagram 331:**

$$\begin{aligned} \text{PO4.331} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3 k_1 k_2}^{13} \Omega_{k_6 k_7 k_5 k_4}^{22} \Omega_{k_6 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4}} e^{-\tau_2 \epsilon^{k_5}_{k_1 k_2 k_3}} e^{-\tau_3 \epsilon^{k_6 k_7}_{k_4 k_5}} e^{-\tau_4 \epsilon_{k_6 k_7}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4}^{20} \Omega_{k_5 k_3 k_1 k_2}^{13} \Omega_{k_6 k_7 k_5 k_4}^{22} \Omega_{k_6 k_7}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_5} \epsilon_{k_6 k_7}} \end{aligned} \quad (675)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (676)$$

$$a_1 = \epsilon^{k_3 k_4}$$

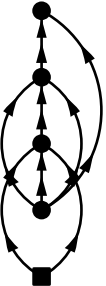

$$a_2 = \epsilon^{k_5}_{k_1 k_2 k_3}$$

$$a_3 = \epsilon^{k_6 k_7}_{k_4 k_5}$$

$$a_4 = \epsilon_{k_6 k_7}$$

**Diagram 332:**

$$\begin{aligned}
\text{PO4.332} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_1 k_2}^{13} \Omega_{k_8 k_7 k_4 k_5}^{13} \Omega_{k_8 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_3 k_4 k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_1 k_2 k_3}} e^{-\tau_3 \epsilon^{k_8 k_4 k_5 k_6}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_6}^{40} \Omega_{k_7 k_3 k_1 k_2}^{13} \Omega_{k_8 k_7 k_4 k_5}^{13} \Omega_{k_8 k_6}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6} \epsilon_{k_4 k_5 k_7 k_6} \epsilon_{k_6 k_8}}
\end{aligned} \tag{677}$$

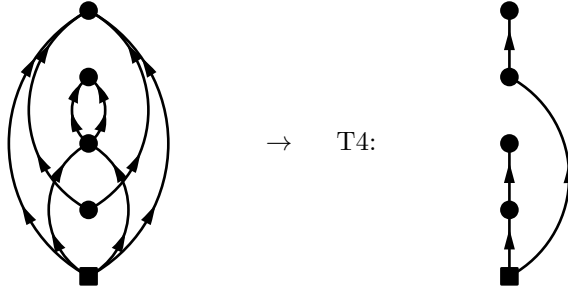

→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{678}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_3 k_4 k_5 k_6} \\
a_2 &= \epsilon^{k_7 k_1 k_2 k_3} \\
a_3 &= \epsilon^{k_8 k_4 k_5 k_7} \\
a_4 &= \epsilon_{k_6 k_8}
\end{aligned}$$

**Diagram 333:**

$$\begin{aligned}
\text{PO4.333} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_7 k_8}^{02} \Omega_{k_5 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_1 k_2}} e^{-\tau_4 \epsilon_{k_3 k_4 k_5 k_6}} \\
&= \frac{(-1)^4}{(2!)^4} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_7 k_8}^{02} \Omega_{k_5 k_6 k_3 k_4}^{04}}{\epsilon_{k_5 k_6 k_7 k_8} \epsilon_{k_1 k_2} \epsilon_{k_1 k_2} \epsilon_{k_7 k_8 k_3 k_4 k_5 k_6} \epsilon_{k_3 k_4 k_5 k_6}}
\end{aligned} \tag{679}$$

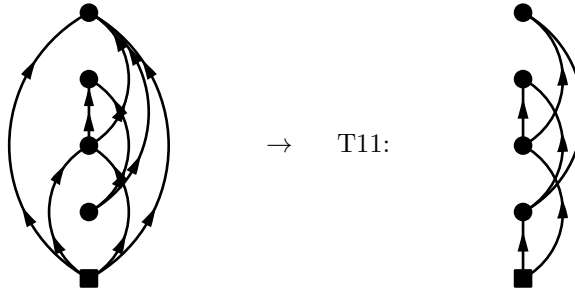


$$T4 = \frac{1}{(a_1 + a_2)a_2(a_3 + a_4)a_4} \quad (680)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon^{k_7 k_8} \\ a_3 &= \epsilon_{k_7 k_8} \\ a_4 &= \epsilon_{k_3 k_4 k_5 k_6} \end{aligned}$$

**Diagram 334:**

$$\begin{aligned} \text{PO4.334} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_7 k_5}^{02} \Omega_{k_8 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \\ &\quad e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_5 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_8}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_7 k_5}^{02} \Omega_{k_8 k_6 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_7 k_3 k_4 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_7} \epsilon_{k_3 k_4 k_6 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_3 k_4 k_6} \epsilon_{k_5 k_7} \epsilon_{k_3 k_4 k_6 k_8}} \right] \end{aligned} \quad (681)$$

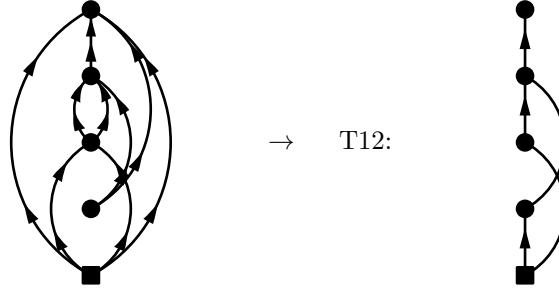


$$T11 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (682)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon^{k_7 k_8} \\ a_3 &= \epsilon_{k_5 k_7} \\ a_4 &= \epsilon_{k_3 k_4 k_6 k_8} \end{aligned}$$

**Diagram 335:**

$$\begin{aligned} \text{PO4.335} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_9 k_7 k_8 k_5}^{13} \Omega_{k_9 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_5 k_7 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6}^{k_9}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_9 k_7 k_8 k_5}^{13} \Omega_{k_9 k_6 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_7 k_8 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_7 k_8 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_6 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_3 k_4 k_6} \epsilon_{k_5 k_7 k_8 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_6 k_9}} \right] \end{aligned} \quad (683)$$



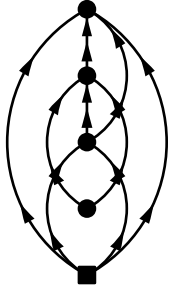

$\rightarrow$  T12:

$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (684)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_1 k_2}^{k_7 k_8} \\ a_3 &= \epsilon_{k_5 k_7 k_8}^{k_9} \\ a_4 &= \epsilon_{k_3 k_4 k_6 k_9} \end{aligned}$$

**Diagram 336:**

$$\begin{aligned}
\text{PO4.336} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_9 k_7 k_5 k_6}^{13} \Omega_{k_9 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon^{k_9 k_6 k_7}} e^{-\tau_4 \epsilon^{k_3 k_4 k_8}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_9 k_7 k_5 k_6}^{13} \Omega_{k_9 k_8 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_7 k_3 k_4 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_3 k_4 k_8} \epsilon_{k_3 k_4 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_6 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_3 k_4 k_8} \epsilon_{k_3 k_4 k_8 k_9}} \right]
\end{aligned} \tag{685}$$

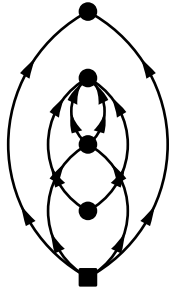
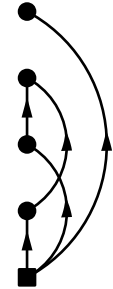

→ T12:


$$\text{T12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{686}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon^{k_7 k_8} \\
a_3 &= \epsilon^{k_9 k_6 k_7} \\
a_4 &= \epsilon_{k_3 k_4 k_8 k_9}
\end{aligned}$$

**Diagram 337:**

$$\begin{aligned}
\text{PO4.337} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{04} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_5 k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
&= \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{04} \Omega_{k_3 k_4}^{02} \left[ \frac{1}{\epsilon_{k_7 k_8} \epsilon_{k_1 k_2} \epsilon_{k_5 k_6 k_7 k_8} \epsilon_{k_3 k_4}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_5 k_6} \epsilon_{k_5 k_6 k_7 k_8} \epsilon_{k_3 k_4}} \right]
\end{aligned} \tag{687}$$

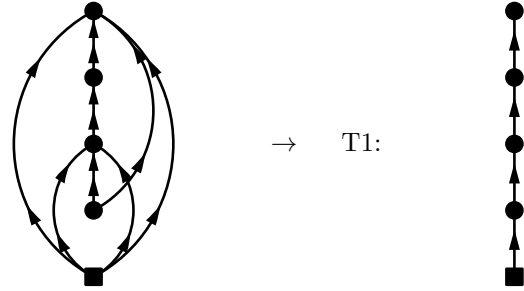

→ T14:


$$\text{T14} = \frac{1}{(a_1 + a_3)(a_2 + a_1 + a_3)a_3a_4} + \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (688)$$

$a_1 = \epsilon^{k_5 k_6}$   
 $a_2 = \epsilon^{k_7 k_8}$   
 $a_3 = \epsilon_{k_5 k_6 k_7 k_8}$   
 $a_4 = \epsilon_{k_3 k_4}$

**Diagram 338:**

$$\begin{aligned} \text{PO4.338} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) \\ &\quad e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2 k_5}} e^{-\tau_3 \epsilon_{k_7}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_8}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_6 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_3 k_4 k_6} \epsilon_{k_7 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_6 k_8}} \end{aligned} \quad (689)$$

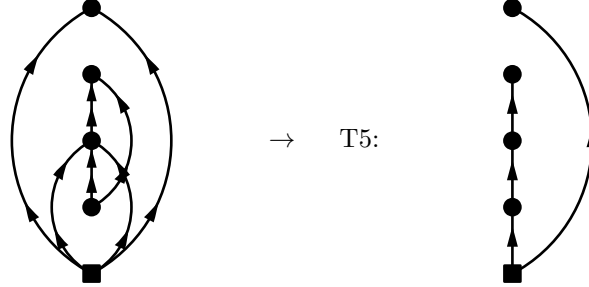


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (690)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_1 k_2 k_5}^{k_7} \\ a_3 &= \epsilon_{k_7}^{k_8} \\ a_4 &= \epsilon_{k_3 k_4 k_6 k_8} \end{aligned}$$

**Diagram 339:**

$$\begin{aligned} \text{PO4.339} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_7 k_6}^{02} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2 k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_6 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_7 k_6}^{02} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_5 k_6} \epsilon_{k_6 k_7} \epsilon_{k_3 k_4}} \end{aligned} \quad (691)$$



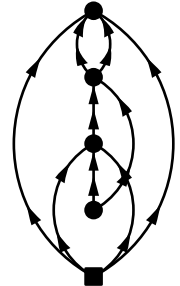

$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3 a_4} \quad (692)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon_{k_1 k_2 k_5}^{k_7} \\ a_3 &= \epsilon_{k_6 k_7} \\ a_4 &= \epsilon_{k_3 k_4} \end{aligned}$$



**Diagram 340:**

$$\begin{aligned}
 \text{PO4.340} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_8 k_9 k_7 k_6}^{22} \Omega_{k_8 k_9 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_7}} e^{-\tau_3 \epsilon_{k_6 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_3 k_4}^{k_8}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_8 k_9 k_7 k_6}^{22} \Omega_{k_8 k_9 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_6 k_3 k_4} \epsilon_{k_6 k_7 k_3 k_4} \epsilon_{k_3 k_4 k_8 k_9}}
 \end{aligned} \tag{693}$$

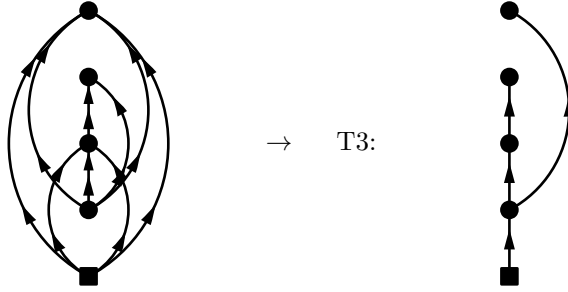

→ T1:


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{694}$$

$$\begin{aligned}
 a_1 &= \epsilon^{k_5 k_6} \\
 a_2 &= \epsilon_{k_1 k_2}^{k_7} \\
 a_3 &= \epsilon_{k_6 k_7}^{k_8} \\
 a_4 &= \epsilon_{k_3 k_4 k_8 k_9}
 \end{aligned}$$

**Diagram 341:**

$$\begin{aligned}
 \text{PO4.341} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_1 k_2}^{13} \Omega_{k_9 k_6}^{02} \Omega_{k_7 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_9}} e^{-\tau_3 \epsilon_{k_6 k_9}} e^{-\tau_4 \epsilon_{k_3}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_1 k_2}^{13} \Omega_{k_9 k_6}^{02} \Omega_{k_7 k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_6} \epsilon_{k_6 k_9} \epsilon_{k_3 k_4 k_7 k_8}}
 \end{aligned} \tag{695}$$



→ T3:

$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (696)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

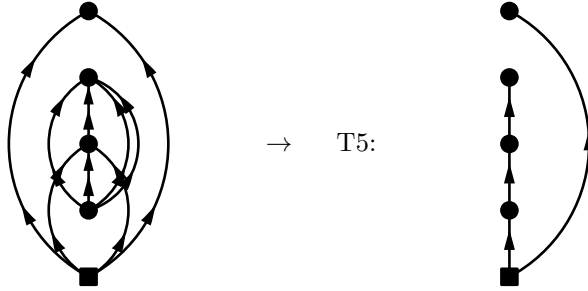
$$a_2 = \epsilon^{k_9 k_1 k_2 k_5}$$

$$a_3 = \epsilon_{k_6 k_9}$$

$$a_4 = \epsilon_{k_3 k_4 k_7 k_8}$$

**Diagram 342:**

$$\begin{aligned} \text{PO4.342} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_1 k_2}^{13} \Omega_{k_9 k_6 k_7 k_8}^{04} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6 k_7 k_8}} e^{-\tau_2 \epsilon_{k_1 k_2 k_5}^{k_9}} e^{-\tau_3 \epsilon_{k_6 k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\ &= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_8}^{40} \Omega_{k_9 k_5 k_1 k_2}^{13} \Omega_{k_9 k_6 k_7 k_8}^{04} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_5 k_6 k_7 k_8} \epsilon_{k_6 k_7 k_8 k_9} \epsilon_{k_3 k_4}} \end{aligned} \quad (697)$$



→ T5:

$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (698)$$

$$a_1 = \epsilon^{k_5 k_6 k_7 k_8}$$

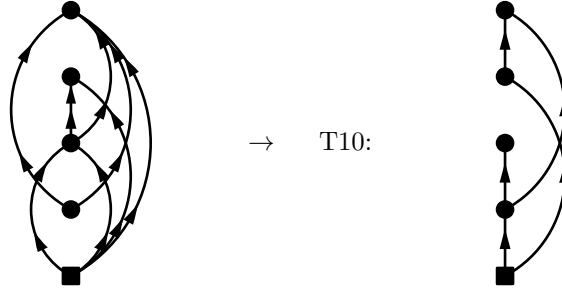
$$a_2 = \epsilon^{k_9}_{k_1 k_2 k_5}$$

$$a_3 = \epsilon_{k_6 k_7 k_8 k_9}$$

$$a_4 = \epsilon_{k_3 k_4}$$

**Diagram 343:**

$$\begin{aligned} \text{PO4.343} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_7 k_3}^{02} \Omega_{k_8 k_5 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_7}} e^{-\tau_4 \epsilon_{k_4 k_5 k_6 k_8}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_7 k_3}^{02} \Omega_{k_8 k_5 k_6 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6} \epsilon_{k_3 k_7} \epsilon_{k_4 k_5 k_6 k_8}} + \frac{1}{\epsilon_{k_4 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_7} \epsilon_{k_4 k_5 k_6 k_8}} \right] \end{aligned} \quad (699)$$



→ T10:



$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (700)$$

$$a_1 = \epsilon_{k_1 k_2}^{k_7 k_8}$$

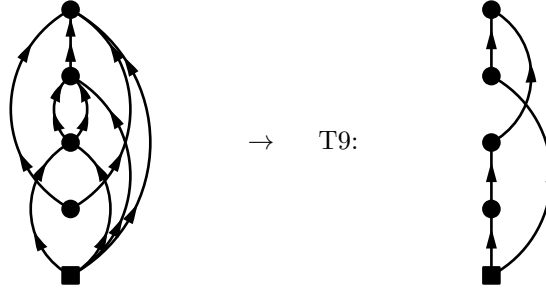
$$a_2 = \epsilon_{k_3 k_7}$$

$$a_3 = \epsilon^{k_5 k_6}$$

$$a_4 = \epsilon_{k_4 k_5 k_6 k_8}$$

**Diagram 344:**

$$\begin{aligned}
 \text{PO4.344} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_9 k_7 k_8 k_3}^{13} \Omega_{k_9 k_5 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_5 k_6 k_9}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_9 k_7 k_8 k_3}^{13} \Omega_{k_9 k_5 k_6 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_4 k_9}^{k_7 k_8} \epsilon_{k_1 k_2 k_4 k_5 k_6 k_9}^{k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_5 k_6 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_4 k_5 k_6 k_9}^{k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6} \epsilon_{k_4 k_5 k_6 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_4 k_5 k_6 k_9}^{k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6} \epsilon_{k_4 k_5 k_6 k_9}} \right] \\
 &\quad (701)
 \end{aligned}$$

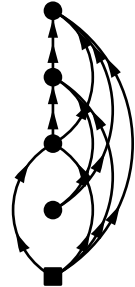
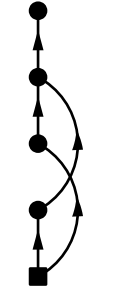


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (702)$$

$$\begin{aligned}
 a_1 &= \epsilon^{k_5 k_6} \\
 a_2 &= \epsilon_{k_1 k_2}^{k_7 k_8} \\
 a_3 &= \epsilon_{k_3 k_7 k_8}^{k_9} \\
 a_4 &= \epsilon_{k_4 k_5 k_6 k_9}
 \end{aligned}$$

**Diagram 345:**

$$\begin{aligned}
 \text{PO4.345} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_9 k_7 k_5 k_3}^{13} \Omega_{k_9 k_8 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_5}^{k_9 k_6}} \\
 &= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_9 k_7 k_5 k_3}^{13} \Omega_{k_9 k_8 k_6 k_4}^{04} \left[ \frac{1}{\epsilon_{k_3 k_7 k_4 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_7 k_4 k_6 k_8} \epsilon_{k_4 k_6 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_5 k_4 k_6} \epsilon_{k_3 k_5 k_7 k_4 k_6 k_8} \epsilon_{k_4 k_6 k_8 k_9}} \right]
 \end{aligned} \tag{703}$$

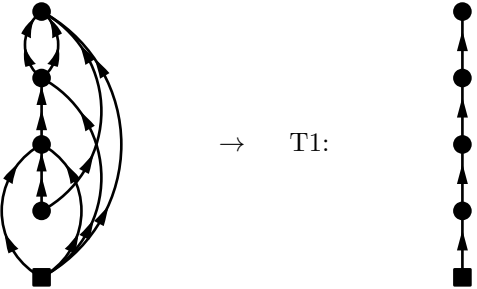

→ T12:


$$\text{T12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{704}$$

$$\begin{aligned}
 a_1 &= \epsilon^{k_5 k_6} \\
 a_2 &= \epsilon_{k_1 k_2}^{k_7 k_8} \\
 a_3 &= \epsilon_{k_3 k_5 k_7}^{k_9 k_6} \\
 a_4 &= \epsilon_{k_4 k_6 k_8 k_9}
 \end{aligned}$$

**Diagram 346:**

$$\begin{aligned}
 \text{PO4.346} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_8 k_9 k_7 k_3}^{22} \Omega_{k_8 k_9 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_7}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_4 k_6}^{k_9 k_8}} \\
 &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_8 k_9 k_7 k_3}^{22} \Omega_{k_8 k_9 k_6 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_3 k_4 k_6} \epsilon_{k_3 k_7 k_4 k_6} \epsilon_{k_4 k_6 k_8 k_9}}
 \end{aligned} \tag{705}$$

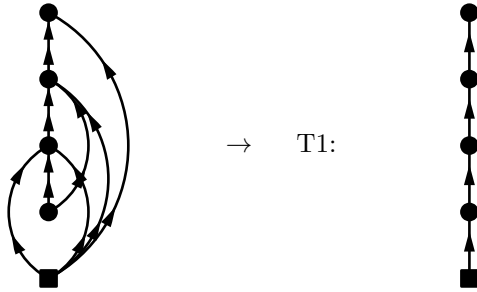


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (706)$$

$$\begin{aligned} a_1 &= \epsilon^{k_5 k_6} \\ a_2 &= \epsilon^{k_7 k_1 k_2 k_5} \\ a_3 &= \epsilon^{k_8 k_3 k_7} \\ a_4 &= \epsilon^{k_4 k_6 k_8 k_9} \end{aligned}$$

**Diagram 347:**

$$\begin{aligned} \text{PO4.347} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_8 k_7 k_6 k_3}^{13} \Omega_{k_8 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_8 k_7 k_6 k_3}^{13} \Omega_{k_8 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_3 k_6 k_4} \epsilon_{k_3 k_6 k_7 k_4} \epsilon_{k_4 k_8}} \end{aligned} \quad (707)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (708)$$

$$a_1 = \epsilon^{k_5 k_6}$$

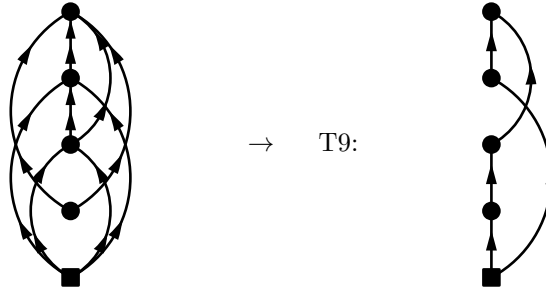
$$a_2 = \epsilon_{k_1 k_2 k_5}^{k_7}$$

$$a_3 = \epsilon_{k_3 k_6 k_7}^{k_8}$$

$$a_4 = \epsilon_{k_4 k_8}$$

**Diagram 348:**

$$\begin{aligned} \text{PO4.348} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_9 k_7 k_3 k_4}^{13} \Omega_{k_9 k_8 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_4 k_7}^{k_9}} e^{-\tau_4 \epsilon_{k_5 k_6 k_8}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_9 k_7 k_3 k_4}^{13} \Omega_{k_9 k_8 k_5 k_6}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_9}^{k_7} \epsilon_{k_1 k_2 k_5 k_6 k_9}^{k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_6 k_9}^{k_7} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6} \epsilon_{k_5 k_6 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_6 k_9}^{k_7} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6} \epsilon_{k_5 k_6 k_8 k_9}} \right] \end{aligned} \quad (709)$$

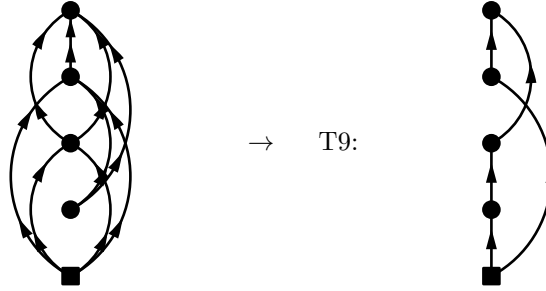


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (710)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon^{k_7 k_8} \\
a_3 &= \epsilon^{k_9} \\
a_4 &= \epsilon_{k_5 k_6 k_8 k_9}
\end{aligned}$$

**Diagram 349:**

$$\begin{aligned}
\text{PO4.349} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_9 k_5 k_3 k_4}^{13} \Omega_{k_9 k_7 k_8 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon^{k_7 k_8}} e^{-\tau_3 \epsilon^{k_9}} e^{-\tau_4 \epsilon_{k_5 k_6 k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_8 k_1 k_2}^{22} \Omega_{k_9 k_5 k_3 k_4}^{13} \Omega_{k_9 k_7 k_8 k_6}^{04} \left[ \frac{1}{\epsilon_{k_7 k_8 k_9}^{k_5} \epsilon_{k_1 k_2 k_9}^{k_5} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_7 k_8 k_9}^{k_5} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_7 k_8} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_3 k_4 k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_7 k_8}} \right] \\
&\quad (711)
\end{aligned}$$



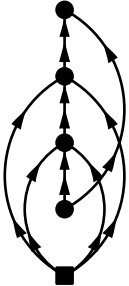

$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (712)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_7 k_8} \\
a_2 &= \epsilon^{k_5 k_6} \\
a_3 &= \epsilon^{k_9} \\
a_4 &= \epsilon_{k_6 k_7 k_8 k_9}
\end{aligned}$$



**Diagram 350:**

$$\begin{aligned}
\text{PO4.350} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_8 k_7 k_3 k_4}^{13} \Omega_{k_8 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_7}} e^{-\tau_3 \epsilon_{k_3 k_4 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_6 k_8}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_8 k_7 k_3 k_4}^{13} \Omega_{k_8 k_6}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_7 k_6} \epsilon_{k_6 k_8}}
\end{aligned} \tag{713}$$

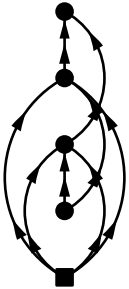


→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{714}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon_{k_1 k_2}^{k_7} \\
a_3 &= \epsilon_{k_3 k_4 k_7}^{k_8} \\
a_4 &= \epsilon_{k_6 k_8}
\end{aligned}$$

**Diagram 351:**

$$\begin{aligned}
\text{PO4.351} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_8 k_6 k_3 k_4}^{13} \Omega_{k_8 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2}^{k_7}} e^{-\tau_3 \epsilon_{k_3 k_4 k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\
&= \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_5 k_1 k_2}^{13} \Omega_{k_8 k_6 k_3 k_4}^{13} \Omega_{k_8 k_7}^{02} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_8} \epsilon_{k_1 k_2 k_5 k_3 k_4 k_6} \epsilon_{k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_5 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_6 k_7} \epsilon_{k_7 k_8}} \right]
\end{aligned} \tag{715}$$

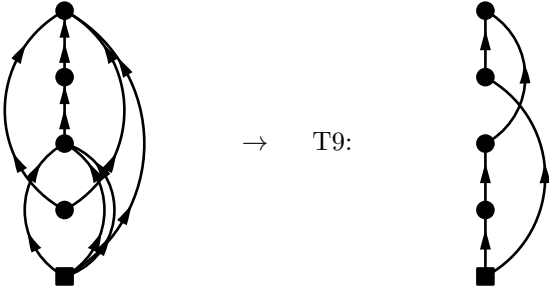

→ T8:


$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (716)$$

$a_1 = \epsilon^{k_5 k_6}$   
 $a_2 = \epsilon_{k_1 k_2 k_5}^{k_7}$   
 $a_3 = \epsilon_{k_3 k_4 k_6}^{k_8}$   
 $a_4 = \epsilon_{k_7 k_8}$

**Diagram 352:**

$$\begin{aligned}
 \text{PO4.352} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1 k_2 k_3}^{13} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_5 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2 k_3}^{k_7}} e^{-\tau_3 \epsilon_{k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_5 k_6 k_8}} \\
 &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1 k_2 k_3}^{13} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_5 k_6 k_4}^{04} \left[ \frac{1}{\epsilon_{k_4 k_8} \epsilon_{k_1 k_2 k_3 k_4 k_8}^{k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_5 k_6 k_8}} + \frac{1}{\epsilon_{k_4 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_7 k_4} \epsilon_{k_4 k_5 k_6 k_8}} + \frac{1}{\epsilon_{k_7 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_7 k_4 k_5 k_6} \epsilon_{k_4 k_5}} \right] \quad (717)
 \end{aligned}$$

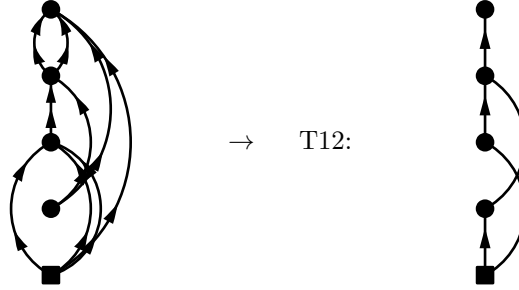


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (718)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2 k_3}^{k_7} \\ a_2 &= \epsilon^{k_5 k_6} \\ a_3 &= \epsilon_{k_7}^{k_8} \\ a_4 &= \epsilon_{k_4 k_5 k_6 k_8} \end{aligned}$$

**Diagram 353:**

$$\begin{aligned} \text{PO4.353} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1 k_2 k_3}^{13} \Omega_{k_8 k_9 k_7 k_5}^{22} \Omega_{k_8 k_9 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2 k_3}^{k_7}} e^{-\tau_3 \epsilon_{k_5 k_7}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_4 k_6}^{k_8 k_9}} \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1 k_2 k_3}^{13} \Omega_{k_8 k_9 k_7 k_5}^{22} \Omega_{k_8 k_9 k_6 k_4}^{04} \left[ \frac{1}{\epsilon_{k_7 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_7 k_4 k_6} \epsilon_{k_4 k_6 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_5 k_4 k_6} \epsilon_{k_5 k_7 k_4 k_6} \epsilon_{k_4 k_6 k_8 k_9}} \right] \end{aligned} \quad (719)$$

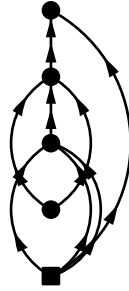


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (720)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon_{k_1 k_2 k_3}^{k_7} \\
a_3 &= \epsilon_{k_5 k_7}^{k_8} \\
a_4 &= \epsilon_{k_4 k_6 k_8 k_9}
\end{aligned}$$

**Diagram 354:**

$$\begin{aligned}
\text{PO4.354} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1 k_2 k_3}^{13} \Omega_{k_8 k_7 k_5 k_6}^{13} \Omega_{k_8 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2 k_3}^{k_7}} e^{-\tau_3 \epsilon_{k_5 k_6 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_8}} \\
&= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1 k_2 k_3}^{13} \Omega_{k_8 k_7 k_5 k_6}^{13} \Omega_{k_8 k_4}^{02} \left[ \frac{1}{\epsilon_{k_7 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_4} \epsilon_{k_4 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_5 k_6 k_4} \epsilon_{k_5 k_6 k_7 k_4} \epsilon_{k_4 k_8}} \right]
\end{aligned} \tag{721}$$



$\rightarrow$  T12:

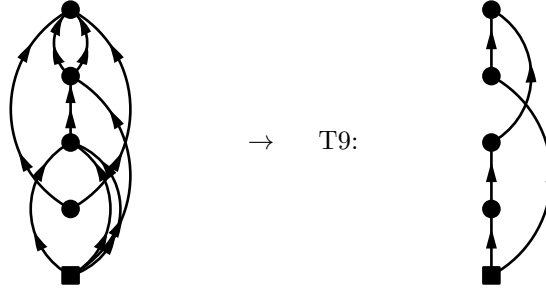


$$\text{T12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{722}$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon_{k_1 k_2 k_3}^{k_7} \\
a_3 &= \epsilon_{k_5 k_6 k_7}^{k_8} \\
a_4 &= \epsilon_{k_4 k_8}
\end{aligned}$$

**Diagram 355:**

$$\begin{aligned}
 \text{PO4.355} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1 k_2 k_3}^{13} \Omega_{k_8 k_9 k_7 k_4}^{22} \Omega_{k_8 k_9 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2 k_3}^{k_7}} e^{-\tau_3 \epsilon_{k_4 k_7}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_5 k_6 k_8 k_9}} \\
 &= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1 k_2 k_3}^{13} \Omega_{k_8 k_9 k_7 k_4}^{22} \Omega_{k_8 k_9 k_5 k_6}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_8 k_9}^{k_7} \epsilon_{k_1 k_2 k_3 k_5 k_6 k_8 k_9}^{k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_5 k_6 k_8 k_9}^{k_7} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6} \epsilon_{k_5 k_6 k_8 k_9}} \right] \\
 &\quad (723)
 \end{aligned}$$

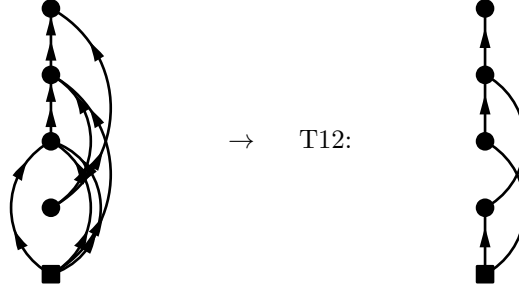


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (724)$$

$$\begin{aligned}
 a_1 &= \epsilon^{k_5 k_6} \\
 a_2 &= \epsilon_{k_1 k_2 k_3}^{k_7} \\
 a_3 &= \epsilon_{k_4 k_7}^{k_8 k_9} \\
 a_4 &= \epsilon_{k_5 k_6 k_8 k_9}
 \end{aligned}$$

**Diagram 356:**

$$\begin{aligned}
\text{PO4.356} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1 k_2 k_3}^{13} \Omega_{k_8 k_7 k_5 k_4}^{13} \Omega_{k_8 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_1 k_2 k_3}^{k_7}} e^{-\tau_3 \epsilon_{k_4 k_5 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_6 k_8}} \\
&= \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6}^{20} \Omega_{k_7 k_1 k_2 k_3}^{13} \Omega_{k_8 k_7 k_5 k_4}^{13} \Omega_{k_8 k_6}^{02} \left[ \frac{1}{\epsilon_{k_4 k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_5 k_7 k_6} \epsilon_{k_6 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_4 k_5 k_6} \epsilon_{k_4 k_5 k_7 k_6} \epsilon_{k_6 k_8}} \right] \\
&\quad (725)
\end{aligned}$$

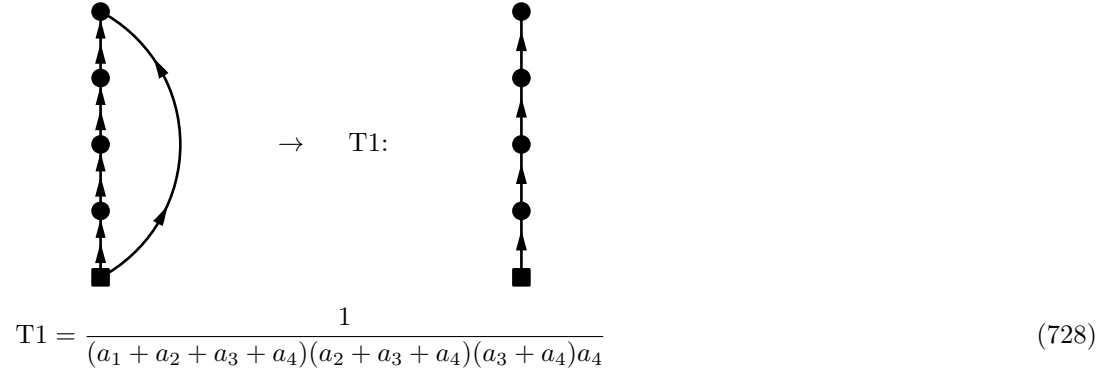


$$\text{T12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (726)$$

$$\begin{aligned}
a_1 &= \epsilon^{k_5 k_6} \\
a_2 &= \epsilon_{k_1 k_2 k_3}^{k_7} \\
a_3 &= \epsilon_{k_4 k_5 k_7}^{k_8} \\
a_4 &= \epsilon_{k_6 k_8}
\end{aligned}$$

**Diagram 357:**

$$\begin{aligned}
\text{PO4.357} &= \lim_{\tau \rightarrow \infty} (-1)^4 \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_3}^{11} \Omega_{k_5 k_4}^{11} \Omega_{k_5 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_3}^{k_4}} e^{-\tau_3 \epsilon_{k_4}^{k_5}} e^{-\tau_4 \epsilon_{k_2 k_5}} \\
&= (-1)^4 \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_3}^{11} \Omega_{k_5 k_4}^{11} \Omega_{k_5 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2} \epsilon_{k_4 k_2} \epsilon_{k_2 k_5}} \quad (727)
\end{aligned}$$

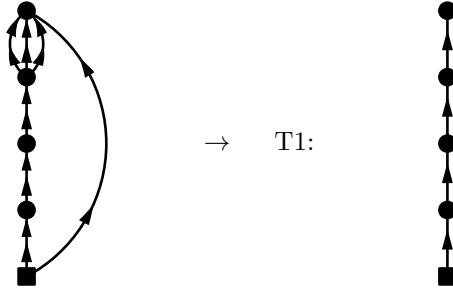


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (728)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3} \\ a_2 &= \epsilon_{k_3}^{k_4} \\ a_3 &= \epsilon_{k_4}^{k_5} \\ a_4 &= \epsilon_{k_2 k_5} \end{aligned}$$

**Diagram 358:**

$$\begin{aligned} \text{PO4.358} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_3}^{11} \Omega_{k_5 k_6 k_7 k_4}^{31} \Omega_{k_5 k_6 k_7 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_3}^{k_4}} e^{-\tau_3 \epsilon_{k_4}^{k_5 k_6 k_7}} e^{-\tau_4 \epsilon_{k_2 k_5 k_6 k_7}} \\ &= \frac{(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_3}^{11} \Omega_{k_5 k_6 k_7 k_4}^{31} \Omega_{k_5 k_6 k_7 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2} \epsilon_{k_4 k_2} \epsilon_{k_2 k_5 k_6 k_7}} \end{aligned} \quad (729)$$

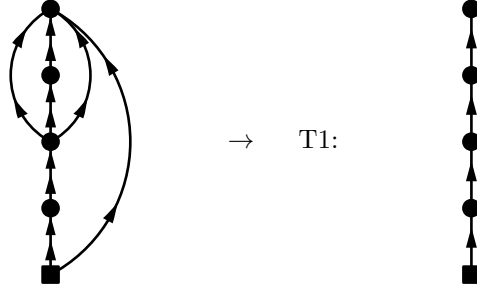


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (730)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3} \\ a_2 &= \epsilon_{k_3}^{k_4} \\ a_3 &= \epsilon_{k_4}^{k_5 k_6 k_7} \\ a_4 &= \epsilon_{k_2 k_5 k_6 k_7} \end{aligned}$$

**Diagram 359:**

$$\begin{aligned} \text{PO4.359} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_3}^{31} \Omega_{k_7 k_4}^{11} \Omega_{k_7 k_5 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_3}^{k_4 k_5 k_6}} e^{-\tau_3 \epsilon_{k_4}^{k_7}} e^{-\tau_4 \epsilon_{k_2 k_5 k_6 k_7}} \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_3}^{31} \Omega_{k_7 k_4}^{11} \Omega_{k_7 k_5 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2} \epsilon_{k_4 k_2 k_5 k_6} \epsilon_{k_2 k_5 k_6 k_7}} \end{aligned} \quad (731)$$





$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (732)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3} \\ a_2 &= \epsilon_{k_3}^{k_4 k_5 k_6} \\ a_3 &= \epsilon_{k_4}^{k_7} \\ a_4 &= \epsilon_{k_2 k_5 k_6 k_7} \end{aligned}$$



**Diagram 360:**

$$\begin{aligned}
\text{PO4.360} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_3}^{31} \Omega_{k_4 k_5}^{02} \Omega_{k_6 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_3}^{k_4 k_5 k_6}} e^{-\tau_3 \epsilon_{k_4 k_5}} e^{-\tau_4 \epsilon_{k_2 k_6}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_3}^{31} \Omega_{k_4 k_5}^{02} \Omega_{k_6 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2} \epsilon_{k_4 k_5} \epsilon_{k_2 k_6}}
\end{aligned} \tag{733}$$

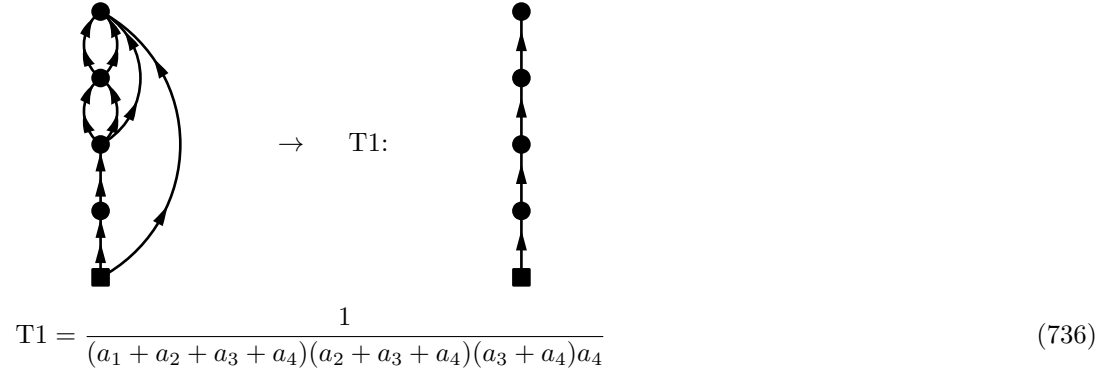

→ T2:


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \tag{734}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_3} \\
a_2 &= \epsilon_{k_3}^{k_4 k_5 k_6} \\
a_3 &= \epsilon_{k_4 k_5} \\
a_4 &= \epsilon_{k_2 k_6}
\end{aligned}$$

**Diagram 361:**

$$\begin{aligned}
\text{PO4.361} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_3}^{31} \Omega_{k_7 k_8 k_4 k_5}^{22} \Omega_{k_7 k_8 k_6 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_3}^{k_4 k_5 k_6}} e^{-\tau_3 \epsilon_{k_4 k_5}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_2 k_6 k_7 k_8}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_3}^{31} \Omega_{k_7 k_8 k_4 k_5}^{22} \Omega_{k_7 k_8 k_6 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2} \epsilon_{k_4 k_5 k_2 k_6} \epsilon_{k_2 k_6 k_7 k_8}}
\end{aligned} \tag{735}$$

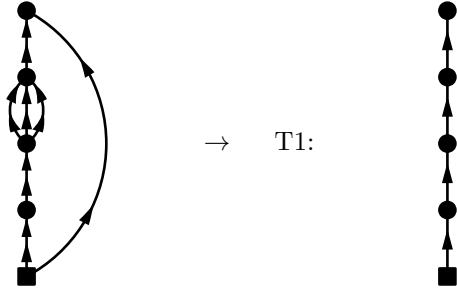


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (736)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3} \\ a_2 &= \epsilon_{k_3}^{k_4 k_5 k_6} \\ a_3 &= \epsilon_{k_4 k_5}^{k_7 k_8} \\ a_4 &= \epsilon_{k_2 k_6 k_7 k_8} \end{aligned}$$

**Diagram 362:**

$$\begin{aligned} \text{PO4.362} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_3}^{31} \Omega_{k_7 k_4 k_5 k_6}^{13} \Omega_{k_7 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_3}^{k_4 k_5 k_6}} e^{-\tau_3 \epsilon_{k_4 k_5 k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_2 k_7}} \\ &= \frac{(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_3}^{31} \Omega_{k_7 k_4 k_5 k_6}^{13} \Omega_{k_7 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2} \epsilon_{k_4 k_5 k_6 k_2} \epsilon_{k_2 k_7}} \end{aligned} \quad (737)$$

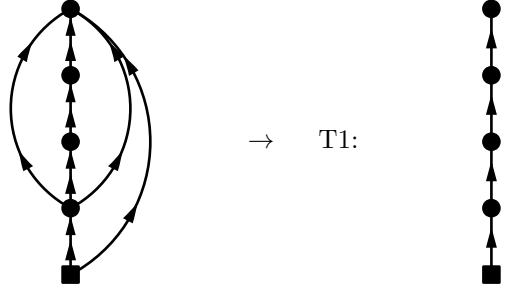


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (738)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3} \\ a_2 &= \epsilon_{k_3}^{k_4 k_5 k_6} \\ a_3 &= \epsilon_{k_4 k_5 k_6}^{k_7} \\ a_4 &= \epsilon_{k_2 k_7} \end{aligned}$$

**Diagram 363:**

$$\begin{aligned} \text{PO4.363} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_7 k_6}^{11} \Omega_{k_7 k_4 k_5 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6}} e^{-\tau_3 \epsilon_{k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_2 k_4 k_5 k_7}} \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_7 k_6}^{11} \Omega_{k_7 k_4 k_5 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2 k_4 k_5} \epsilon_{k_6 k_2 k_4 k_5} \epsilon_{k_2 k_4 k_5 k_7}} \end{aligned} \quad (739)$$

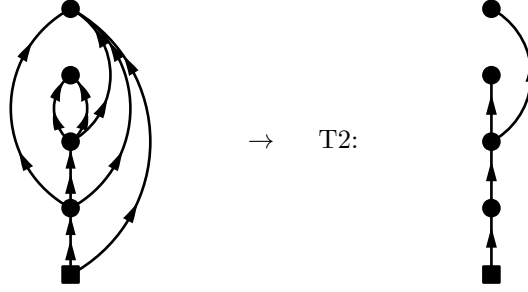


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (740)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_3}^{k_6} \\ a_3 &= \epsilon_{k_6}^{k_7} \\ a_4 &= \epsilon_{k_2 k_4 k_5 k_7} \end{aligned}$$

**Diagram 364:**

$$\begin{aligned}
 \text{PO4.364} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_6 k_7}^{02} \Omega_{k_8 k_4 k_5 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_6 k_7}} e^{-\tau_4 \epsilon_{k_2 k_4 k_5 k_8}} \\
 &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_6 k_7}^{02} \Omega_{k_8 k_4 k_5 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2 k_4 k_5} \epsilon_{k_6 k_7} \epsilon_{k_2 k_4 k_5 k_8}}
 \end{aligned} \tag{741}$$

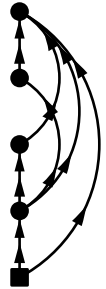
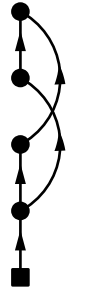


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \tag{742}$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\
 a_2 &= \epsilon_{k_3}^{k_6 k_7 k_8} \\
 a_3 &= \epsilon_{k_6 k_7} \\
 a_4 &= \epsilon_{k_2 k_4 k_5 k_8}
 \end{aligned}$$

**Diagram 365:**

$$\begin{aligned}
 \text{PO4.365} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_7 k_4}^{11} \Omega_{k_7 k_6 k_5 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6}} e^{-\tau_3 \epsilon_{k_4}^{k_7}} e^{-\tau_4 \epsilon_{k_2 k_5 k_6 k_7}} \\
 &= \frac{-(-1)^4}{2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_7 k_4}^{11} \Omega_{k_7 k_6 k_5 k_2}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2 k_5 k_7} \epsilon_{k_3 k_4 k_2 k_5} \epsilon_{k_2 k_5 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_2 k_5} \epsilon_{k_4 k_2 k_5 k_6} \epsilon_{k_2 k_5 k_6 k_7}} \right]
 \end{aligned} \tag{743}$$

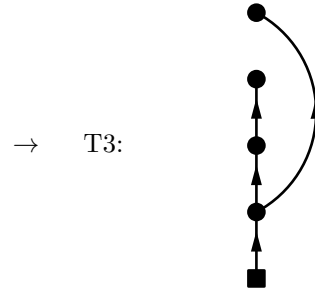

→ T8:


$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (744)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_3}^{k_6} \\ a_3 &= \epsilon_{k_4}^{k_7} \\ a_4 &= \epsilon_{k_2 k_5 k_6 k_7} \end{aligned}$$

**Diagram 366:**

$$\begin{aligned} \text{PO4.366} &= \lim_{\tau \rightarrow \infty} (-1)^4 \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_6 k_4}^{02} \Omega_{k_5 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \\ &\quad e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6}} e^{-\tau_3 \epsilon_{k_4}^{k_7}} e^{-\tau_4 \epsilon_{k_2 k_5 k_6 k_7}} \\ &= (-1)^4 \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_6 k_4}^{02} \Omega_{k_5 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_4 k_6} \epsilon_{k_2 k_5}} \end{aligned} \quad (745)$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (746)$$

$$a_1 = \epsilon_{k_1}^{k_3k_4k_5}$$

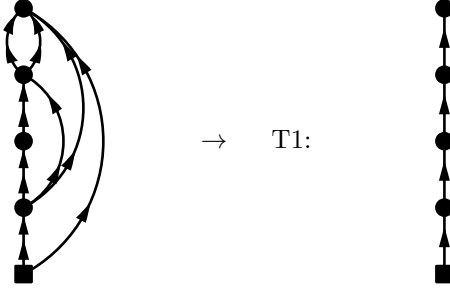
$$a_2 = \epsilon_{k_3}^{k_6}$$

$$a_3 = \epsilon_{k_4k_6}$$

$$a_4 = \epsilon_{k_2k_5}$$

**Diagram 367:**

$$\begin{aligned} \text{PO4.367} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1k_2}^{20} \Omega_{k_3k_4k_5k_1}^{31} \Omega_{k_6k_3}^{11} \Omega_{k_7k_8k_6k_4}^{22} \Omega_{k_7k_8k_5k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3k_4k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6}} e^{-\tau_3 \epsilon_{k_4k_6}^{k_7k_8}} e^{-\tau_4 \epsilon_{k_5k_2}^{k_7k_8}} \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1k_2}^{20} \Omega_{k_3k_4k_5k_1}^{31} \Omega_{k_6k_3}^{11} \Omega_{k_7k_8k_6k_4}^{22} \Omega_{k_7k_8k_5k_2}^{04}}{\epsilon_{k_1k_2} \epsilon_{k_3k_4k_2k_5} \epsilon_{k_4k_6k_2k_5} \epsilon_{k_2k_5k_7k_8}} \end{aligned} \quad (747)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (748)$$

$$a_1 = \epsilon_{k_1}^{k_3k_4k_5}$$

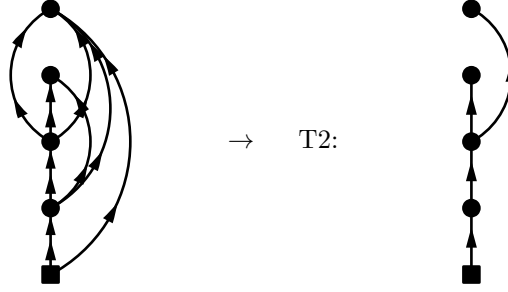
$$a_2 = \epsilon_{k_3}^{k_6}$$

$$a_3 = \epsilon_{k_4k_6}^{k_7k_8}$$

$$a_4 = \epsilon_{k_2k_5k_7k_8}$$

**Diagram 368:**

$$\begin{aligned}
\text{PO4.368} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_6 k_4}^{02} \Omega_{k_7 k_8 k_5 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_4 k_6}} e^{-\tau_4 \epsilon_{k_5 k_2}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_6 k_4}^{02} \Omega_{k_7 k_8 k_5 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_2 k_5} \epsilon_{k_4 k_6} \epsilon_{k_2 k_5 k_7 k_8}}
\end{aligned} \tag{749}$$



$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \tag{750}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\
a_2 &= \epsilon_{k_3}^{k_6 k_7 k_8} \\
a_3 &= \epsilon_{k_4 k_6} \\
a_4 &= \epsilon_{k_2 k_5 k_7 k_8}
\end{aligned}$$

**Diagram 369:**

$$\begin{aligned}
\text{PO4.369} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_6 k_7 k_8 k_4}^{04} \Omega_{k_5 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_4 k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_2 k_5}} \\
&= \frac{(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_6 k_7 k_8 k_4}^{04} \Omega_{k_5 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2 k_5}^{k_6 k_7 k_8} \epsilon_{k_4 k_6 k_7 k_8} \epsilon_{k_2 k_5}}
\end{aligned} \tag{751}$$

$\rightarrow \quad \text{T3:}$

$$\text{T3} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (752)$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\
 a_2 &= \epsilon_{k_3}^{k_6 k_7 k_8} \\
 a_3 &= \epsilon_{k_2 k_5} \\
 a_4 &= \epsilon_{k_4 k_6 k_7 k_8}
 \end{aligned}$$

**Diagram 370:**

$$\begin{aligned}
 \text{PO4.370} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_4 k_5}^{02} \Omega_{k_6 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6}} e^{-\tau_3 \epsilon_{k_4 k_5}} e^{-\tau_4 \epsilon_{k_2 k_6}} \\
 &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_4 k_5}^{02} \Omega_{k_6 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5}^{k_6} \epsilon_{k_4 k_5} \epsilon_{k_2 k_6}}
 \end{aligned} \quad (753)$$

$\rightarrow \quad \text{T3:}$

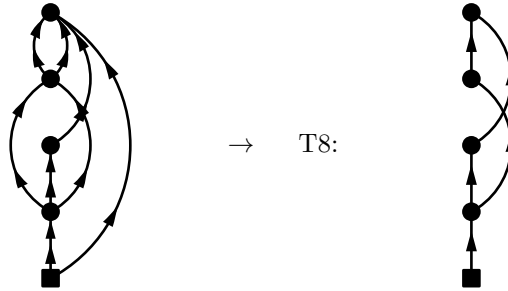


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (754)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3k_4k_5} \\ a_2 &= \epsilon_{k_3}^{k_6} \\ a_3 &= \epsilon_{k_4k_5} \\ a_4 &= \epsilon_{k_2k_6} \end{aligned}$$

**Diagram 371:**

$$\begin{aligned} \text{PO4.371} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1k_2}^{20} \Omega_{k_3k_4k_5k_1}^{31} \Omega_{k_6k_3}^{11} \Omega_{k_7k_8k_4k_5}^{22} \Omega_{k_7k_8k_6k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3k_4k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6}} e^{-\tau_3 \epsilon_{k_4k_5}^{k_7k_8}} e^{-\tau_4 \epsilon_{k_2k_6k_7k_8}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1k_2}^{20} \Omega_{k_3k_4k_5k_1}^{31} \Omega_{k_6k_3}^{11} \Omega_{k_7k_8k_4k_5}^{22} \Omega_{k_7k_8k_6k_2}^{04} \left[ \frac{1}{\epsilon_{k_1k_2} \epsilon_{k_3k_2k_7k_8} \epsilon_{k_3k_4k_5k_2} \epsilon_{k_2k_6k_7k_8}} + \frac{1}{\epsilon_{k_1k_2} \epsilon_{k_3k_4k_5k_2} \epsilon_{k_4k_5k_2k_6} \epsilon_{k_2k_6k_7k_8}} \right] \end{aligned} \quad (755)$$

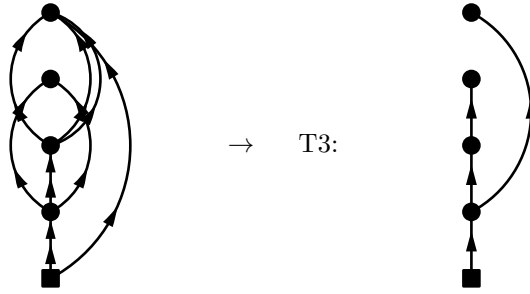


$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (756)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\
a_2 &= \epsilon_{k_3}^{k_6} \\
a_3 &= \epsilon_{k_4 k_5}^{k_7 k_8} \\
a_4 &= \epsilon_{k_2 k_6 k_7 k_8}
\end{aligned}$$

**Diagram 372:**

$$\begin{aligned}
\text{PO4.372} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_4 k_5}^{02} \Omega_{k_6 k_7 k_8 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_4 k_5}} e^{-\tau_4 \epsilon_{k_2 k_6 k_7 k_8}} \\
&= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_4 k_5}^{02} \Omega_{k_6 k_7 k_8 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2} \epsilon_{k_4 k_5} \epsilon_{k_2 k_6 k_7 k_8}}
\end{aligned} \tag{757}$$

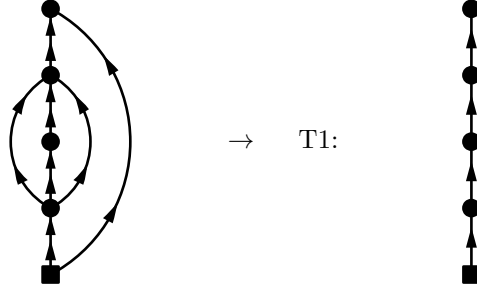


$$\text{T3} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \tag{758}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\
a_2 &= \epsilon_{k_3}^{k_6 k_7 k_8} \\
a_3 &= \epsilon_{k_2 k_6 k_7 k_8} \\
a_4 &= \epsilon_{k_4 k_5}
\end{aligned}$$

**Diagram 373:**

$$\begin{aligned}
 \text{PO4.373} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_7 k_6 k_4 k_5}^{13} \Omega_{k_7 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6}} e^{-\tau_3 \epsilon_{k_4 k_5 k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_2 k_7}} \\
 &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_7 k_6 k_4 k_5}^{13} \Omega_{k_7 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_2} \epsilon_{k_4 k_5 k_6 k_2} \epsilon_{k_2 k_7}}
 \end{aligned} \tag{759}$$

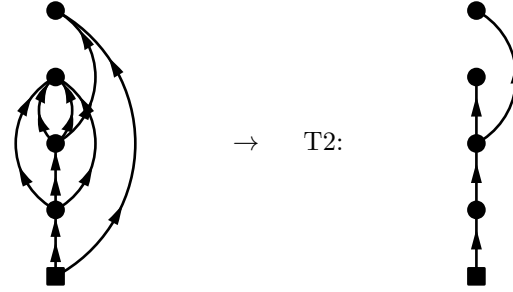


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{760}$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\
 a_2 &= \epsilon_{k_3}^{k_6} \\
 a_3 &= \epsilon_{k_4 k_5 k_6}^{k_7} \\
 a_4 &= \epsilon_{k_2 k_7}
 \end{aligned}$$

**Diagram 374:**

$$\begin{aligned}
 \text{PO4.374} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_6 k_7 k_4 k_5}^{04} \Omega_{k_8 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_4 k_5 k_6 k_7}} e^{-\tau_4 \epsilon_{k_2 k_8}} \\
 &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_3}^{31} \Omega_{k_6 k_7 k_4 k_5}^{04} \Omega_{k_8 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_2} \epsilon_{k_4 k_5 k_6 k_7} \epsilon_{k_2 k_8}}
 \end{aligned} \tag{761}$$

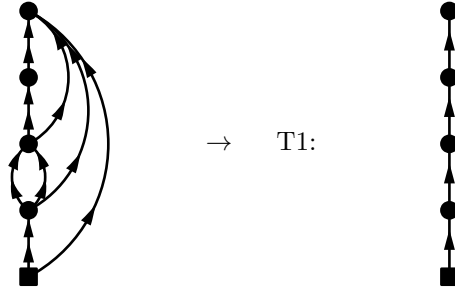


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (762)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_3}^{k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_4 k_5 k_6 k_7} \\ a_4 &= \epsilon_{k_2 k_8} \end{aligned}$$

**Diagram 375:**

$$\begin{aligned} \text{PO4.375} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_6}^{11} \Omega_{k_8 k_7 k_5 k_2}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_6}^{11} \Omega_{k_8 k_7 k_5 k_2}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_2 k_5} \epsilon_{k_6 k_2 k_5 k_7} \epsilon_{k_2 k_5 k_7 k_8}} \end{aligned} \quad (763)$$

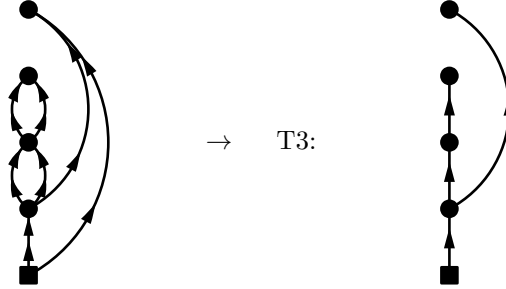


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (764)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_3 k_4}^{k_6 k_7} \\ a_3 &= \epsilon_{k_6}^{k_8} \\ a_4 &= \epsilon_{k_2 k_5 k_7 k_8} \end{aligned}$$

**Diagram 376:**

$$\begin{aligned} \text{PO4.376} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_6 k_7}^{02} \Omega_{k_5 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_6 k_7}} e^{-\tau_4 \epsilon_{k_2 k_5}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_6 k_7}^{02} \Omega_{k_5 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_6 k_7} \epsilon_{k_2 k_5}} \end{aligned} \quad (765)$$

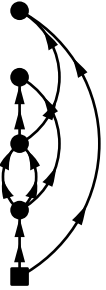



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \quad (766)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_3 k_4}^{k_6 k_7} \\ a_3 &= \epsilon_{k_6}^{k_8} \\ a_4 &= \epsilon_{k_2 k_5} \end{aligned}$$

**Diagram 377:**

$$\begin{aligned}
\text{PO4.377} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_6 k_5}^{02} \Omega_{k_7 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_5 k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_2 k_7}^{k_6}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_6 k_5}^{02} \Omega_{k_7 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_2} \epsilon_{k_5 k_6} \epsilon_{k_2 k_7}}
\end{aligned} \tag{767}$$

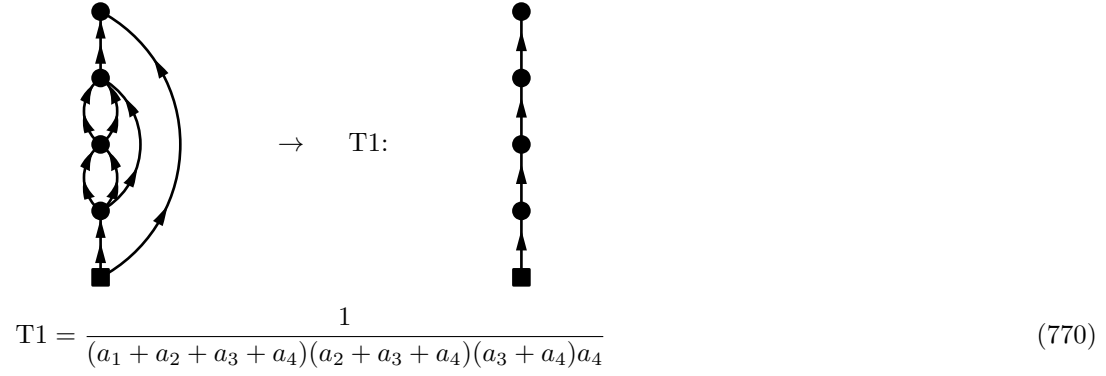

→ T2:


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \tag{768}$$

$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$   
 $a_2 = \epsilon_{k_3 k_4}^{k_6 k_7}$   
 $a_3 = \epsilon_{k_5 k_6}^{k_7}$   
 $a_4 = \epsilon_{k_2 k_7}^{k_6}$

**Diagram 378:**

$$\begin{aligned}
\text{PO4.378} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_6 k_7 k_5}^{13} \Omega_{k_8 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_5 k_6 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_2 k_8}^{k_6}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_6 k_7 k_5}^{13} \Omega_{k_8 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_2} \epsilon_{k_5 k_6 k_7 k_2} \epsilon_{k_2 k_8}}
\end{aligned} \tag{769}$$

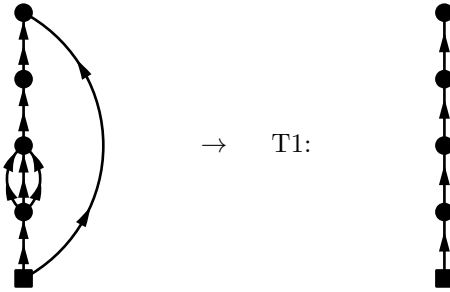


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (770)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_3 k_4}^{k_6 k_7} \\ a_3 &= \epsilon_{k_5 k_6 k_7}^{k_8} \\ a_4 &= \epsilon_{k_2 k_8} \end{aligned}$$

**Diagram 379:**

$$\begin{aligned} \text{PO4.379} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3 k_4 k_5}^{13} \Omega_{k_7 k_6}^{11} \Omega_{k_7 k_2}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4 k_5}^{k_6}} e^{-\tau_3 \epsilon_{k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_2 k_7}} \\ &= \frac{(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3 k_4 k_5}^{13} \Omega_{k_7 k_6}^{11} \Omega_{k_7 k_2}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_2} \epsilon_{k_6 k_2} \epsilon_{k_2 k_7}} \end{aligned} \quad (771)$$

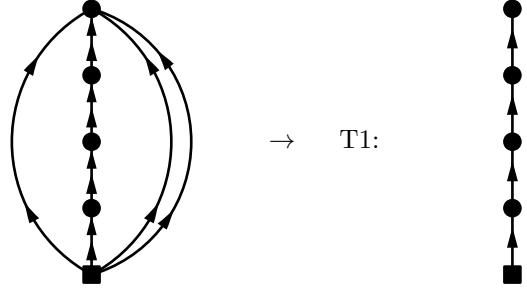


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (772)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_3 k_4 k_5}^{k_6} \\ a_3 &= \epsilon_{k_6}^{k_7} \\ a_4 &= \epsilon_{k_2 k_7} \end{aligned}$$

**Diagram 380:**

$$\begin{aligned} \text{PO4.380} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_6}^{11} \Omega_{k_7 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6}} e^{-\tau_3 \epsilon_{k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_7}} \\ &= \frac{(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_6}^{11} \Omega_{k_7 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_6 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_7}} \end{aligned} \quad (773)$$



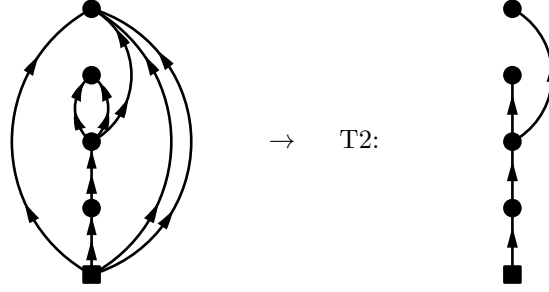
$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (774)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_5}^{k_6} \\ a_3 &= \epsilon_{k_6}^{k_7} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_7} \end{aligned}$$



**Diagram 381:**

$$\begin{aligned}
\text{PO4.381} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_6 k_7}^{02} \Omega_{k_8 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_6 k_7}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_8}} \\
&= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_6 k_7}^{02} \Omega_{k_8 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_6 k_7} \epsilon_{k_2 k_3 k_4 k_8}}
\end{aligned} \tag{775}$$



$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \tag{776}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_5}^{k_6 k_7 k_8} \\
a_3 &= \epsilon_{k_6 k_7} \\
a_4 &= \epsilon_{k_2 k_3 k_4 k_8}
\end{aligned}$$

**Diagram 382:**

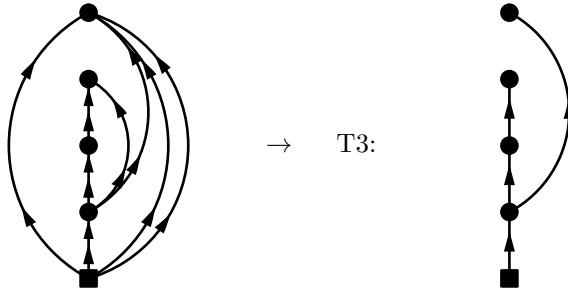
$$\begin{aligned}
\text{PO4.382} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_6 k_7 k_8}^{13} \Omega_{k_9 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_6 k_7 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_9}} \\
&= \frac{(-1)^4}{(3!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_6 k_7 k_8}^{13} \Omega_{k_9 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_9}}
\end{aligned} \tag{777}$$

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (778)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_5}^{k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_6 k_7 k_8}^{k_9} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_9} \end{aligned}$$

**Diagram 383:**

$$\begin{aligned} \text{PO4.383} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_8 k_6}^{02} \Omega_{k_7 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5}^{k_8}} e^{-\tau_3 \epsilon_{k_6 k_8}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_7}} \\ &= \frac{(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_8 k_6}^{02} \Omega_{k_7 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4 k_7}^{k_8} \epsilon_{k_6 k_8} \epsilon_{k_2 k_3 k_4 k_7}} \end{aligned} \quad (779)$$

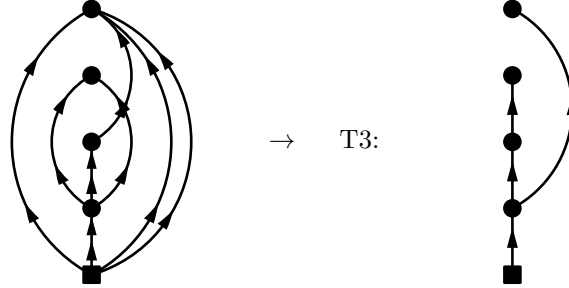


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (780)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_5}^{k_8} \\ a_3 &= \epsilon_{k_2 k_3 k_4 k_7} \\ a_4 &= \epsilon_{k_6 k_8} \end{aligned}$$

**Diagram 384:**

$$\begin{aligned} \text{PO4.384} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_6 k_7}^{02} \Omega_{k_8 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5}^{k_8}} e^{-\tau_3 \epsilon_{k_6 k_7}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_8}} \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_6 k_7}^{02} \Omega_{k_8 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_6 k_7} \epsilon_{k_2 k_3 k_4 k_8}} \end{aligned} \quad (781)$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (782)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_5}^{k_8} \\ a_3 &= \epsilon_{k_2 k_3 k_4 k_8} \\ a_4 &= \epsilon_{k_6 k_7} \end{aligned}$$

**Diagram 385:**

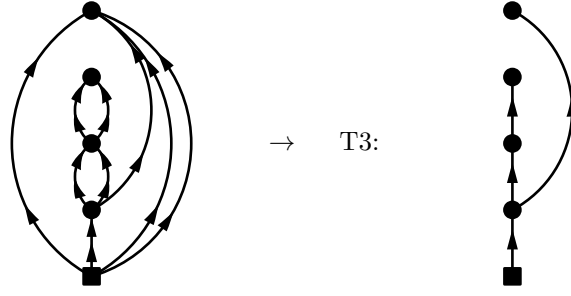
$$\begin{aligned}
\text{PO4.385} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_9 k_8 k_6 k_7}^{13} \Omega_{k_9 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5}^{k_8}} e^{-\tau_3 \epsilon_{k_6 k_7 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4}^{k_9}} \\
&= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_9 k_8 k_6 k_7}^{13} \Omega_{k_9 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_2 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_9}}
\end{aligned} \tag{783}$$

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{784}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_2 &= \epsilon_{k_5}^{k_8} \\
a_3 &= \epsilon_{k_6 k_7 k_8}^{k_9} \\
a_4 &= \epsilon_{k_2 k_3 k_4 k_9}
\end{aligned}$$

**Diagram 386:**

$$\begin{aligned}
\text{PO4.386} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_8 k_9}^{02} \Omega_{k_7 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_8 k_9}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_7}} \\
&= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_8 k_9}^{02} \Omega_{k_7 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6}^{k_8 k_9} \epsilon_{k_8 k_9} \epsilon_{k_5 k_6 k_2 k_3 k_4 k_7}^{k_8 k_9}}
\end{aligned} \tag{785}$$

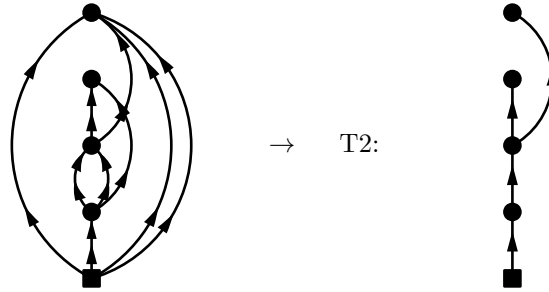


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (786)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2 k_3 k_4 k_7} \\ a_3 &= \epsilon_{k_5 k_6}^{k_8 k_9} \\ a_4 &= \epsilon_{k_8 k_9} \end{aligned}$$

**Diagram 387:**

$$\begin{aligned} \text{PO4.387} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_8 k_7}^{02} \Omega_{k_9 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \\ &\quad e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_7 k_8}} e^{-\tau_4 \epsilon_{k_2 k_3}} \\ &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_8 k_7}^{02} \Omega_{k_9 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_2 k_3 k_4} \epsilon_{k_7 k_8} \epsilon_{k_2 k_3 k_4 k_9}} \end{aligned} \quad (787)$$

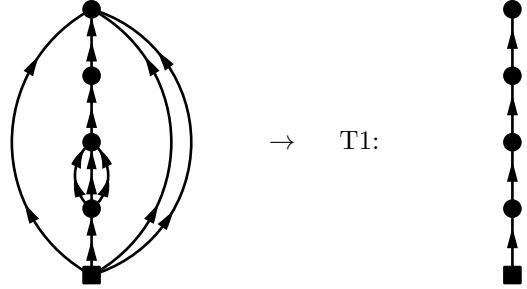


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (788)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_5 k_6}^{k_8 k_9} \\ a_3 &= \epsilon_{k_7 k_8} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_9} \end{aligned}$$

**Diagram 388:**

$$\begin{aligned} \text{PO4.388} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_9 k_8}^{11} \Omega_{k_9 k_2 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6 k_7}^{k_8}} e^{-\tau_3 \epsilon_{k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_2 k_3 k_4 k_9}} \\ &= \frac{(-1)^4}{(3!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_9 k_8}^{11} \Omega_{k_9 k_2 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_2 k_3 k_4} \epsilon_{k_8 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_9}} \end{aligned} \quad (789)$$

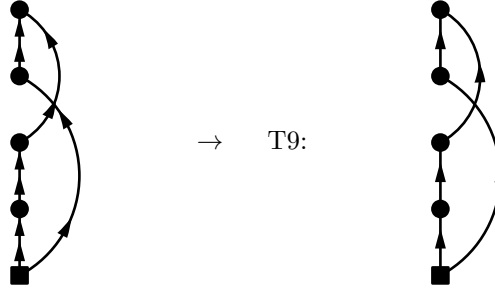


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (790)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_5 k_6 k_7}^{k_8} \\ a_3 &= \epsilon_{k_8}^{k_9} \\ a_4 &= \epsilon_{k_2 k_3 k_4 k_9} \end{aligned}$$

**Diagram 389:**

$$\begin{aligned}
 \text{PO4.389} &= \lim_{\tau \rightarrow \infty} -(-1)^4 \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_3}^{11} \Omega_{k_5 k_2}^{11} \Omega_{k_5 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_3}^{k_4}} e^{-\tau_3 \epsilon_{k_2}^{k_5}} e^{-\tau_4 \epsilon_{k_4 k_5}} \\
 &= -(-1)^4 \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_3}^{11} \Omega_{k_5 k_2}^{11} \Omega_{k_5 k_4}^{02} \left[ \frac{1}{\epsilon_{k_1 k_4 k_5}^{k_3} \epsilon_{k_1 k_2} \epsilon_{k_1 k_2 k_4}^{k_3} \epsilon_{k_4 k_5}} + \frac{1}{\epsilon_{k_1 k_4 k_5}^{k_3} \epsilon_{k_1 k_5} \epsilon_{k_1 k_2} \epsilon_{k_4 k_5}} + \frac{1}{\epsilon_{k_1 k_5} \epsilon_{k_3 k_5} \epsilon_{k_1 k_2} \epsilon_{k_4 k_5}} \right]
 \end{aligned} \tag{791}$$

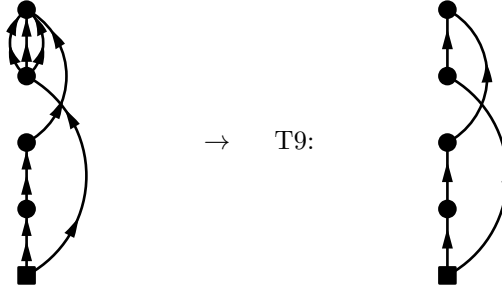


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{792}$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_2}^{k_5} \\
 a_2 &= \epsilon_{k_1}^{k_3} \\
 a_3 &= \epsilon_{k_3}^{k_4} \\
 a_4 &= \epsilon_{k_4 k_5}
 \end{aligned}$$

**Diagram 390:**

$$\begin{aligned}
\text{PO4.390} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_3}^{11} \Omega_{k_5 k_6 k_7 k_2}^{31} \Omega_{k_5 k_6 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_3}^{k_4}} e^{-\tau_3 \epsilon_{k_2}^{k_5 k_6 k_7}} e^{-\tau_4 \epsilon_{k_4 k_5 k_6 k_7}} \\
&= \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_3}^{11} \Omega_{k_5 k_6 k_7 k_2}^{31} \Omega_{k_5 k_6 k_7 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_5 k_6 k_7} \epsilon_{k_3 k_5 k_6 k_7} \epsilon_{k_1 k_2} \epsilon_{k_4 k_5 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_5 k_6 k_7} \epsilon_{k_3 k_2} \epsilon_{k_4 k_5 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2} \epsilon_{k_2 k_4} \epsilon_{k_4 k_5 k_6 k_7}} \right] \\
&\quad (793)
\end{aligned}$$



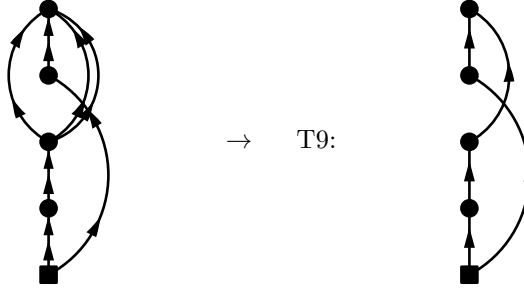
$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (794)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_3} \\
a_2 &= \epsilon_{k_3}^{k_4} \\
a_3 &= \epsilon_{k_2}^{k_5 k_6 k_7} \\
a_4 &= \epsilon_{k_4 k_5 k_6 k_7}
\end{aligned}$$



**Diagram 391:**

$$\begin{aligned}
 \text{PO4.391} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_3}^{31} \Omega_{k_7 k_2}^{11} \Omega_{k_7 k_4 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_3}^{k_4 k_5 k_6}} e^{-\tau_3 \epsilon_{k_2}^{k_7}} e^{-\tau_4 \epsilon_{k_4 k_5 k_6 k_7}} \\
 &= \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_3}^{31} \Omega_{k_7 k_2}^{11} \Omega_{k_7 k_4 k_5 k_6}^{04} \left[ \frac{1}{\epsilon_{k_1 k_7} \epsilon_{k_3 k_7} \epsilon_{k_1 k_2} \epsilon_{k_4 k_5 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_7} \epsilon_{k_3 k_2} \epsilon_{k_4 k_5 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2} \epsilon_{k_2 k_4 k_5 k_6} \epsilon_{k_4 k_5 k_6 k_7}} \right] \\
 &\quad (795)
 \end{aligned}$$

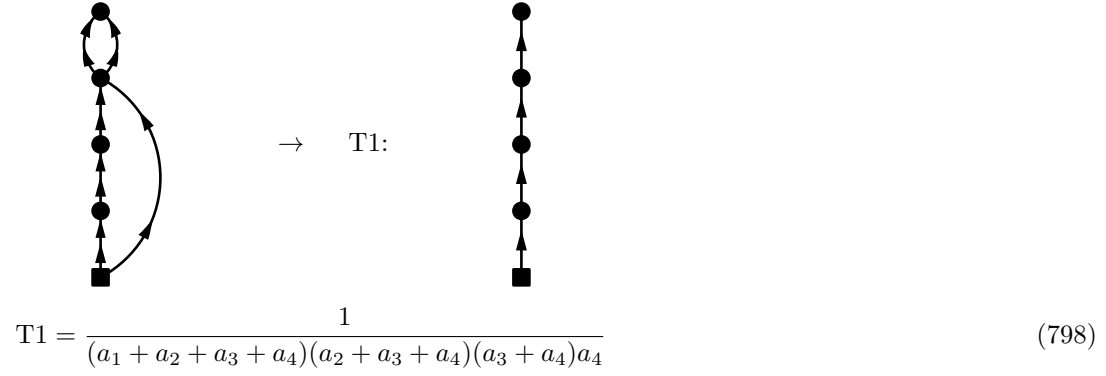


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (796)$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1}^{k_3} \\
 a_2 &= \epsilon_{k_3}^{k_4 k_5 k_6} \\
 a_3 &= \epsilon_{k_2}^{k_7} \\
 a_4 &= \epsilon_{k_4 k_5 k_6 k_7}
 \end{aligned}$$

**Diagram 392:**

$$\begin{aligned}
 \text{PO4.392} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_3}^{11} \Omega_{k_5 k_6 k_4 k_2}^{22} \Omega_{k_5 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_3}^{k_4}} e^{-\tau_3 \epsilon_{k_2 k_4}^{k_5 k_6}} e^{-\tau_4 \epsilon_{k_5 k_6}} \\
 &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_3}^{11} \Omega_{k_5 k_6 k_4 k_2}^{22} \Omega_{k_5 k_6}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2} \epsilon_{k_2 k_4} \epsilon_{k_5 k_6}} \quad (797)
 \end{aligned}$$

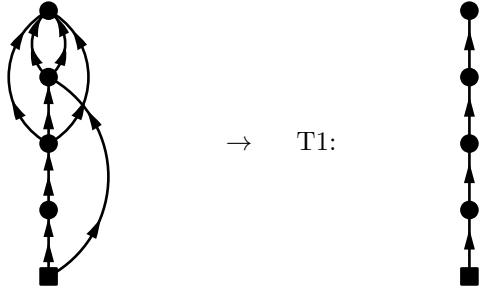


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (798)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3} \\ a_2 &= \epsilon_{k_3}^{k_4} \\ a_3 &= \epsilon_{k_2 k_4}^{k_5 k_6} \\ a_4 &= \epsilon_{k_5 k_6} \end{aligned}$$

**Diagram 393:**

$$\begin{aligned} \text{PO4.393} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_3}^{31} \Omega_{k_7 k_8 k_4 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_3}^{k_4 k_5 k_6}} e^{-\tau_3 \epsilon_{k_2 k_4}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_3}^{31} \Omega_{k_7 k_8 k_4 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2} \epsilon_{k_2 k_4 k_5 k_6} \epsilon_{k_5 k_6 k_7 k_8}} \end{aligned} \quad (799)$$

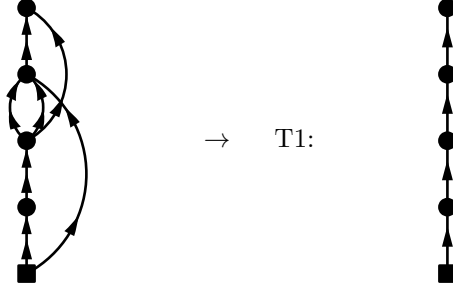


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (800)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3} \\ a_2 &= \epsilon_{k_3}^{k_4 k_5 k_6} \\ a_3 &= \epsilon_{k_2 k_4}^{k_7 k_8} \\ a_4 &= \epsilon_{k_5 k_6 k_7 k_8} \end{aligned}$$

**Diagram 394:**

$$\begin{aligned} \text{PO4.394} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_3}^{31} \Omega_{k_7 k_4 k_5 k_2}^{13} \Omega_{k_7 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_3}^{k_4 k_5 k_6}} e^{-\tau_3 \epsilon_{k_2 k_4 k_5}^{k_7}} e^{-\tau_4 \epsilon_{k_6 k_7}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_3}^{31} \Omega_{k_7 k_4 k_5 k_2}^{13} \Omega_{k_7 k_6}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2} \epsilon_{k_2 k_4 k_5 k_6} \epsilon_{k_6 k_7}} \end{aligned} \quad (801)$$

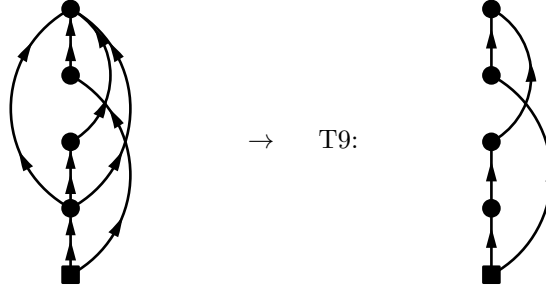


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (802)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3} \\ a_2 &= \epsilon_{k_3}^{k_4 k_5 k_6} \\ a_3 &= \epsilon_{k_2 k_4 k_5}^{k_7} \\ a_4 &= \epsilon_{k_6 k_7} \end{aligned}$$

**Diagram 395:**

$$\begin{aligned}
\text{PO4.395} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_7 k_2}^{11} \Omega_{k_7 k_6 k_4 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6}} e^{-\tau_3 \epsilon_{k_2}^{k_7}} e^{-\tau_4 \epsilon_{k_4 k_5 k_6 k_7}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_7 k_2}^{11} \Omega_{k_7 k_6 k_4 k_5}^{04} \left[ \frac{1}{\epsilon_{k_1 k_7} \epsilon_{k_3 k_4 k_5 k_7} \epsilon_{k_1 k_2} \epsilon_{k_4 k_5 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_7} \epsilon_{k_3 k_2 k_4 k_5} \epsilon_{k_4 k_5 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2 k_4 k_5} \epsilon_{k_2 k_4 k_5 k_6} \epsilon_{k_4 k_5 k_6 k_7}} \right] \\
&\quad (803)
\end{aligned}$$



$\rightarrow$  T9:



$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (804)$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$$

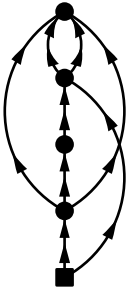

$$a_2 = \epsilon_{k_3}^{k_6}$$

$$a_3 = \epsilon_{k_2}^{k_7}$$

$$a_4 = \epsilon_{k_4 k_5 k_6 k_7}$$

**Diagram 396:**

$$\begin{aligned}
\text{PO4.396} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_7 k_8 k_6 k_2}^{22} \Omega_{k_7 k_8 k_4 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6}} e^{-\tau_3 \epsilon_{k_2 k_6}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_4 k_5 k_7 k_8}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_7 k_8 k_6 k_2}^{22} \Omega_{k_7 k_8 k_4 k_5}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2 k_4 k_5} \epsilon_{k_2 k_6 k_4 k_5} \epsilon_{k_4 k_5 k_7 k_8}} \quad (805)
\end{aligned}$$

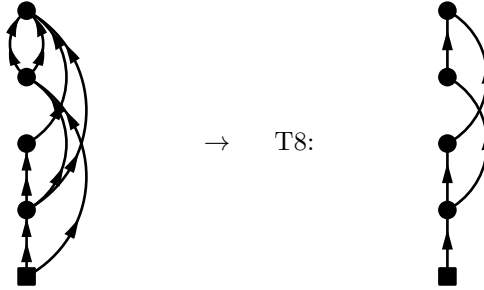

→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (806)$$

$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$   
 $a_2 = \epsilon_{k_3}^{k_6}$   
 $a_3 = \epsilon_{k_2 k_6}^{k_7 k_8}$   
 $a_4 = \epsilon_{k_4 k_5 k_7 k_8}$

**Diagram 397:**

$$\begin{aligned}
 \text{PO4.397} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_7 k_8 k_4 k_2}^{22} \Omega_{k_7 k_8 k_6 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6}} e^{-\tau_3 \epsilon_{k_2 k_4}^{k_7 k_8}} e^{-\tau_4} \\
 &= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_7 k_8 k_4 k_2}^{22} \Omega_{k_7 k_8 k_6 k_5}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_5 k_7 k_8} \epsilon_{k_3 k_2 k_4 k_5} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2 k_4 k_5} \epsilon_{k_2 k_4 k_5 k_6} \epsilon_{k_5 k_6 k_7 k_8}} \right] \quad (807)
 \end{aligned}$$





$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (808)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_3}^{k_6} \\ a_3 &= \epsilon_{k_2 k_4}^{k_7 k_8} \\ a_4 &= \epsilon_{k_5 k_6 k_7 k_8} \end{aligned}$$

**Diagram 398:**

$$\begin{aligned} \text{PO4.398} &= \lim_{\tau \rightarrow \infty} -(-1)^4 \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_7 k_6 k_4 k_2}^{13} \Omega_{k_7 k_5}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6}} e^{-\tau_3 \epsilon_{k_2 k_4 k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_5}^{k_8}} \\ &= -(-1)^4 \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_7 k_6 k_4 k_2}^{13} \Omega_{k_7 k_5}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2 k_4 k_5} \epsilon_{k_2 k_4 k_6 k_5} \epsilon_{k_5 k_7}} \end{aligned} \quad (809)$$

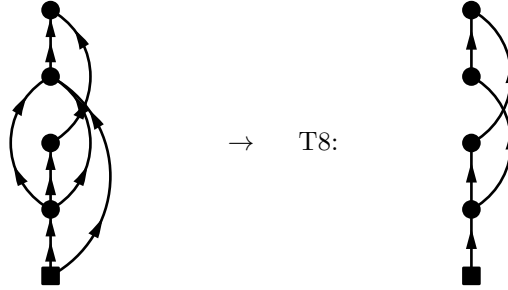

→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (810)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_3}^{k_6} \\ a_3 &= \epsilon_{k_2 k_4 k_6}^{k_7} \\ a_4 &= \epsilon_{k_5 k_7} \end{aligned}$$

**Diagram 399:**

$$\begin{aligned}
\text{PO4.399} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_7 k_4 k_5 k_2}^{13} \Omega_{k_7 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3}^{k_6}} e^{-\tau_3 \epsilon_{k_2 k_4 k_5}^{k_7}} e^{-\tau_4 \epsilon_{k_6 k_7}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3}^{11} \Omega_{k_7 k_4 k_5 k_2}^{13} \Omega_{k_7 k_6}^{02} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_7} \epsilon_{k_3 k_2 k_4 k_5} \epsilon_{k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_2 k_4 k_5} \epsilon_{k_2 k_4 k_5 k_6} \epsilon_{k_6 k_7}} \right] \quad (811)
\end{aligned}$$

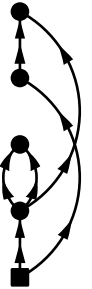
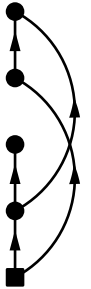


$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (812)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\
a_2 &= \epsilon_{k_3}^{k_6} \\
a_3 &= \epsilon_{k_2 k_4 k_5}^{k_7} \\
a_4 &= \epsilon_{k_6 k_7}
\end{aligned}$$

**Diagram 400:**

$$\begin{aligned}
\text{PO4.400} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_3 k_4}^{02} \Omega_{k_6 k_2}^{11} \Omega_{k_6 k_5}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_6}} e^{-\tau_3 \epsilon_{k_2}^{k_6}} e^{-\tau_4 \epsilon_{k_5 k_6}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_3 k_4}^{02} \Omega_{k_6 k_2}^{11} \Omega_{k_6 k_5}^{02} \left[ \frac{1}{\epsilon_{k_1}^{k_3 k_4 k_5} \epsilon_{k_1 k_2} \epsilon_{k_1 k_2}^{k_3 k_4} \epsilon_{k_5 k_6}} + \frac{1}{\epsilon_{k_1}^{k_3 k_4 k_5} \epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_5 k_6}} \right] \quad (813)
\end{aligned}$$

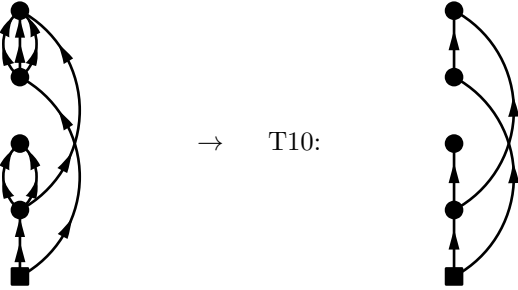

→ T10:


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (814)$$

$$\begin{aligned} a_1 &= \epsilon_{k_2}^{k_6} \\ a_2 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_3 &= \epsilon_{k_3 k_4} \\ a_4 &= \epsilon_{k_5 k_6} \end{aligned}$$

**Diagram 401:**

$$\begin{aligned} PO4.401 &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_3 k_4}^{02} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_6 k_7 k_8 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4}} e^{-\tau_3 \epsilon_{k_2}^{k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7 k_8}} \\ &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_3 k_4}^{02} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_6 k_7 k_8 k_5}^{04} \left[ \frac{1}{\epsilon_{k_1 k_6 k_7 k_8} \epsilon_{k_3 k_4} \epsilon_{k_1 k_2} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_2 k_5} \epsilon_{k_5 k_6 k_7 k_8}} \right] \end{aligned} \quad (815)$$



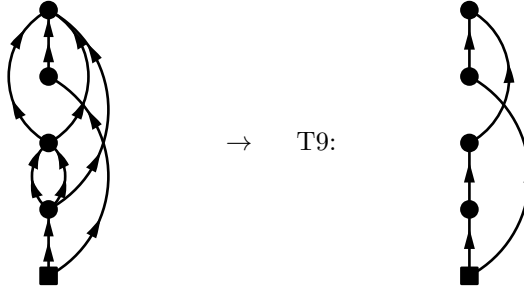


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (816)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_3 k_4} \\ a_3 &= \epsilon_{k_2}^{k_6 k_7 k_8} \\ a_4 &= \epsilon_{k_5 k_6 k_7 k_8} \end{aligned}$$

**Diagram 402:**

$$\begin{aligned} \text{PO4.402} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_2}^{11} \Omega_{k_8 k_6 k_7 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_2}^{k_8}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7 k_8}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_2}^{11} \Omega_{k_8 k_6 k_7 k_5}^{04} \left[ \frac{1}{\epsilon_{k_1 k_8} \epsilon_{k_3 k_4 k_5 k_8} \epsilon_{k_1 k_2} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_8} \epsilon_{k_3 k_4 k_2 k_5} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_2 k_5} \epsilon_{k_2 k_5 k_6 k_7} \epsilon_{k_5 k_6 k_7 k_8}} \right] \end{aligned} \quad (817)$$



$\rightarrow$  T9:

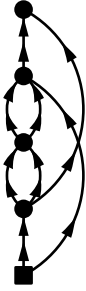


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (818)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\
a_2 &= \epsilon_{k_3 k_4}^{k_6 k_7} \\
a_3 &= \epsilon_{k_2}^{k_8} \\
a_4 &= \epsilon_{k_5 k_6 k_7 k_8}
\end{aligned}$$

**Diagram 403:**

$$\begin{aligned}
\text{PO4.403} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_6 k_7 k_2}^{13} \Omega_{k_8 k_5}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_2 k_6 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_5 k_8}^{k_6 k_7 k_8}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_6 k_7 k_2}^{13} \Omega_{k_8 k_5}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_2 k_5} \epsilon_{k_2 k_6 k_7 k_5} \epsilon_{k_5 k_8}}
\end{aligned} \tag{819}$$



→ T1:

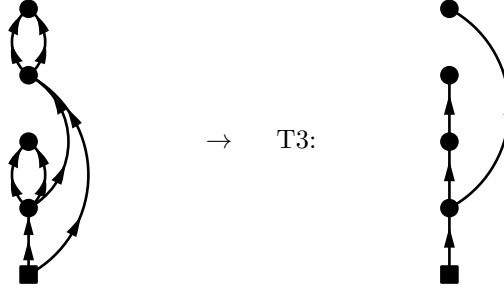


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{820}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\
a_2 &= \epsilon_{k_3 k_4}^{k_6 k_7} \\
a_3 &= \epsilon_{k_2 k_6 k_7}^{k_8} \\
a_4 &= \epsilon_{k_5 k_8}
\end{aligned}$$

**Diagram 404:**

$$\begin{aligned}
\text{PO4.404} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_3 k_4}^{02} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_6 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4}} e^{-\tau_3 \epsilon_{k_2 k_5}^{k_6 k_7}} e^{-\tau_4 \epsilon_{k_6 k_7}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_3 k_4}^{02} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_6 k_7}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_2 k_5} \epsilon_{k_6 k_7}}
\end{aligned} \tag{821}$$

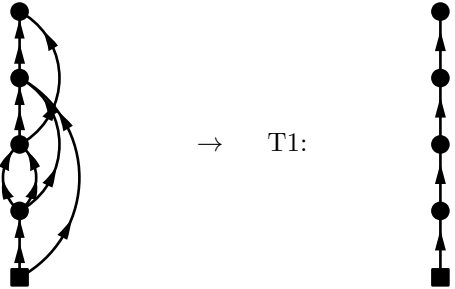



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \tag{822}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\
a_2 &= \epsilon_{k_2 k_5}^{k_6 k_7} \\
a_3 &= \epsilon_{k_6 k_7} \\
a_4 &= \epsilon_{k_3 k_4}
\end{aligned}$$

**Diagram 405:**

$$\begin{aligned}
\text{PO4.405} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_6 k_5 k_2}^{13} \Omega_{k_8 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_2 k_5 k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_6 k_7}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_8 k_6 k_5 k_2}^{13} \Omega_{k_8 k_7}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_2 k_5} \epsilon_{k_2 k_5 k_6 k_7} \epsilon_{k_7 k_8}}
\end{aligned} \tag{823}$$

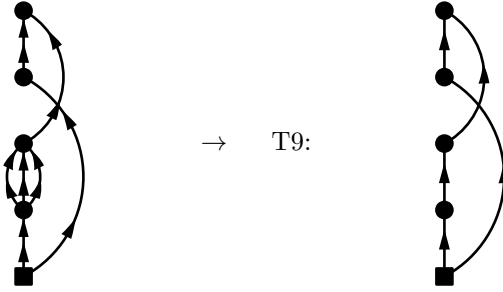

→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (824)$$

$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$   
 $a_2 = \epsilon_{k_3 k_4}^{k_6 k_7}$   
 $a_3 = \epsilon_{k_2 k_5 k_6}^{k_8}$   
 $a_4 = \epsilon_{k_7 k_8}$

**Diagram 406:**

$$\begin{aligned}
 \text{PO4.406} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3 k_4 k_5}^{13} \Omega_{k_7 k_2}^{11} \Omega_{k_7 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4 k_5}^{k_6}} e^{-\tau_3 \epsilon_{k_2}^{k_7}} e^{-\tau_4 \epsilon_{k_6 k_7}} \\
 &= \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3 k_4 k_5}^{13} \Omega_{k_7 k_2}^{11} \Omega_{k_7 k_6}^{02} \left[ \frac{1}{\epsilon_{k_1 k_7} \epsilon_{k_3 k_4 k_5 k_7} \epsilon_{k_1 k_2} \epsilon_{k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_7} \epsilon_{k_3 k_4 k_5 k_2} \epsilon_{k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_2} \epsilon_{k_2 k_6} \epsilon_{k_6 k_7}} \right] \quad (825)
 \end{aligned}$$



$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (826)$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$$

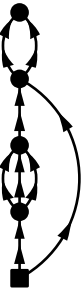

$$a_2 = \epsilon_{k_3 k_4 k_5}^{k_6}$$

$$a_3 = \epsilon_{k_2}^{k_7}$$

$$a_4 = \epsilon_{k_6 k_7}$$

**Diagram 407:**

$$\begin{aligned} \text{PO4.407} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3 k_4 k_5}^{13} \Omega_{k_7 k_8 k_6 k_2}^{22} \Omega_{k_7 k_8}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_3 k_4 k_5}^{k_6}} e^{-\tau_3 \epsilon_{k_2 k_6}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3 k_4 k_5}^{13} \Omega_{k_7 k_8 k_6 k_2}^{22} \Omega_{k_7 k_8}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_2} \epsilon_{k_2 k_6} \epsilon_{k_7 k_8}} \end{aligned} \quad (827)$$

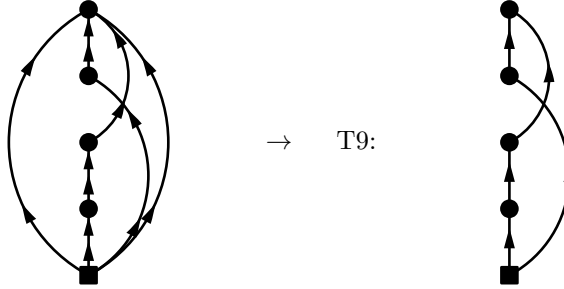

→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (828)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\
a_2 &= \epsilon_{k_3 k_4 k_5}^{k_6} \\
a_3 &= \epsilon_{k_2 k_6}^{k_7 k_8} \\
a_4 &= \epsilon_{k_7 k_8}
\end{aligned}$$

**Diagram 408:**

$$\begin{aligned}
\text{PO4.408} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_2}^{11} \Omega_{k_7 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6}} e^{-\tau_3 \epsilon_{k_2}^{k_7}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_7}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_2}^{11} \Omega_{k_7 k_6 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_3 k_4 k_7} \epsilon_{k_5 k_3 k_4 k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_4 k_7} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_6 k_7}} \right] \\
&\quad (829)
\end{aligned}$$

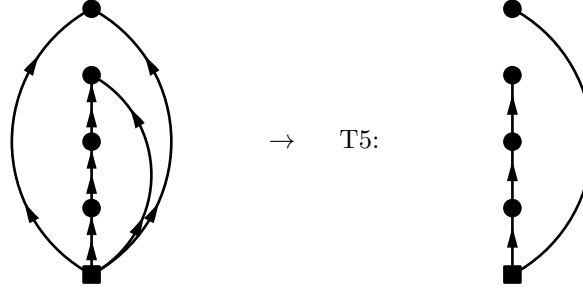


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (830)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_5}^{k_6} \\
a_3 &= \epsilon_{k_2}^{k_7} \\
a_4 &= \epsilon_{k_3 k_4 k_6 k_7}
\end{aligned}$$

**Diagram 409:**

$$\begin{aligned}
\text{PO4.409} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_6 k_2}^{02} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6}} e^{-\tau_3 \epsilon_{k_2 k_6}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_6 k_2}^{02} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_5 k_2} \epsilon_{k_2 k_6} \epsilon_{k_3 k_4}}
\end{aligned} \tag{831}$$

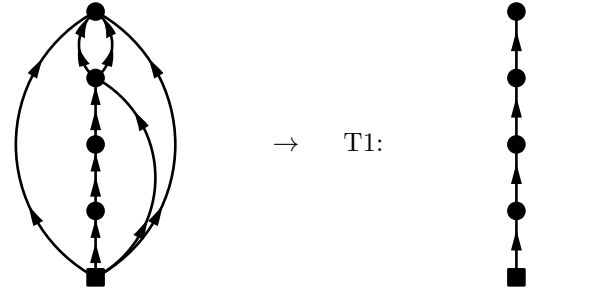


$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3 a_4} \tag{832}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_5}^{k_6} \\
a_3 &= \epsilon_{k_2 k_6} \\
a_4 &= \epsilon_{k_3 k_4}
\end{aligned}$$

**Diagram 410:**

$$\begin{aligned}
\text{PO4.410} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_8 k_6 k_2}^{22} \Omega_{k_7 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6}} e^{-\tau_3 \epsilon_{k_2 k_6}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_8 k_6 k_2}^{22} \Omega_{k_7 k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_2 k_6 k_3 k_4} \epsilon_{k_3 k_4 k_7 k_8}}
\end{aligned} \tag{833}$$

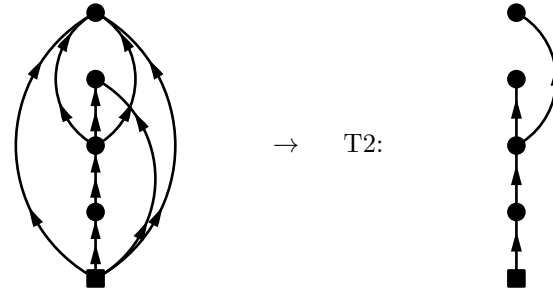


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (834)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_5}^{k_6} \\ a_3 &= \epsilon_{k_2 k_6}^{k_7 k_8} \\ a_4 &= \epsilon_{k_3 k_4 k_7 k_8} \end{aligned}$$

**Diagram 411:**

$$\begin{aligned} \text{PO4.411} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_6 k_2}^{02} \Omega_{k_7 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_2 k_6}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_6 k_2}^{02} \Omega_{k_7 k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_2 k_6} \epsilon_{k_3 k_4 k_7 k_8}} \end{aligned} \quad (835)$$



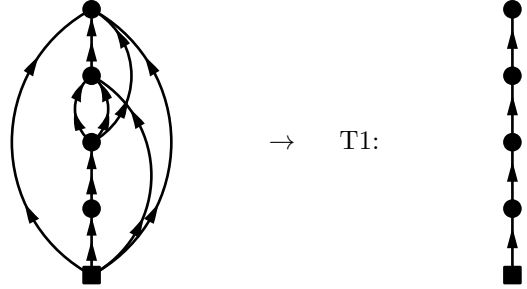


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (836)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_5}^{k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_2 k_6} \\ a_4 &= \epsilon_{k_3 k_4 k_7 k_8} \end{aligned}$$

**Diagram 412:**

$$\begin{aligned} \text{PO4.412} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_6 k_7 k_2}^{13} \Omega_{k_9 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_2 k_6 k_7}^{k_9}} e^{-\tau_4 \epsilon_{k_3 k_4}^{k_8}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_6 k_7 k_2}^{13} \Omega_{k_9 k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_2 k_6 k_7 k_3 k_4 k_8} \epsilon_{k_3 k_4 k_8 k_9}} \end{aligned} \quad (837)$$

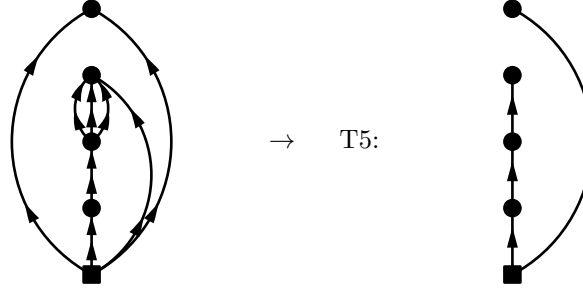


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (838)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_5}^{k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_2 k_6 k_7}^{k_9} \\ a_4 &= \epsilon_{k_3 k_4 k_8 k_9} \end{aligned}$$

**Diagram 413:**

$$\begin{aligned}
\text{PO4.413} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_6 k_7 k_8 k_2}^{04} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_2 k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
&= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_6 k_7 k_8 k_2}^{04} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_5 k_2} \epsilon_{k_2 k_6 k_7 k_8} \epsilon_{k_3 k_4}}
\end{aligned} \tag{839}$$

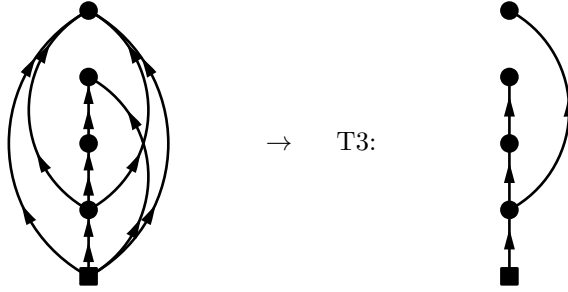


$$\text{T5} = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3 a_4} \tag{840}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_5}^{k_6 k_7 k_8} \\
a_3 &= \epsilon_{k_2 k_6 k_7 k_8} \\
a_4 &= \epsilon_{k_3 k_4}
\end{aligned}$$

**Diagram 414:**

$$\begin{aligned}
\text{PO4.414} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_8 k_2}^{02} \Omega_{k_6 k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5}^{k_8}} e^{-\tau_3 \epsilon_{k_2 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_7}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_8 k_2}^{02} \Omega_{k_6 k_7 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_4 k_6 k_7}^{k_8} \epsilon_{k_2 k_8} \epsilon_{k_3 k_4 k_6 k_7}}
\end{aligned} \tag{841}$$

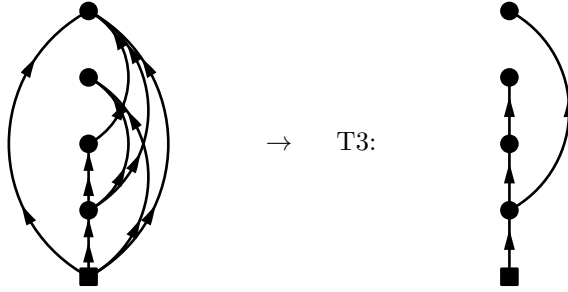


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (842)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_5}^{k_8} \\ a_3 &= \epsilon_{k_3 k_4 k_6 k_7} \\ a_4 &= \epsilon_{k_2 k_8} \end{aligned}$$

**Diagram 415:**

$$\begin{aligned} \text{PO4.415} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_6 k_2}^{02} \Omega_{k_8 k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5}^{k_8}} e^{-\tau_3 \epsilon_{k_2 k_6}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_6 k_2}^{02} \Omega_{k_8 k_7 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5}^{k_8} \epsilon_{k_5 k_2 k_6}^{k_8} \epsilon_{k_3 k_4 k_7 k_8}} \end{aligned} \quad (843)$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (844)$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

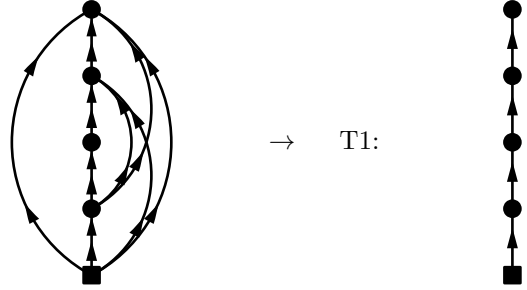
$$a_2 = \epsilon_{k_2 k_6}$$

$$a_3 = \epsilon_{k_5}^{k_8}$$

$$a_4 = \epsilon_{k_3 k_4 k_7 k_8}$$

**Diagram 416:**

$$\begin{aligned} \text{PO4.416} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_9 k_8 k_6 k_2}^{13} \Omega_{k_9 k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5}^{k_8}} e^{-\tau_3 \epsilon_{k_2 k_6 k_8}^{k_9}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_9 k_8 k_6 k_2}^{13} \Omega_{k_9 k_7 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_6 k_3 k_4 k_7} \epsilon_{k_2 k_6 k_8 k_3 k_4 k_7} \epsilon_{k_3 k_4 k_7 k_9}} \end{aligned} \quad (845)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (846)$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

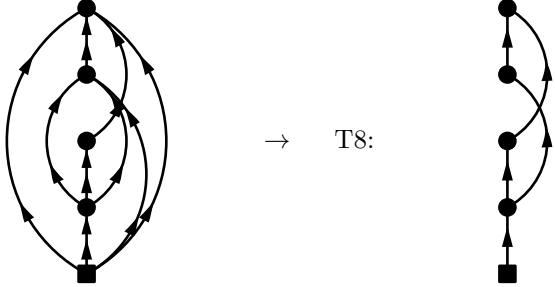

$$a_2 = \epsilon_{k_5}^{k_8}$$

$$a_3 = \epsilon_{k_2 k_6 k_8}^{k_9}$$

$$a_4 = \epsilon_{k_3 k_4 k_7 k_9}$$

**Diagram 417:**

$$\begin{aligned}
\text{PO4.417} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_9 k_6 k_7 k_2}^{13} \Omega_{k_9 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5}^{k_8}} e^{-\tau_3 \epsilon_{k_2 k_6 k_7}^{k_9}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_9 k_6 k_7 k_2}^{13} \Omega_{k_9 k_8 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_4 k_9} \epsilon_{k_5 k_2 k_6 k_7 k_3 k_4} \epsilon_{k_3 k_4 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_6 k_7 k_3 k_4} \epsilon_{k_2 k_6 k_7 k_3 k_4 k_8} \epsilon_{k_3 k_4 k_8 k_9}} \right]
\end{aligned} \tag{847}$$

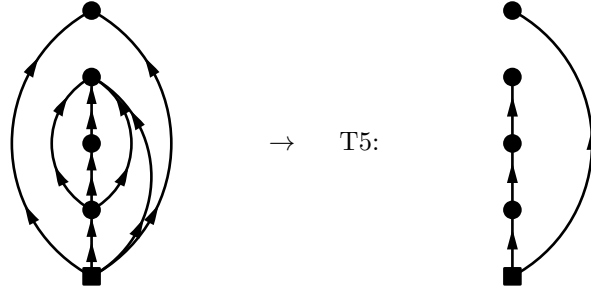

→ T8:


$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{848}$$

$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$   
 $a_2 = \epsilon_{k_5}^{k_8}$   
 $a_3 = \epsilon_{k_2 k_6 k_7}^{k_9}$   
 $a_4 = \epsilon_{k_3 k_4 k_8 k_9}$

**Diagram 418:**

$$\begin{aligned}
\text{PO4.418} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_8 k_6 k_7 k_2}^{04} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5}^{k_8}} e^{-\tau_3 \epsilon_{k_2 k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_8 k_6 k_7 k_2}^{04} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_5 k_2 k_6 k_7} \epsilon_{k_2 k_6 k_7 k_8} \epsilon_{k_3 k_4}}
\end{aligned} \tag{849}$$



$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (850)$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

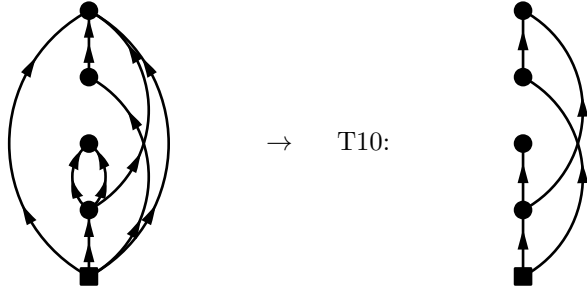
$$a_2 = \epsilon_{k_5}^{k_8}$$

$$a_3 = \epsilon_{k_2 k_6 k_7 k_8}$$

$$a_4 = \epsilon_{k_3 k_4}$$

**Diagram 419:**

$$\begin{aligned} \text{PO4.419} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_8 k_2}^{11} \Omega_{k_8 k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}} e^{-\tau_3 \epsilon_{k_2}^{k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_8 k_2}^{11} \Omega_{k_8 k_7 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_3 k_4 k_8} \epsilon_{k_5 k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_2 k_3 k_4 k_7} \epsilon_{k_3 k_4 k_7 k_8}} \right] \end{aligned} \quad (851)$$

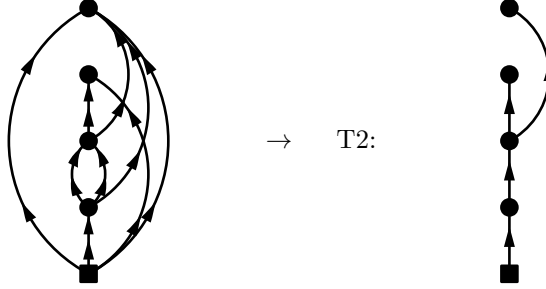


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (852)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_5 k_6} \\ a_3 &= \epsilon_{k_2}^{k_8} \\ a_4 &= \epsilon_{k_3 k_4 k_7 k_8} \end{aligned}$$

**Diagram 420:**

$$\begin{aligned} \text{PO4.420} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_8 k_2}^{02} \Omega_{k_9 k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_2}^{k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_8 k_2}^{02} \Omega_{k_9 k_7 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_2 k_3 k_4 k_7} \epsilon_{k_2 k_8} \epsilon_{k_3 k_4 k_7 k_9}} \end{aligned} \quad (853)$$

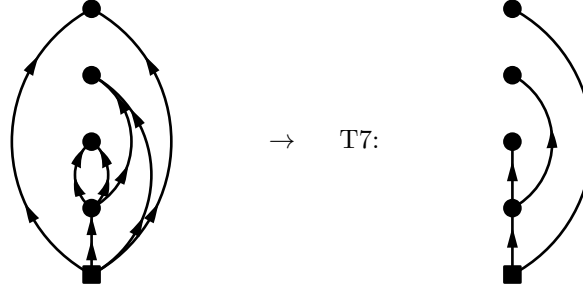


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \quad (854)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_5 k_6}^{k_8 k_9} \\ a_3 &= \epsilon_{k_2 k_8} \\ a_4 &= \epsilon_{k_3 k_4 k_7 k_9} \end{aligned}$$

**Diagram 421:**

$$\begin{aligned}
\text{PO4.421} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_7 k_2}^{02} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}} e^{-\tau_3 \epsilon_{k_2 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_7 k_2}^{02} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_5 k_6} \epsilon_{k_2 k_7} \epsilon_{k_3 k_4}}
\end{aligned} \tag{855}$$



→ T7:

$$\text{T7} = \frac{1}{(a_1 + a_2 + a_3) a_2 a_3 a_4} \tag{856}$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

$$a_2 = \epsilon_{k_5 k_6}$$

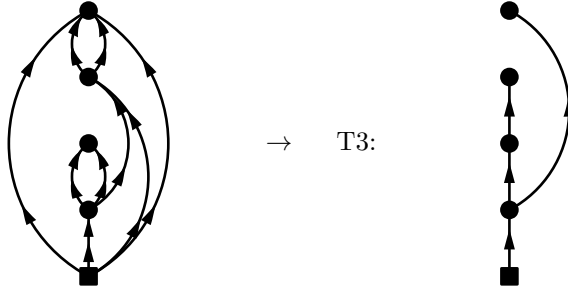
$$a_3 = \epsilon_{k_2 k_7}$$

$$a_4 = \epsilon_{k_3 k_4}$$

**Diagram 422:**

$$\begin{aligned}
\text{PO4.422} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_8 k_9 k_7 k_2}^{22} \Omega_{k_8 k_9 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}} e^{-\tau_3 \epsilon_{k_8 k_9}} e^{-\tau_4 \epsilon_{k_3 k_4 k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_8 k_9 k_7 k_2}^{22} \Omega_{k_8 k_9 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_8 k_9} \epsilon_{k_5 k_6 k_2 k_7} \epsilon_{k_3 k_4 k_8 k_9}}
\end{aligned} \tag{857}$$





→ T3:

$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (858)$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

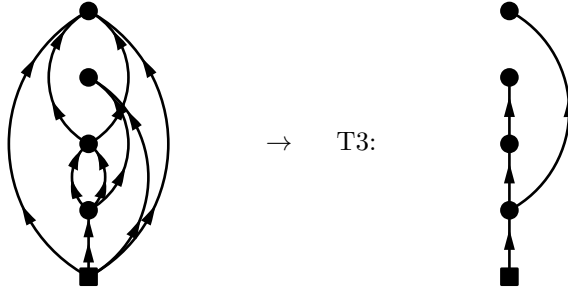
$$a_2 = \epsilon_{k_2 k_7}^{k_8 k_9}$$

$$a_3 = \epsilon_{k_5 k_6}$$

$$a_4 = \epsilon_{k_3 k_4 k_8 k_9}$$

**Diagram 423:**

$$\begin{aligned} \text{PO4.423} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_7 k_2}^{02} \Omega_{k_8 k_9 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_2 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4 k_8 k_9}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_7 k_2}^{02} \Omega_{k_8 k_9 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6}^{k_8 k_9} \epsilon_{k_5 k_6 k_2 k_7}^{k_8 k_9} \epsilon_{k_3 k_4 k_8 k_9}} \end{aligned} \quad (859)$$



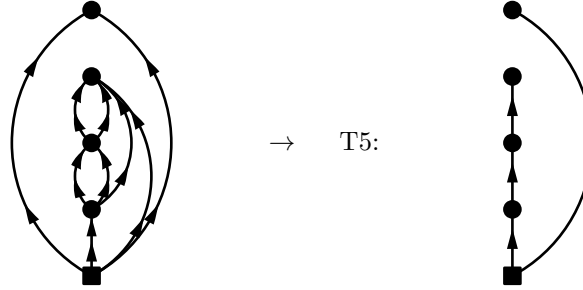
→ T3:

$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (860)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2 k_7} \\ a_3 &= \epsilon_{k_5 k_6}^{k_8 k_9} \\ a_4 &= \epsilon_{k_3 k_4 k_8 k_9} \end{aligned}$$

**Diagram 424:**

$$\begin{aligned} \text{PO4.424} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_8 k_9 k_7 k_2}^{04} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_2 k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_6}^{22} \Omega_{k_8 k_9 k_7 k_2}^{04} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_5 k_6 k_2 k_7} \epsilon_{k_2 k_7 k_8 k_9} \epsilon_{k_3 k_4}} \end{aligned} \quad (861)$$

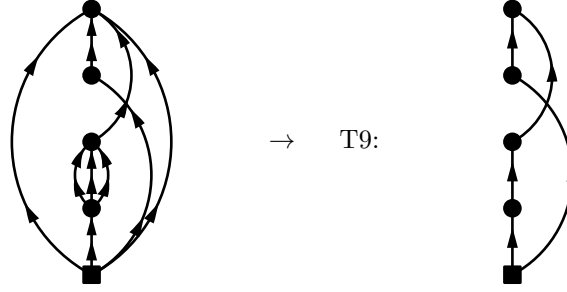


$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (862)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_5 k_6}^{k_8 k_9} \\ a_3 &= \epsilon_{k_2 k_7 k_8 k_9} \\ a_4 &= \epsilon_{k_3 k_4} \end{aligned}$$

**Diagram 425:**

$$\begin{aligned}
 \text{PO4.425} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_9 k_2}^{11} \Omega_{k_9 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6 k_7}^{k_8}} e^{-\tau_3 \epsilon_{k_2}^{k_9}} e^{-\tau_4 \epsilon_{k_3 k_4 k_8 k_9}} \\
 &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_9 k_2}^{11} \Omega_{k_9 k_8 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_3 k_4 k_9} \epsilon_{k_5 k_6 k_7 k_3 k_4 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_3 k_4 k_9} \epsilon_{k_5 k_6 k_7 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_3 k_4 k_9} \epsilon_{k_5 k_6 k_7 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_8 k_9}} \right] \\
 &\quad (863)
 \end{aligned}$$

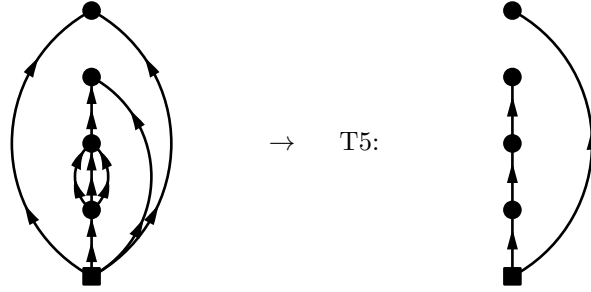


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (864)$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
 a_2 &= \epsilon_{k_5 k_6 k_7}^{k_8} \\
 a_3 &= \epsilon_{k_2}^{k_9} \\
 a_4 &= \epsilon_{k_3 k_4 k_8 k_9}
 \end{aligned}$$

**Diagram 426:**

$$\begin{aligned}
 \text{PO4.426} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_8 k_2}^{02} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6 k_7}^{k_8}} e^{-\tau_3 \epsilon_{k_2 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
 &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_8 k_2}^{02} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_5 k_6 k_7 k_2} \epsilon_{k_2 k_8} \epsilon_{k_3 k_4}} \quad (865)
 \end{aligned}$$



$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (866)$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

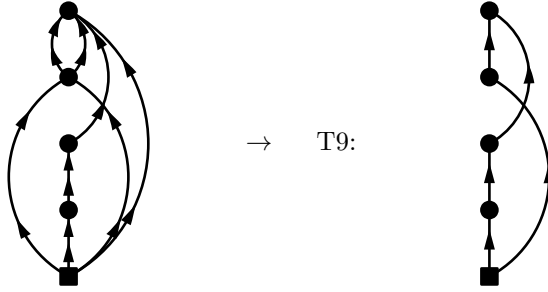
$$a_2 = \epsilon_{k_5}^{k_8 k_6 k_7}$$

$$a_3 = \epsilon_{k_2} k_8$$

$$a_4 = \epsilon_{k_3} k_4$$

**Diagram 427:**

$$\begin{aligned} \text{PO4.427} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_8 k_2 k_3}^{22} \Omega_{k_7 k_8 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6}} e^{-\tau_3 \epsilon_{k_2}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_4}^{k_6 k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_8 k_2 k_3}^{22} \Omega_{k_7 k_8 k_6 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_4 k_7 k_8} \epsilon_{k_5 k_4 k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_4 k_7 k_8} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_4 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4} \epsilon_{k_4 k_6 k_7 k_8}} \right] \end{aligned} \quad (867)$$

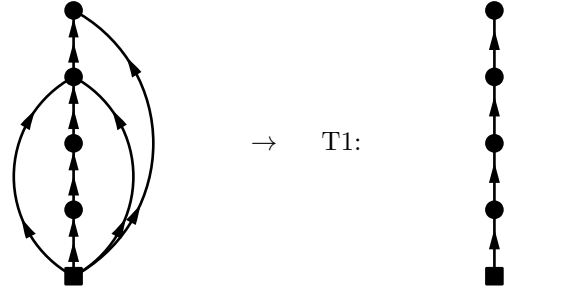


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (868)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_5}^{k_6} \\ a_3 &= \epsilon_{k_2 k_3}^{k_7 k_8} \\ a_4 &= \epsilon_{k_4 k_6 k_7 k_8} \end{aligned}$$

**Diagram 428:**

$$\begin{aligned} \text{PO4.428} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_6 k_2 k_3}^{13} \Omega_{k_7 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6}} e^{-\tau_3 \epsilon_{k_2 k_3}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_4 k_6 k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_6 k_2 k_3}^{13} \Omega_{k_7 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_6 k_4} \epsilon_{k_4 k_7}} \end{aligned} \quad (869)$$

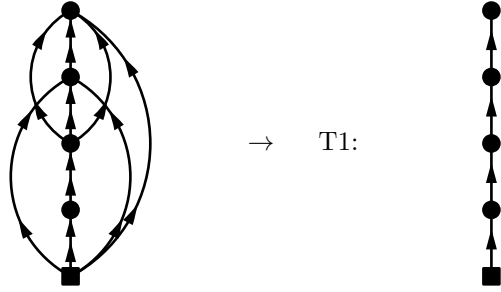


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (870)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_5}^{k_6} \\
a_3 &= \epsilon_{k_2 k_3 k_6}^{k_7} \\
a_4 &= \epsilon_{k_4 k_7}
\end{aligned}$$

**Diagram 429:**

$$\begin{aligned}
\text{PO4.429} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_6 k_2 k_3}^{13} \Omega_{k_9 k_7 k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_2 k_3 k_6}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_7 k_8}^{k_9}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_6 k_2 k_3}^{13} \Omega_{k_9 k_7 k_8 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_6 k_4 k_7 k_8} \epsilon_{k_4 k_7 k_8 k_9}}
\end{aligned} \tag{871}$$

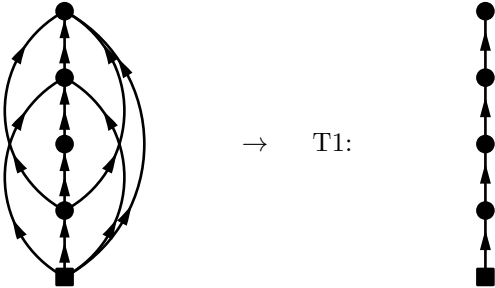


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{872}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_5}^{k_6 k_7 k_8} \\
a_3 &= \epsilon_{k_2 k_3 k_6}^{k_9} \\
a_4 &= \epsilon_{k_4 k_7 k_8 k_9}
\end{aligned}$$

**Diagram 430:**

$$\begin{aligned}
\text{PO4.430} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_9 k_8 k_2 k_3}^{13} \Omega_{k_9 k_6 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5}^{k_8}} e^{-\tau_3 \epsilon_{k_2 k_3 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_6 k_7}^{k_9}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_9 k_8 k_2 k_3}^{13} \Omega_{k_9 k_6 k_7 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4 k_6 k_7} \epsilon_{k_2 k_3 k_8 k_4 k_6 k_7} \epsilon_{k_4 k_6 k_7 k_9}}
\end{aligned} \tag{873}$$

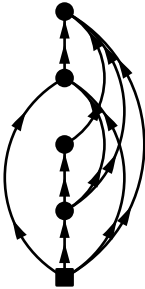
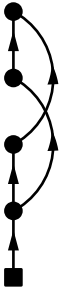


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{874}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_2 &= \epsilon_{k_5}^{k_8} \\
a_3 &= \epsilon_{k_2 k_3 k_8}^{k_9} \\
a_4 &= \epsilon_{k_4 k_6 k_7 k_9}
\end{aligned}$$

**Diagram 431:**

$$\begin{aligned}
\text{PO4.431} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_9 k_6 k_2 k_3}^{13} \Omega_{k_9 k_8 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5}^{k_8}} e^{-\tau_3 \epsilon_{k_2 k_3 k_8}^{k_9}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_9 k_6 k_2 k_3}^{13} \Omega_{k_9 k_8 k_7 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_4 k_7 k_9} \epsilon_{k_5 k_2 k_3 k_6 k_4 k_7} \epsilon_{k_4 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_6 k_4 k_7} \epsilon_{k_2 k_3 k_6 k_4 k_7 k_8} \epsilon_{k_4 k_7 k_8 k_9}} \right]
\end{aligned} \tag{875}$$

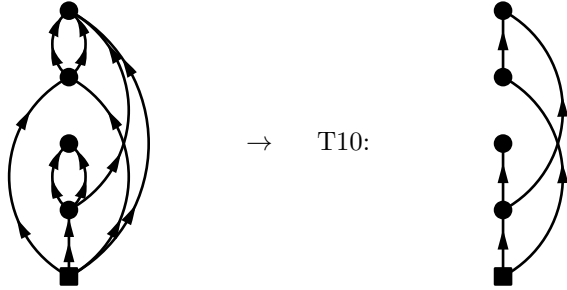

→ T8:


$$T8 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (876)$$

$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$   
 $a_2 = \epsilon_{k_5}^{k_8}$   
 $a_3 = \epsilon_{k_2 k_3 k_6}^{k_9}$   
 $a_4 = \epsilon_{k_4 k_7 k_8 k_9}$

**Diagram 432:**

$$\begin{aligned}
 \text{PO4.432} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_8 k_9 k_2 k_3}^{22} \Omega_{k_8 k_9 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}} e^{-\tau_3 \epsilon_{k_2 k_3}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_4 k_7 k_8 k_9}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_8 k_9 k_2 k_3}^{22} \Omega_{k_8 k_9 k_7 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_4 k_8 k_9} \epsilon_{k_5 k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_2 k_3 k_4 k_7} \epsilon_{k_4 k_7 k_8 k_9}} \right] \quad (877)
 \end{aligned}$$



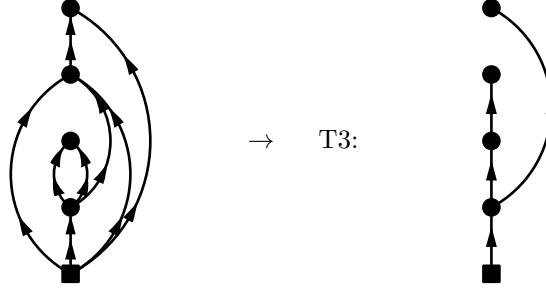


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (878)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_5 k_6} \\ a_3 &= \epsilon_{k_2 k_3}^{k_8 k_9} \\ a_4 &= \epsilon_{k_4 k_7 k_8 k_9} \end{aligned}$$

**Diagram 433:**

$$\begin{aligned} \text{PO4.433} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_8 k_7 k_2 k_3}^{13} \Omega_{k_8 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}} e^{-\tau_3 \epsilon_{k_2 k_3 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_8}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_8 k_7 k_2 k_3}^{13} \Omega_{k_8 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_2 k_3 k_7 k_4} \epsilon_{k_4 k_8}} \end{aligned} \quad (879)$$

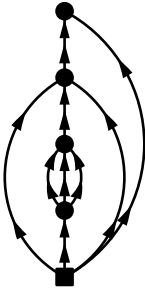



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \quad (880)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2 k_3 k_7}^{k_8} \\ a_3 &= \epsilon_{k_4 k_8} \\ a_4 &= \epsilon_{k_5 k_6} \end{aligned}$$

**Diagram 434:**

$$\begin{aligned}
\text{PO4.434} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_9 k_8 k_2 k_3}^{13} \Omega_{k_9 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6 k_7}^{k_8}} e^{-\tau_3 \epsilon_{k_2 k_3 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_9}} \\
&= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_9 k_8 k_2 k_3}^{13} \Omega_{k_9 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_8 k_4} \epsilon_{k_4 k_9}}
\end{aligned} \tag{881}$$

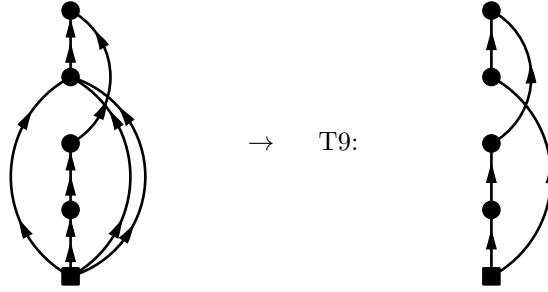

→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{882}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_2 &= \epsilon_{k_5 k_6 k_7}^{k_8} \\
a_3 &= \epsilon_{k_2 k_3 k_8}^{k_9} \\
a_4 &= \epsilon_{k_4 k_9}
\end{aligned}$$

**Diagram 435:**

$$\begin{aligned}
\text{PO4.435} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_2 k_3 k_4}^{13} \Omega_{k_7 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6}} e^{-\tau_3 \epsilon_{k_2 k_3 k_4}^{k_7}} e^{-\tau_4 \epsilon_{k_6 k_7}} \\
&= \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_2 k_3 k_4}^{13} \Omega_{k_7 k_6}^{02} \left[ \frac{1}{\epsilon_{k_1 k_7} \epsilon_{k_5 k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_7} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_6} \epsilon_{k_6 k_7}} \right]
\end{aligned} \tag{883}$$

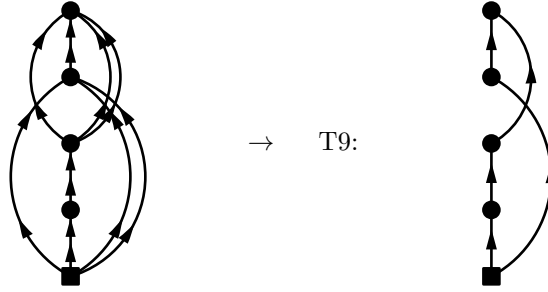


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (884)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_5}^{k_6} \\ a_3 &= \epsilon_{k_2 k_3 k_4}^{k_7} \\ a_4 &= \epsilon_{k_6 k_7} \end{aligned}$$

**Diagram 436:**

$$\begin{aligned} \text{PO4.436} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_2 k_3 k_4}^{13} \Omega_{k_9 k_6 k_7 k_8}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_2 k_3 k_4}^{k_9}} e^{-\tau_4 \epsilon_{k_6 k_7 k_8 k_9}} \\ &= \frac{-(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_2 k_3 k_4}^{13} \Omega_{k_9 k_6 k_7 k_8}^{04} \left[ \frac{1}{\epsilon_{k_1 k_9} \epsilon_{k_5 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_9} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_9}} \right] \quad (885) \end{aligned}$$

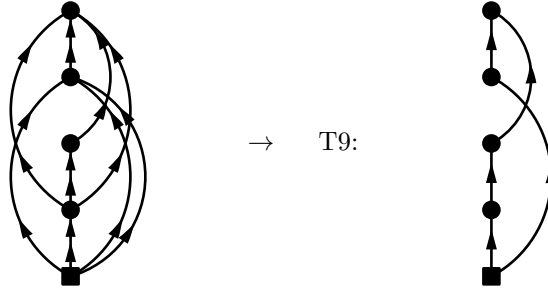


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (886)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_5}^{k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_2 k_3 k_4}^{k_9} \\ a_4 &= \epsilon_{k_6 k_7 k_8 k_9} \end{aligned}$$

**Diagram 437:**

$$\begin{aligned} \text{PO4.437} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_9 k_2 k_3 k_4}^{13} \Omega_{k_9 k_8 k_6 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5}^{k_8}} e^{-\tau_3 \epsilon_{k_2 k_3 k_4}^{k_9}} e^{-\tau_4 \epsilon_{k_6 k_7 k_8 k_9}} \\ &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_9 k_2 k_3 k_4}^{13} \Omega_{k_9 k_8 k_6 k_7}^{04} \left[ \frac{1}{\epsilon_{k_1 k_9} \epsilon_{k_5 k_6 k_7 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_9} \epsilon_{k_5 k_2 k_3 k_4 k_6 k_7} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_9} \epsilon_{k_6 k_7 k_8 k_9}} \right] \quad (887) \end{aligned}$$



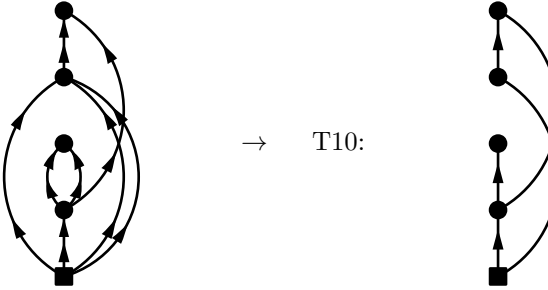
→ T9:

$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (888)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_5}^{k_8} \\ a_3 &= \epsilon_{k_2 k_3 k_4}^{k_9} \\ a_4 &= \epsilon_{k_6 k_7 k_8 k_9} \end{aligned}$$

**Diagram 438:**

$$\begin{aligned} \text{PO4.438} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_8 k_2 k_3 k_4}^{13} \Omega_{k_8 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6}} e^{-\tau_3 \epsilon_{k_2 k_3 k_4}^{k_8}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\ &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_8 k_2 k_3 k_4}^{13} \Omega_{k_8 k_7}^{02} \left[ \frac{1}{\epsilon_{k_1 k_8} \epsilon_{k_5 k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_2 k_3 k_4 k_7} \epsilon_{k_7 k_8}} \right] \quad (889) \end{aligned}$$



→ T10:

$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (890)$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

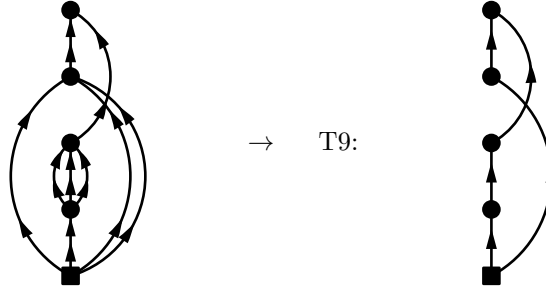
$$a_2 = \epsilon_{k_5 k_6}$$

$$a_3 = \epsilon_{k_2 k_3 k_4}^{k_8}$$

$$a_4 = \epsilon_{k_7 k_8}$$

**Diagram 439:**

$$\begin{aligned} \text{PO4.439} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_9 k_2 k_3 k_4}^{13} \Omega_{k_9 k_8}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_5 k_6 k_7}^{k_8}} e^{-\tau_3 \epsilon_{k_2 k_3 k_4}^{k_9}} e^{-\tau_4 \epsilon_{k_8 k_9}} \\ &= \frac{-(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_9 k_2 k_3 k_4}^{13} \Omega_{k_9 k_8}^{02} \left[ \frac{1}{\epsilon_{k_1 k_9} \epsilon_{k_5 k_6 k_7 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_9} \epsilon_{k_5 k_6 k_7 k_2 k_3 k_4} \epsilon_{k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_2 k_3 k_4} \epsilon_{k_8 k_9}} \right] \end{aligned} \quad (891)$$

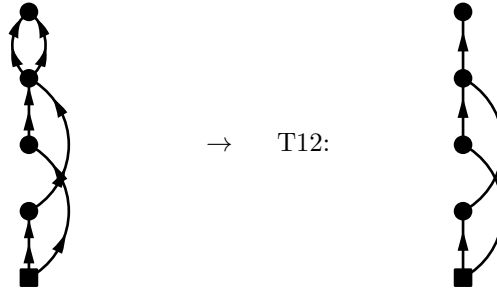


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (892)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_2 &= \epsilon_{k_5 k_6 k_7}^{k_8} \\
a_3 &= \epsilon_{k_2 k_3 k_4}^{k_9} \\
a_4 &= \epsilon_{k_8 k_9}
\end{aligned}$$

**Diagram 440:**

$$\begin{aligned}
\text{PO4.440} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_2}^{11} \Omega_{k_5 k_6 k_4 k_3}^{22} \Omega_{k_5 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_2}^{k_4}} e^{-\tau_3 \epsilon_{k_3 k_4}^{k_5 k_6}} e^{-\tau_4 \epsilon_{k_5 k_6}} \\
&= \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_2}^{11} \Omega_{k_5 k_6 k_4 k_3}^{22} \Omega_{k_5 k_6}^{02} \left[ \frac{1}{\epsilon_{k_1 k_4} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_5 k_6}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_3} \epsilon_{k_3 k_4} \epsilon_{k_5 k_6}} \right] \quad (893)
\end{aligned}$$



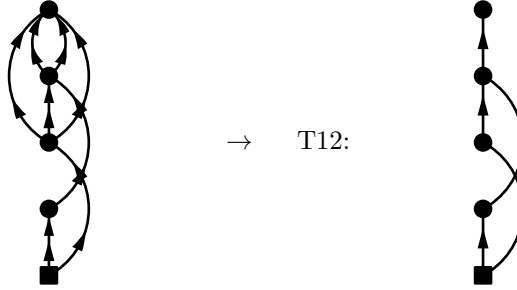
$\rightarrow$  T12:

$$\text{T12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (894)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_3} \\
a_2 &= \epsilon_{k_2}^{k_4} \\
a_3 &= \epsilon_{k_3 k_4}^{k_5 k_6} \\
a_4 &= \epsilon_{k_5 k_6}
\end{aligned}$$

**Diagram 441:**

$$\begin{aligned}
\text{PO4.441} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_2}^{31} \Omega_{k_7 k_8 k_4 k_3}^{22} \Omega_{k_7 k_8 k_5 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_2}^{k_4 k_5 k_6}} e^{-\tau_3 \epsilon_{k_3 k_4}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7 k_8}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_2}^{31} \Omega_{k_7 k_8 k_4 k_3}^{22} \Omega_{k_7 k_8 k_5 k_6}^{04} \left[ \frac{1}{\epsilon_{k_1 k_4 k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_3} \epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_5 k_6 k_7 k_8}} \right]
\end{aligned} \tag{895}$$





$$\text{T12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{896}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_3} \\
a_2 &= \epsilon_{k_2}^{k_4 k_5 k_6} \\
a_3 &= \epsilon_{k_3 k_4}^{k_7 k_8} \\
a_4 &= \epsilon_{k_5 k_6 k_7 k_8}
\end{aligned}$$

**Diagram 442:**

$$\begin{aligned}
\text{PO4.442} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_2}^{31} \Omega_{k_7 k_4 k_5 k_3}^{13} \Omega_{k_7 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_2}^{k_4 k_5 k_6}} e^{-\tau_3 \epsilon_{k_3 k_4 k_5}^{k_7}} e^{-\tau_4 \epsilon_{k_6 k_7}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_6 k_2}^{31} \Omega_{k_7 k_4 k_5 k_3}^{13} \Omega_{k_7 k_6}^{02} \left[ \frac{1}{\epsilon_{k_1 k_4 k_5 k_6} \epsilon_{k_1 k_2} \epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_3} \epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_6 k_7}} \right]
\end{aligned} \tag{897}$$



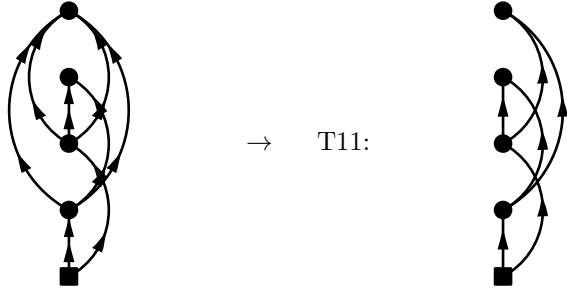

→ T12:


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (898)$$

$a_1 = \epsilon_{k_1}^{k_3}$   
 $a_2 = \epsilon_{k_2}^{k_4 k_5 k_6}$   
 $a_3 = \epsilon_{k_3 k_4 k_5}^{k_7}$   
 $a_4 = \epsilon_{k_6 k_7}$

**Diagram 443:**

$$\begin{aligned}
 PO4.443 &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_6 k_3}^{02} \Omega_{k_7 k_8 k_4 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \\
 &\quad e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_6}} e^{-\tau_4 \epsilon_{k_4 k_5 k_7}} \\
 &= \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_6 k_3}^{02} \Omega_{k_7 k_8 k_4 k_5}^{04} \left[ \frac{1}{\epsilon_{k_1 k_6 k_7 k_8} \epsilon_{k_1 k_2} \epsilon_{k_3 k_6} \epsilon_{k_4 k_5 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_3 k_6} \epsilon_{k_4 k_5 k_7 k_8}} \right] \quad (899)
 \end{aligned}$$





$$T_{11} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (900)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3k_4k_5} \\ a_2 &= \epsilon_{k_2}^{k_6k_7k_8} \\ a_3 &= \epsilon_{k_3k_6} \\ a_4 &= \epsilon_{k_4k_5k_7k_8} \end{aligned}$$

**Diagram 444:**

$$\begin{aligned} \text{PO4.444} &= \lim_{\tau \rightarrow \infty} (-1)^4 \sum_{k_i} O_{k_1k_2}^{20} \Omega_{k_3k_1}^{11} \Omega_{k_4k_5k_3k_2}^{22} \Omega_{k_6k_4}^{11} \Omega_{k_6k_5}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_2}^{k_4k_5}} e^{-\tau_3 \epsilon_{k_4}^{k_6}} e^{-\tau_4 \epsilon_{k_5}^{k_6}} \\ &= (-1)^4 \sum_{k_i} \frac{O_{k_1k_2}^{20} \Omega_{k_3k_1}^{11} \Omega_{k_4k_5k_3k_2}^{22} \Omega_{k_6k_4}^{11} \Omega_{k_6k_5}^{02}}{\epsilon_{k_1k_2} \epsilon_{k_2k_3} \epsilon_{k_4k_5} \epsilon_{k_5k_6}} \end{aligned} \quad (901)$$

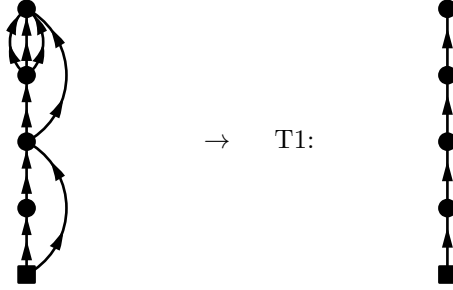

→ T1:


$$T_1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (902)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3} \\ a_2 &= \epsilon_{k_2k_3}^{k_4k_5} \\ a_3 &= \epsilon_{k_4}^{k_6} \\ a_4 &= \epsilon_{k_5k_6} \end{aligned}$$

**Diagram 445:**

$$\begin{aligned}
\text{PO4.445} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_3 k_2}^{22} \Omega_{k_6 k_7 k_8 k_4}^{31} \Omega_{k_6 k_7 k_8 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_4 k_5}} e^{-\tau_3 \epsilon_{k_4}^{k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7 k_8}} \\
&= \frac{(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_3 k_2}^{22} \Omega_{k_6 k_7 k_8 k_4}^{31} \Omega_{k_6 k_7 k_8 k_5}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_3} \epsilon_{k_4 k_5} \epsilon_{k_5 k_6 k_7 k_8}}
\end{aligned} \tag{903}$$



$\rightarrow$  T1:

$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{904}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_3} \\
a_2 &= \epsilon_{k_2 k_3}^{k_4 k_5} \\
a_3 &= \epsilon_{k_4}^{k_6 k_7 k_8} \\
a_4 &= \epsilon_{k_5 k_6 k_7 k_8}
\end{aligned}$$

**Diagram 446:**

$$\begin{aligned}
\text{PO4.446} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_3 k_2}^{22} \Omega_{k_6 k_7 k_4 k_5}^{22} \Omega_{k_6 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_4 k_5}} e^{-\tau_3 \epsilon_{k_4 k_5}^{k_6 k_7}} e^{-\tau_4 \epsilon_{k_6 k_7}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_1}^{11} \Omega_{k_4 k_5 k_3 k_2}^{22} \Omega_{k_6 k_7 k_4 k_5}^{22} \Omega_{k_6 k_7}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_3} \epsilon_{k_4 k_5} \epsilon_{k_6 k_7}}
\end{aligned} \tag{905}$$

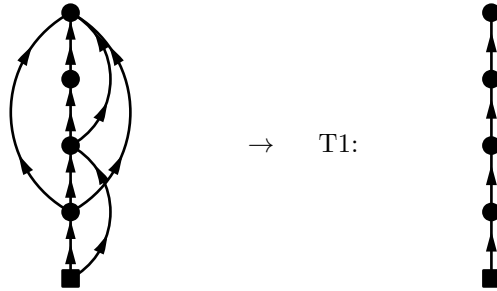
$\rightarrow$  T1:

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (906)$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1}^{k_3} \\
 a_2 &= \epsilon_{k_2 k_3}^{k_4 k_5} \\
 a_3 &= \epsilon_{k_4 k_5}^{k_6 k_7} \\
 a_4 &= \epsilon_{k_6 k_7}
 \end{aligned}$$

**Diagram 447:**

$$\begin{aligned}
 \text{PO4.447} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_2}^{22} \Omega_{k_8 k_6}^{11} \Omega_{k_8 k_7 k_4 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_5 k_8}} \\
 &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_2}^{22} \Omega_{k_8 k_6}^{11} \Omega_{k_8 k_7 k_4 k_5}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_6 k_4 k_5 k_7} \epsilon_{k_4 k_5 k_7 k_8}}
 \end{aligned} \quad (907)$$

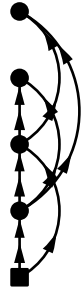



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (908)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_2 k_3}^{k_6 k_7} \\ a_3 &= \epsilon_{k_6}^{k_8} \\ a_4 &= \epsilon_{k_4 k_5 k_7 k_8} \end{aligned}$$

**Diagram 448:**

$$\begin{aligned} \text{PO4.448} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_2}^{22} \Omega_{k_6 k_4}^{02} \Omega_{k_7 k_5}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \\ &= \frac{-(-1)^4}{2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_2}^{22} \Omega_{k_6 k_4}^{02} \Omega_{k_7 k_5}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_4 k_6} \epsilon_{k_5 k_7}} e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_4 k_6}} e^{-\tau_4 \epsilon_{k_5 k_7}} \end{aligned} \quad (909)$$




→ T2:


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \quad (910)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_2 k_3}^{k_6 k_7} \\ a_3 &= \epsilon_{k_4 k_6} \\ a_4 &= \epsilon_{k_5 k_7} \end{aligned}$$

**Diagram 449:**

$$\begin{aligned}
 \text{PO4.449} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_2}^{22} \Omega_{k_8 k_6 k_7 k_4}^{13} \Omega_{k_8 k_5}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_4}^{k_8}} e^{-\tau_4 \epsilon_{k_5}^{k_6 k_7}} \\
 &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_2}^{22} \Omega_{k_8 k_6 k_7 k_4}^{13} \Omega_{k_8 k_5}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_4 k_6 k_7 k_5} \epsilon_{k_5 k_8}}
 \end{aligned} \tag{911}$$

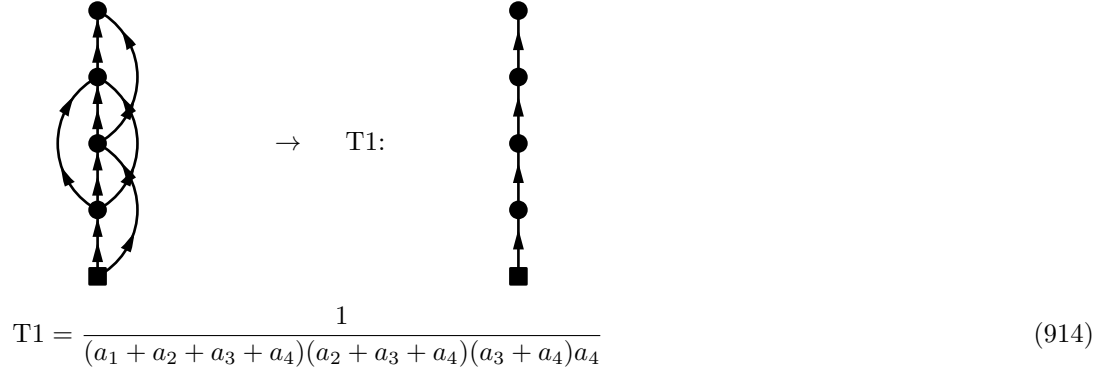

→ T1:


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{912}$$

$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$   
 $a_2 = \epsilon_{k_2}^{k_6 k_7}$   
 $a_3 = \epsilon_{k_4}^{k_8}$   
 $a_4 = \epsilon_{k_5}^{k_6 k_7}$

**Diagram 450:**

$$\begin{aligned}
 \text{PO4.450} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_2}^{22} \Omega_{k_8 k_6 k_4 k_5}^{13} \Omega_{k_8 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_4}^{k_8}} e^{-\tau_4 \epsilon_{k_5}^{k_6 k_7}} \\
 &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_7 k_3 k_2}^{22} \Omega_{k_8 k_6 k_4 k_5}^{13} \Omega_{k_8 k_7}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_4 k_5 k_6 k_7} \epsilon_{k_7 k_8}}
 \end{aligned} \tag{913}$$

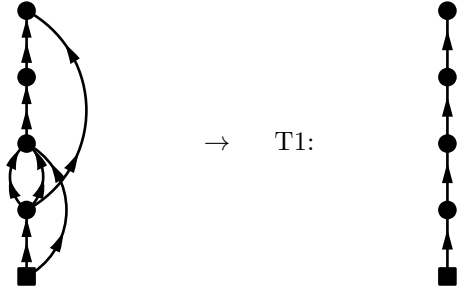


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (914)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_3 k_4 k_5} \\ a_2 &= \epsilon_{k_2}^{k_6 k_7} \\ a_3 &= \epsilon_{k_4}^{k_8} \\ a_4 &= \epsilon_{k_7}^{k_8} \end{aligned}$$

**Diagram 451:**

$$\begin{aligned} \text{PO4.451} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3 k_4 k_2}^{13} \Omega_{k_7 k_6}^{11} \Omega_{k_7 k_5}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6 k_3 k_4}} e^{-\tau_3 \epsilon_{k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_5}^{k_7}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3 k_4 k_2}^{13} \Omega_{k_7 k_6}^{11} \Omega_{k_7 k_5}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_6 k_5} \epsilon_{k_5 k_7}} \end{aligned} \quad (915)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (916)$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$$

$$a_2 = \epsilon_{k_2 k_3 k_4}^{k_6}$$

$$a_3 = \epsilon_{k_6}^{k_7}$$

$$a_4 = \epsilon_{k_5 k_7}$$

**Diagram 452:**

$$\begin{aligned} \text{PO4.452} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3 k_4 k_2}^{13} \Omega_{k_7 k_8 k_6 k_5}^{22} \Omega_{k_7 k_8}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_3 k_4 k_5}} e^{-\tau_2 \epsilon_{k_2 k_3 k_4}^{k_6}} e^{-\tau_3 \epsilon_{k_5 k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_5 k_1}^{31} \Omega_{k_6 k_3 k_4 k_2}^{13} \Omega_{k_7 k_8 k_6 k_5}^{22} \Omega_{k_7 k_8}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_5 k_6} \epsilon_{k_7 k_8}} \end{aligned} \quad (917)$$



→ T1:



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (918)$$

$$a_1 = \epsilon_{k_1}^{k_3 k_4 k_5}$$

$$a_2 = \epsilon_{k_2 k_3 k_4}^{k_6}$$

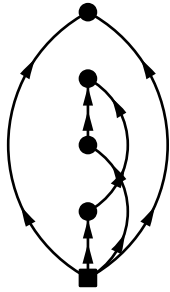
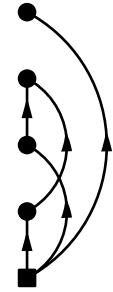
$$a_3 = \epsilon_{k_5 k_6}^{k_7 k_8}$$

$$a_4 = \epsilon_{k_7 k_8}$$



**Diagram 453:**

$$\begin{aligned}
\text{PO4.453} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_6 k_5}^{02} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6}} e^{-\tau_3 \epsilon_{k_5 k_6}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
&= \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_6 k_5}^{02} \Omega_{k_3 k_4}^{02} \left[ \frac{1}{\epsilon_{k_1 k_6} \epsilon_{k_1 k_2} \epsilon_{k_5 k_6} \epsilon_{k_3 k_4}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_5} \epsilon_{k_5 k_6} \epsilon_{k_3 k_4}} \right]
\end{aligned} \tag{919}$$

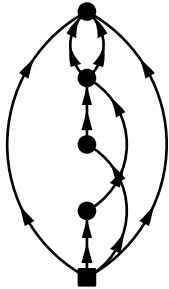
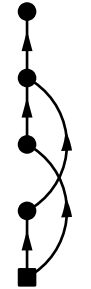

→ T14:


$$\text{T14} = \frac{1}{(a_1 + a_3)(a_2 + a_1 + a_3)a_3 a_4} + \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3 a_4} \tag{920}$$

$a_1 = \epsilon_{k_1}^{k_5}$   
 $a_2 = \epsilon_{k_2}^{k_6}$   
 $a_3 = \epsilon_{k_5 k_6}$   
 $a_4 = \epsilon_{k_3 k_4}$

**Diagram 454:**

$$\begin{aligned}
\text{PO4.454} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_7 k_8 k_6 k_5}^{22} \Omega_{k_7 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6}} e^{-\tau_3 \epsilon_{k_5 k_6}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\
&= \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_7 k_8 k_6 k_5}^{22} \Omega_{k_7 k_8 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_6 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_3 k_4} \epsilon_{k_3 k_4 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_4} \epsilon_{k_5 k_6 k_3 k_4} \epsilon_{k_3 k_4 k_7 k_8}} \right]
\end{aligned} \tag{921}$$

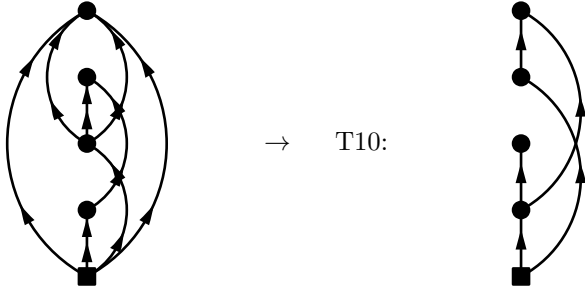

→ T12:


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (922)$$

$a_1 = \epsilon_{k_1}^{k_5}$   
 $a_2 = \epsilon_{k_2}^{k_6}$   
 $a_3 = \epsilon_{k_5 k_6}^{k_7 k_8}$   
 $a_4 = \epsilon_{k_3 k_4 k_7 k_8}$

**Diagram 455:**

$$\begin{aligned}
 PO4.455 &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_6 k_5}^{02} \Omega_{k_7 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6}} e^{-\tau_3 \epsilon_{k_5 k_6}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\
 &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_6 k_5}^{02} \Omega_{k_7 k_8 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_3 k_4 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_3 k_4 k_7 k_8}} \right] \quad (923)
 \end{aligned}$$

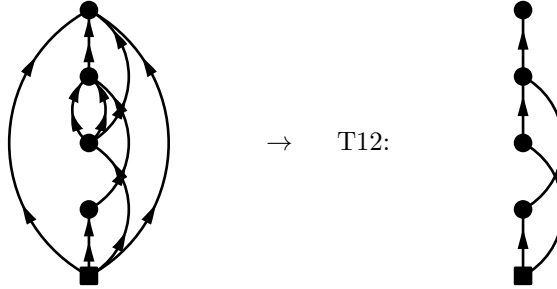


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (924)$$

$$\begin{aligned} a_1 &= \epsilon_{k_2}^{k_6 k_7 k_8} \\ a_2 &= \epsilon_{k_3 k_4 k_7 k_8} \\ a_3 &= \epsilon_{k_1}^{k_5} \\ a_4 &= \epsilon_{k_5 k_6} \end{aligned}$$

**Diagram 456:**

$$\begin{aligned} \text{PO4.456} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_9 k_6 k_7 k_5}^{13} \Omega_{k_9 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_5 k_6 k_7}^{k_9}} e^{-\tau_4 \epsilon_{k_3 k_4 k_8}^{k_9}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_9 k_6 k_7 k_5}^{13} \Omega_{k_9 k_8 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_6 k_7 k_3 k_4 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_3 k_4 k_8} \epsilon_{k_3 k_4 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_3 k_4 k_8} \epsilon_{k_3 k_4 k_8 k_9}} \right] \end{aligned} \quad (925)$$

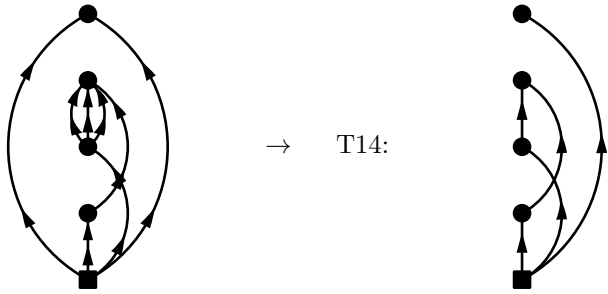
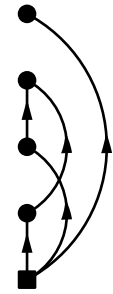


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (926)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_2}^{k_6 k_7 k_8} \\
a_3 &= \epsilon_{k_5 k_6 k_7}^{k_9} \\
a_4 &= \epsilon_{k_3 k_4 k_8 k_9}
\end{aligned}$$

**Diagram 457:**

$$\begin{aligned}
\text{PO4.457} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_6 k_7 k_8 k_5}^{04} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_5 k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
&= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_6 k_7 k_8 k_5}^{04} \Omega_{k_3 k_4}^{02} \left[ \frac{1}{\epsilon_{k_1 k_6 k_7 k_8} \epsilon_{k_1 k_2} \epsilon_{k_5 k_6 k_7 k_8} \epsilon_{k_3 k_4}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_5} \epsilon_{k_5 k_6 k_7 k_8} \epsilon_{k_3 k_4}} \right] \quad (927)
\end{aligned}$$

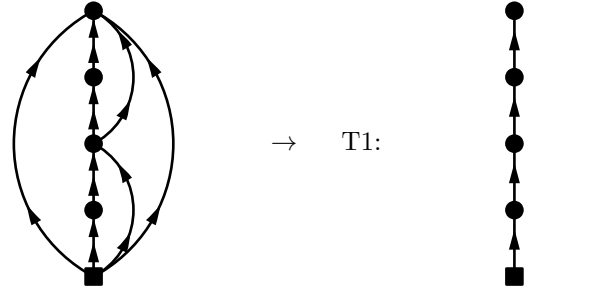

→ T14:


$$\text{T14} = \frac{1}{(a_1 + a_3)(a_2 + a_1 + a_3)a_3 a_4} + \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3 a_4} \quad (928)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_2}^{k_6 k_7 k_8} \\
a_3 &= \epsilon_{k_5 k_6 k_7 k_8} \\
a_4 &= \epsilon_{k_3 k_4}
\end{aligned}$$

**Diagram 458:**

$$\begin{aligned}
 \text{PO4.458} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_8 k_6}^{11} \Omega_{k_8 k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_5}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\
 &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_8 k_6}^{11} \Omega_{k_8 k_7 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_4} \epsilon_{k_6 k_3 k_4 k_7} \epsilon_{k_3 k_4 k_7 k_8}}
 \end{aligned} \tag{929}$$



→ T1:

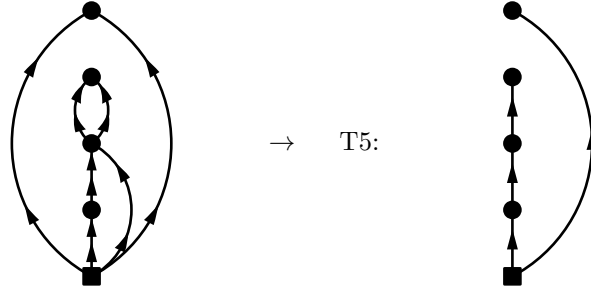


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{930}$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1}^{k_5} \\
 a_2 &= \epsilon_{k_2 k_5}^{k_6 k_7} \\
 a_3 &= \epsilon_{k_6}^{k_8} \\
 a_4 &= \epsilon_{k_3 k_4 k_7 k_8}
 \end{aligned}$$

**Diagram 459:**

$$\begin{aligned}
 \text{PO4.459} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_6 k_7}^{02} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_5}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_6 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
 &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_6 k_7}^{02} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_5} \epsilon_{k_6 k_7} \epsilon_{k_3 k_4}}
 \end{aligned} \tag{931}$$



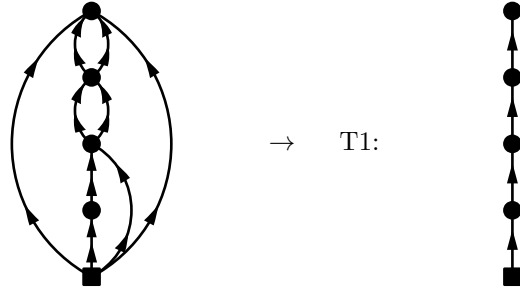
→ T5:

$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (932)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_2k_5}^{k_6k_7} \\ a_3 &= \epsilon_{k_6k_7} \\ a_4 &= \epsilon_{k_3k_4} \end{aligned}$$

**Diagram 460:**

$$\begin{aligned} \text{PO4.460} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1k_2k_3k_4}^{40} \Omega_{k_5k_1}^{11} \Omega_{k_6k_7k_5k_2}^{22} \Omega_{k_8k_9k_6k_7}^{22} \Omega_{k_8k_9k_3k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2k_5}^{k_6k_7}} e^{-\tau_3 \epsilon_{k_6k_7}^{k_8k_9}} e^{-\tau_4 \epsilon_{k_3k_4k_8k_9}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1k_2k_3k_4}^{40} \Omega_{k_5k_1}^{11} \Omega_{k_6k_7k_5k_2}^{22} \Omega_{k_8k_9k_6k_7}^{22} \Omega_{k_8k_9k_3k_4}^{04}}{\epsilon_{k_1k_2k_3k_4} \epsilon_{k_2k_5k_3k_4} \epsilon_{k_6k_7k_3k_4} \epsilon_{k_3k_4k_8k_9}} \end{aligned} \quad (933)$$



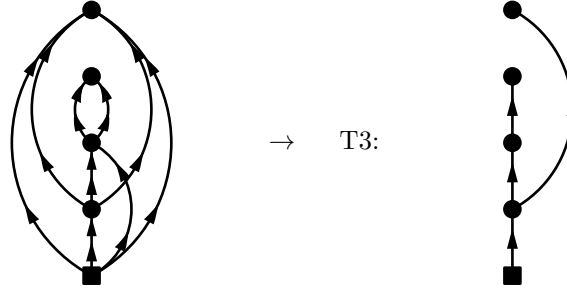
→ T1:

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (934)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_2 k_5}^{k_6 k_7} \\ a_3 &= \epsilon_{k_6 k_7}^{k_8 k_9} \\ a_4 &= \epsilon_{k_3 k_4 k_8 k_9} \end{aligned}$$

**Diagram 461:**

$$\begin{aligned} \text{PO4.461} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_8 k_9}^{02} \Omega_{k_6 k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_8 k_9}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_7}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_8 k_9}^{02} \Omega_{k_6 k_7 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5}^{k_8 k_9} \epsilon_{k_8 k_9} \epsilon_{k_2 k_5 k_3 k_4 k_6 k_7}^{k_8 k_9}} \end{aligned} \quad (935)$$

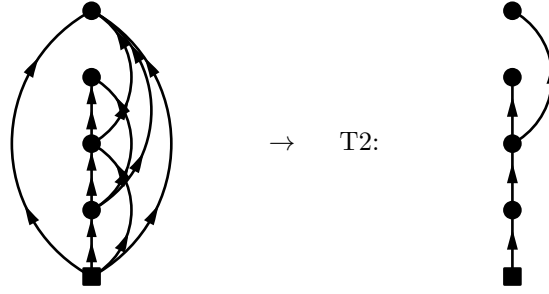


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \quad (936)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_3 k_4 k_6 k_7} \\ a_3 &= \epsilon_{k_2 k_5}^{k_8 k_9} \\ a_4 &= \epsilon_{k_8 k_9} \end{aligned}$$

**Diagram 462:**

$$\begin{aligned}
 \text{PO4.462} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_8 k_6}^{02} \Omega_{k_9 k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_6 k_8}} \\
 &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_8 k_6}^{02} \Omega_{k_9 k_7 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_3 k_4 k_7} \epsilon_{k_6 k_8} \epsilon_{k_3 k_4 k_7 k_9}}
 \end{aligned} \tag{937}$$



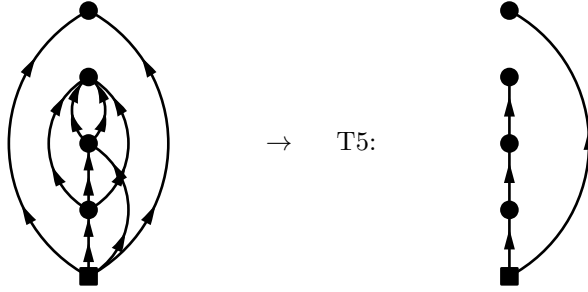
$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \tag{938}$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
 a_2 &= \epsilon_{k_2 k_5}^{k_8 k_9} \\
 a_3 &= \epsilon_{k_6 k_8} \\
 a_4 &= \epsilon_{k_3 k_4 k_7 k_9}
 \end{aligned}$$

**Diagram 463:**

$$\begin{aligned}
 \text{PO4.463} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_8 k_9 k_6 k_7}^{04} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_6 k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_8 k_9 k_6 k_7}^{04} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_5 k_6 k_7} \epsilon_{k_6 k_7 k_8 k_9} \epsilon_{k_3 k_4}}
 \end{aligned} \tag{939}$$



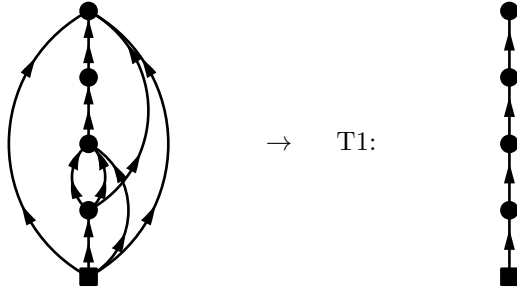


$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (940)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2 k_5}^{k_8 k_9} \\ a_3 &= \epsilon_{k_6 k_7 k_8 k_9} \\ a_4 &= \epsilon_{k_3 k_4} \end{aligned}$$

**Diagram 464:**

$$\begin{aligned} \text{PO4.464} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_9 k_8}^{11} \Omega_{k_9 k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5 k_6}^{k_8}} e^{-\tau_3 \epsilon_{k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_9 k_8}^{11} \Omega_{k_9 k_7 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_3 k_4 k_7} \epsilon_{k_8 k_3 k_4 k_7} \epsilon_{k_3 k_4 k_7 k_9}} \end{aligned} \quad (941)$$

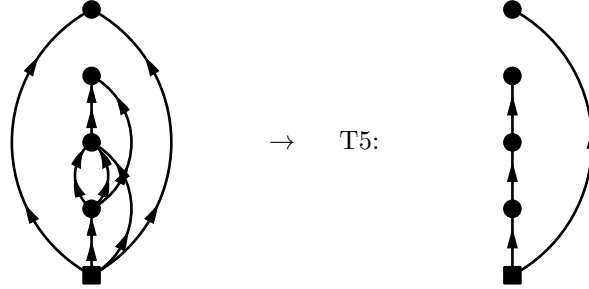


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (942)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2 k_5 k_6}^{k_8} \\ a_3 &= \epsilon_{k_8}^{k_9} \\ a_4 &= \epsilon_{k_3 k_4 k_7 k_9} \end{aligned}$$

**Diagram 465:**

$$\begin{aligned} \text{PO4.465} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_8 k_7}^{02} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5 k_6}^{k_8}} e^{-\tau_3 \epsilon_{k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_8 k_7}^{02} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_5 k_6 k_7} \epsilon_{k_7 k_8} \epsilon_{k_3 k_4}} \end{aligned} \quad (943)$$

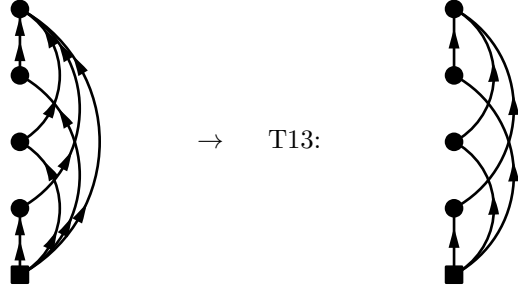


$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3 a_4} \quad (944)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2 k_5 k_6}^{k_8} \\ a_3 &= \epsilon_{k_7 k_8} \\ a_4 &= \epsilon_{k_3 k_4} \end{aligned}$$

**Diagram 466:**

$$\begin{aligned}
 \text{PO4.466} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{6} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_7 k_3}^{11} \Omega_{k_7 k_6 k_5 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6}} e^{-\tau_3 \epsilon_{k_3}^{k_7}} e^{-\tau_4 \epsilon_{k_4 k_5 k_6 k_7}} \\
 &= \frac{-(-1)^4}{6} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_7 k_3}^{11} \Omega_{k_7 k_6 k_5 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_4 k_7} \epsilon_{k_2 k_4 k_5 k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_5 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_4 k_6 k_7} \epsilon_{k_1 k_2 k_4 k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_5 k_6 k_7}} + \frac{1}{\epsilon_{k_1 k_4 k_6 k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_5 k_6 k_7}} \right] \\
 &\quad (945)
 \end{aligned}$$

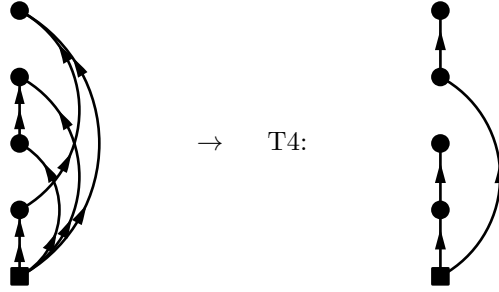


$$\begin{aligned}
 \text{T13} &= \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_4)(a_2 + a_1 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_1 + a_4)a_4} + \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_4)a_4} \\
 &\quad (946)
 \end{aligned}$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1}^{k_5} \\
 a_2 &= \epsilon_{k_2}^{k_6} \\
 a_3 &= \epsilon_{k_3}^{k_7} \\
 a_4 &= \epsilon_{k_4 k_5 k_6 k_7}
 \end{aligned}$$

**Diagram 467:**

$$\begin{aligned}
 \text{PO4.467} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_6 k_3}^{02} \Omega_{k_5 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6}} e^{-\tau_3 \epsilon_{k_3 k_6}} e^{-\tau_4 \epsilon_{k_4 k_5}} \\
 &= \frac{(-1)^4}{2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_6 k_3}^{02} \Omega_{k_5 k_4}^{02}}{\epsilon_{k_1 k_2}^{k_5 k_6} \epsilon_{k_2}^{k_6} \epsilon_{k_3 k_6 k_4 k_5} \epsilon_{k_4 k_5}} \\
 &\quad (947)
 \end{aligned}$$



→ T4:

$$T4 = \frac{1}{(a_1 + a_2)a_2(a_3 + a_4)a_4}$$

(948)

$$a_1 = \epsilon_{k_1}^{k_5}$$

$$a_2 = \epsilon_{k_2}^{k_6}$$

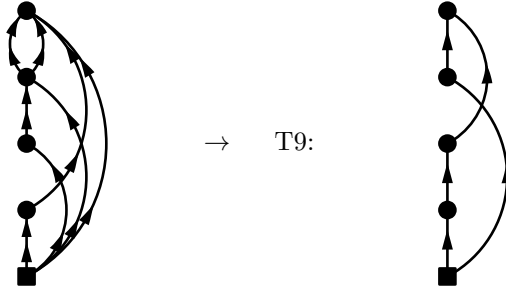
$$a_3 = \epsilon_{k_3 k_6}$$

$$a_4 = \epsilon_{k_4 k_5}$$

**Diagram 468:**

$$\begin{aligned} \text{PO4.468} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_7 k_8 k_6 k_3}^{22} \Omega_{k_7 k_8 k_5 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6}} e^{-\tau_3 \epsilon_{k_3 k_6}} e^{-\tau_4 \epsilon_{k_4 k_5 k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_7 k_8 k_6 k_3}^{22} \Omega_{k_7 k_8 k_5 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_3 k_6 k_4 k_5} \epsilon_{k_4 k_5 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_3 k_6 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_6 k_4 k_5} \epsilon_{k_4 k_5 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_4 k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_6 k_4 k_5} \epsilon_{k_4 k_5 k_7 k_8}} \right] \end{aligned}$$

(949)



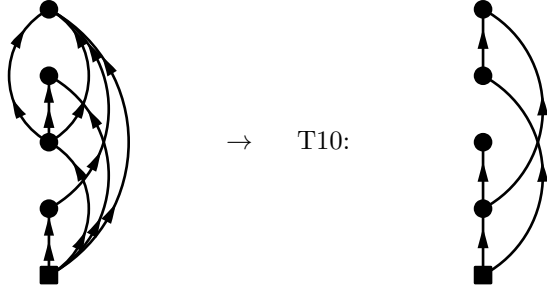
→ T9:

$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (950)$$

$$\begin{aligned} a_1 &= \epsilon_{k_2}^{k_6} \\ a_2 &= \epsilon_{k_3 k_6}^{k_7 k_8} \\ a_3 &= \epsilon_{k_1}^{k_5} \\ a_4 &= \epsilon_{k_4 k_5 k_7 k_8} \end{aligned}$$

**Diagram 469:**

$$\begin{aligned} \text{PO4.469} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_6 k_3}^{02} \Omega_{k_7 k_8 k_5 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_6}} e^{-\tau_4 \epsilon_{k_4 k_5 k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_6 k_3}^{02} \Omega_{k_7 k_8 k_5 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3}^{k_5 k_7 k_8} \epsilon_{k_2}^{k_6 k_7 k_8} \epsilon_{k_3 k_6} \epsilon_{k_1 k_2 k_3 k_4}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2}^{k_6 k_7 k_8} \epsilon_{k_3 k_6} \epsilon_{k_3 k_6 k_4 k_5 k_7 k_8}} \right] \quad (951) \end{aligned}$$

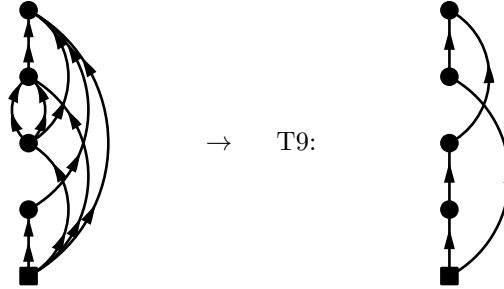


$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (952)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_2}^{k_6 k_7 k_8} \\
a_3 &= \epsilon_{k_4 k_5 k_7 k_8} \\
a_4 &= \epsilon_{k_3 k_6}
\end{aligned}$$

**Diagram 470:**

$$\begin{aligned}
\text{PO4.470} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_9 k_6 k_7 k_3}^{13} \Omega_{k_9 k_8 k_5 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_6 k_7}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_5}^{k_9}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_9 k_6 k_7 k_3}^{13} \Omega_{k_9 k_8 k_5 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_4 k_9}^{k_6 k_7} \epsilon_{k_2 k_4 k_5 k_9}^{k_6 k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_5 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_4 k_5 k_9}^{k_6 k_7} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_4 k_5 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4} \epsilon_{k_4 k_5 k_8 k_9} \epsilon_{k_3 k_6 k_7}^{k_9}} \right] \\
&\quad (953)
\end{aligned}$$

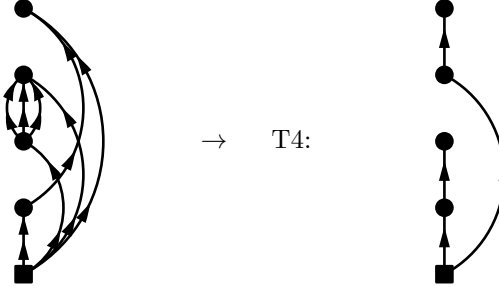


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (954)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_2}^{k_6 k_7 k_8} \\
a_3 &= \epsilon_{k_3 k_6 k_7}^{k_9} \\
a_4 &= \epsilon_{k_4 k_5 k_8 k_9}
\end{aligned}$$

**Diagram 471:**

$$\begin{aligned}
 \text{PO4.471} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_6 k_7 k_8 k_3}^{04} \Omega_{k_5 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_4 k_5}} \\
 &= \frac{(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_6 k_7 k_8 k_3}^{04} \Omega_{k_5 k_4}^{02}}{\epsilon_{k_1 k_4} \epsilon_{k_2 k_3} \epsilon_{k_3 k_6 k_7 k_8} \epsilon_{k_4 k_5}}
 \end{aligned} \tag{955}$$

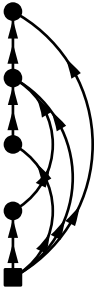



$$T4 = \frac{1}{(a_1 + a_2)a_2(a_3 + a_4)a_4} \tag{956}$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1}^{k_5} \\
 a_2 &= \epsilon_{k_4 k_5} \\
 a_3 &= \epsilon_{k_2}^{k_6 k_7 k_8} \\
 a_4 &= \epsilon_{k_3 k_6 k_7 k_8}
 \end{aligned}$$

**Diagram 472:**

$$\begin{aligned}
 \text{PO4.472} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_7 k_6 k_5 k_3}^{13} \Omega_{k_7 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6}} e^{-\tau_3 \epsilon_{k_3 k_5 k_6}} e^{-\tau_4 \epsilon_{k_4 k_7}} \\
 &= \frac{-(-1)^4}{2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_7 k_6 k_5 k_3}^{13} \Omega_{k_7 k_4}^{02} \left[ \frac{1}{\epsilon_{k_1 k_3 k_6 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_6 k_4} \epsilon_{k_4 k_7}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_4} \epsilon_{k_3 k_5 k_6 k_4} \epsilon_{k_4 k_7}} \right]
 \end{aligned} \tag{957}$$

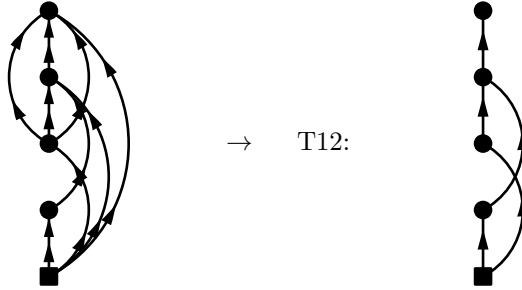

→ T12:


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (958)$$

$a_1 = \epsilon_{k_1}^{k_5}$   
 $a_2 = \epsilon_{k_2}^{k_6}$   
 $a_3 = \epsilon_{k_3 k_5 k_6}^{k_7}$   
 $a_4 = \epsilon_{k_4 k_7}$

**Diagram 473:**

$$\begin{aligned}
 PO4.473 &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_9 k_6 k_5 k_3}^{13} \Omega_{k_9 k_7 k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\
 &\quad e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_5 k_6}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_7}} \\
 &= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_9 k_6 k_5 k_3}^{13} \Omega_{k_9 k_7 k_8 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_3 k_6 k_4 k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_6 k_4 k_7 k_8} \epsilon_{k_4 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_4} \epsilon_{k_3 k_5 k_6 k_4 k_7 k_8} \epsilon_{k_4 k_7 k_8 k_9}} \right] \quad (959)
 \end{aligned}$$



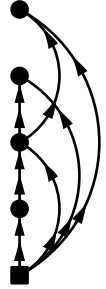



$$T_{12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (960)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_2}^{k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_3 k_5 k_6}^{k_9} \\ a_4 &= \epsilon_{k_4 k_7 k_8 k_9} \end{aligned}$$

**Diagram 474:**

$$\begin{aligned} \text{PO4.474} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_6 k_3}^{02} \Omega_{k_7 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_5}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_3 k_6}} e^{-\tau_4 \epsilon_{k_4 k_7}} \\ &= \frac{-(-1)^4}{2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_6 k_3}^{02} \Omega_{k_7 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_4} \epsilon_{k_3 k_6} \epsilon_{k_4 k_7}} \end{aligned} \quad (961)$$

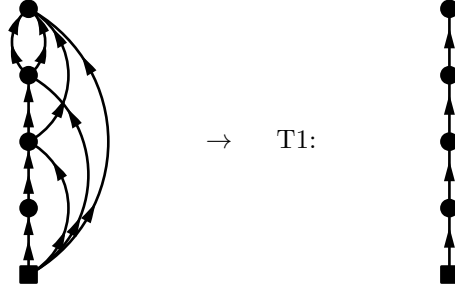

→ T2:


$$T_2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \quad (962)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_2 k_5}^{k_6 k_7} \\ a_3 &= \epsilon_{k_3 k_6} \\ a_4 &= \epsilon_{k_4 k_7} \end{aligned}$$

**Diagram 475:**

$$\begin{aligned}
 \text{PO4.475} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_8 k_9 k_6 k_3}^{22} \Omega_{k_8 k_9 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_3}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_4}^{k_7 k_8 k_9}} \\
 &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_8 k_9 k_6 k_3}^{22} \Omega_{k_8 k_9 k_7 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_4} \epsilon_{k_3 k_6 k_4 k_7} \epsilon_{k_4 k_7 k_8 k_9}}
 \end{aligned} \tag{963}$$

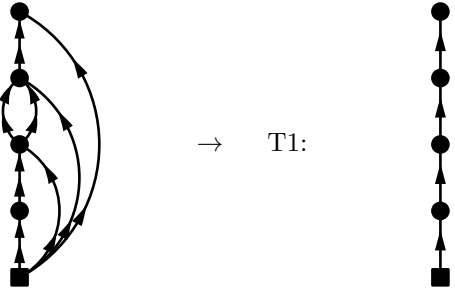


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{964}$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1}^{k_5} \\
 a_2 &= \epsilon_{k_2 k_5}^{k_6 k_7} \\
 a_3 &= \epsilon_{k_3 k_6}^{k_8 k_9} \\
 a_4 &= \epsilon_{k_4 k_7 k_8 k_9}
 \end{aligned}$$

**Diagram 476:**

$$\begin{aligned}
 \text{PO4.476} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_8 k_6 k_7 k_3}^{13} \Omega_{k_8 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_5}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_3 k_6 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_4}^{k_4 k_8}} \\
 &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_8 k_6 k_7 k_3}^{13} \Omega_{k_8 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_4} \epsilon_{k_3 k_6 k_7 k_4} \epsilon_{k_4 k_8}}
 \end{aligned} \tag{965}$$



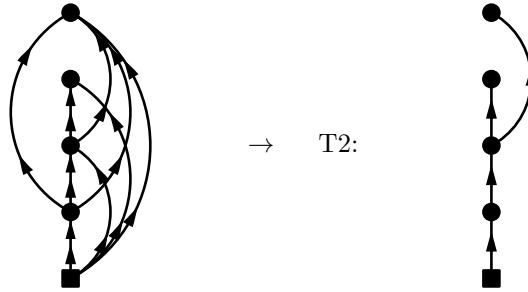
$$\rightarrow \text{T1:}$$

$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (966)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_2 k_5}^{k_6 k_7} \\ a_3 &= \epsilon_{k_3 k_6 k_7}^{k_8} \\ a_4 &= \epsilon_{k_4 k_8} \end{aligned}$$

**Diagram 477:**

$$\begin{aligned} \text{PO4.477} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_8 k_3}^{02} \Omega_{k_9 k_6 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_3 k_8}} e^{-\tau_4 \epsilon_{k_4 k_6}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_5 k_2}^{22} \Omega_{k_8 k_3}^{02} \Omega_{k_9 k_6 k_7 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_4 k_6 k_7} \epsilon_{k_3 k_8} \epsilon_{k_4 k_6 k_7 k_9}} \end{aligned} \quad (967)$$

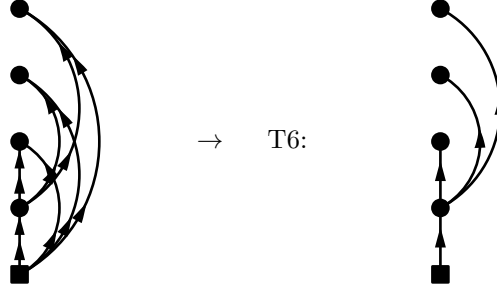


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (968)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2 k_5}^{k_8 k_9} \\ a_3 &= \epsilon_{k_3 k_8} \\ a_4 &= \epsilon_{k_4 k_6 k_7 k_9} \end{aligned}$$

**Diagram 478:**

$$\begin{aligned} \text{PO4.478} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{6} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_2}^{02} \Omega_{k_6 k_3}^{02} \Omega_{k_7 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_3 k_8}} e^{-\tau_4 \epsilon_{k_4 k_6 k_7 k_9}} \\ &= \frac{-(-1)^4}{6} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_2}^{02} \Omega_{k_6 k_3}^{02} \Omega_{k_7 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5} \epsilon_{k_3 k_6} \epsilon_{k_4 k_7}} \end{aligned} \quad (969)$$

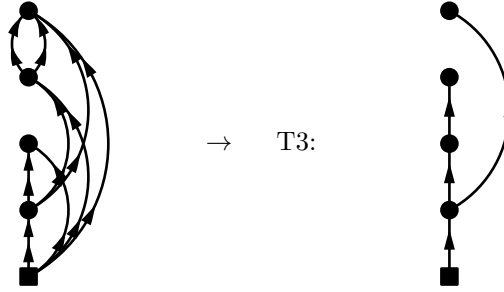


$$T6 = \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2a_3a_4} \quad (970)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2 k_5} \\ a_3 &= \epsilon_{k_3 k_6} \\ a_4 &= \epsilon_{k_4 k_7} \end{aligned}$$

**Diagram 479:**

$$\begin{aligned}
\text{PO4.479} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_2}^{02} \Omega_{k_8 k_9 k_6 k_3}^{22} \Omega_{k_8 k_9 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5}} e^{-\tau_3 \epsilon_{k_3 k_6}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_4 k_7}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_2}^{02} \Omega_{k_8 k_9 k_6 k_3}^{22} \Omega_{k_8 k_9 k_7 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_6}^{k_8 k_9} \epsilon_{k_3 k_6}^{k_8 k_9} \epsilon_{k_4 k_7 k_8 k_9}}
\end{aligned} \tag{971}$$



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \tag{972}$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

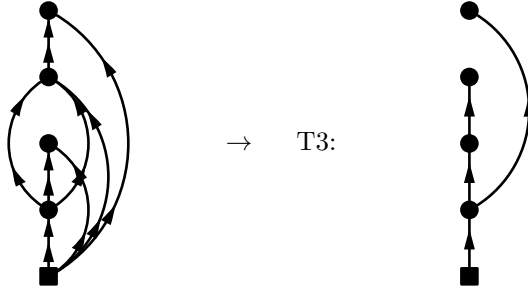
$$a_2 = \epsilon_{k_2 k_5}$$

$$a_3 = \epsilon_{k_3 k_6}^{k_8 k_9}$$

$$a_4 = \epsilon_{k_4 k_7 k_8 k_9}$$

**Diagram 480:**

$$\begin{aligned}
\text{PO4.480} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_2}^{02} \Omega_{k_8 k_6 k_7 k_3}^{13} \Omega_{k_8 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5}} e^{-\tau_3 \epsilon_{k_3 k_6 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_8}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_2}^{02} \Omega_{k_8 k_6 k_7 k_3}^{13} \Omega_{k_8 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_6 k_7}^{k_8} \epsilon_{k_3 k_6 k_7}^{k_8} \epsilon_{k_4 k_8}}
\end{aligned} \tag{973}$$

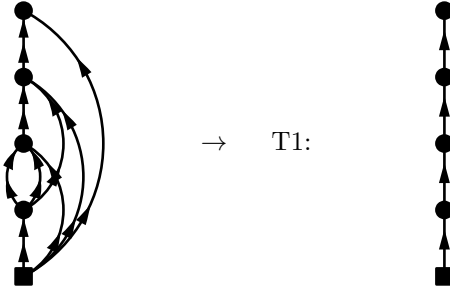


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (974)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2 k_5} \\ a_3 &= \epsilon_{k_3 k_6 k_7}^{k_8} \\ a_4 &= \epsilon_{k_4 k_8} \end{aligned}$$

**Diagram 481:**

$$\begin{aligned} \text{PO4.481} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_9 k_8 k_7 k_3}^{13} \Omega_{k_9 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) \\ &\quad e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5 k_6}^{k_8}} e^{-\tau_3 \epsilon_{k_3 k_7 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_9}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_9 k_8 k_7 k_3}^{13} \Omega_{k_9 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_3 k_7 k_4} \epsilon_{k_3 k_7 k_8 k_4} \epsilon_{k_4 k_9}} \end{aligned} \quad (975)$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (976)$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

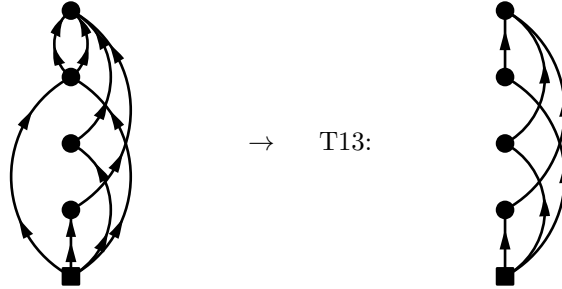
$$a_2 = \epsilon_{k_2 k_5 k_6}^{k_8}$$

$$a_3 = \epsilon_{k_3 k_7 k_8}^{k_9}$$

$$a_4 = \epsilon_{k_4 k_9}$$

**Diagram 482:**

$$\begin{aligned} \text{PO4.482} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_7 k_8 k_6 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6}} e^{-\tau_3 \epsilon_{k_3 k_4}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7 k_8}} \\ &= \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_7 k_8 k_6 k_5}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_7 k_8} \epsilon_{k_2 k_5 k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_6 k_7 k_8} \epsilon_{k_1 k_2 k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_6 k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_8}} \right] \end{aligned} \quad (977)$$



$\rightarrow$  T13:

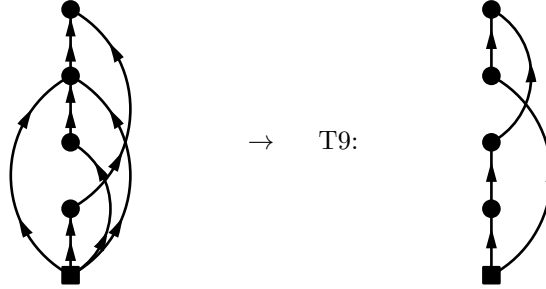


$$T13 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_4)(a_2 + a_1 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_1 + a_4)a_4} + \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} \quad (978)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_2}^{k_6} \\
a_3 &= \epsilon_{k_3 k_4}^{k_7 k_8} \\
a_4 &= \epsilon_{k_5 k_6 k_7 k_8}
\end{aligned}$$

**Diagram 483:**

$$\begin{aligned}
\text{PO4.483} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_7 k_6 k_3 k_4}^{13} \Omega_{k_7 k_5}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6}} e^{-\tau_3 \epsilon_{k_3 k_4}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7 k_8}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2}^{11} \Omega_{k_7 k_6 k_3 k_4}^{13} \Omega_{k_7 k_5}^{02} \left[ \frac{1}{\epsilon_{k_1 k_2 k_7}^{k_6} \epsilon_{k_2 k_5 k_7}^{k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_7}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_7}^{k_6} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_5 k_7}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_3 k_4 k_6 k_5} \epsilon_{k_5 k_7}} \right] \\
&\quad (979)
\end{aligned}$$



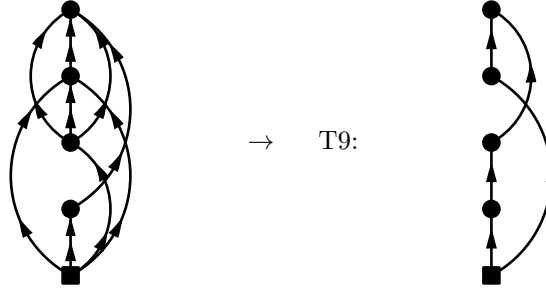
$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (980)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_2}^{k_6} \\
a_3 &= \epsilon_{k_3 k_4 k_6}^{k_7} \\
a_4 &= \epsilon_{k_5 k_7}
\end{aligned}$$



**Diagram 484:**

$$\begin{aligned}
\text{PO4.484} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_9 k_6 k_3 k_4}^{13} \Omega_{k_9 k_7 k_8 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_4 k_6}^{k_9}} e^{-\tau_4 \epsilon_{k_5 k_7}^{k_9}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_8 k_2}^{31} \Omega_{k_9 k_6 k_3 k_4}^{13} \Omega_{k_9 k_7 k_8 k_5}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_9}^{k_6} \epsilon_{k_2 k_5 k_9}^{k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_9}^{k_6} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_5 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_5 k_7 k_8 k_9}} \right] \\
&\quad (981)
\end{aligned}$$

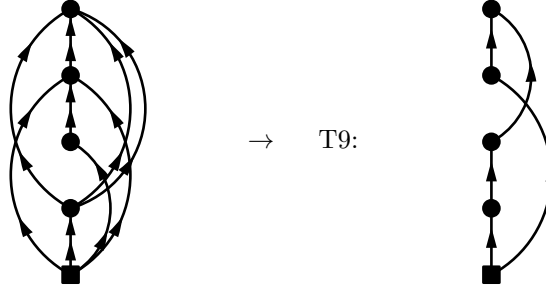


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (982)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_2}^{k_6 k_7 k_8} \\
a_3 &= \epsilon_{k_3 k_4 k_6}^{k_9} \\
a_4 &= \epsilon_{k_5 k_7 k_8 k_9}
\end{aligned}$$

**Diagram 485:**

$$\begin{aligned}
 \text{PO4.485} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_2}^{11} \Omega_{k_9 k_8 k_3 k_4}^{13} \Omega_{k_9 k_5 k_6 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2}^{k_8}} e^{-\tau_3 \epsilon_{k_3 k_4}^{k_9}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7 k_9}} \\
 &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_2}^{11} \Omega_{k_9 k_8 k_3 k_4}^{13} \Omega_{k_9 k_5 k_6 k_7}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_9}^{k_8} \epsilon_{k_2 k_5 k_6 k_7 k_9}^{k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_7 k_9}^{k_8} \epsilon_{k_2 k_3 k_4 k_5 k_6 k_7} \epsilon_{k_5 k_6 k_7 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_7 k_9} \epsilon_{k_2 k_3 k_4 k_5 k_6 k_7} \epsilon_{k_5 k_6 k_7 k_9}} \right] \\
 &\quad (983)
 \end{aligned}$$



→ T9:



$$\begin{aligned}
 \text{T9} &= \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \\
 &\quad (984)
 \end{aligned}$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

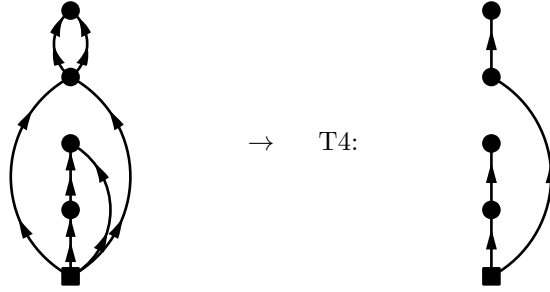
$$a_2 = \epsilon_{k_2}^{k_8}$$

$$a_3 = \epsilon_{k_3 k_4}^{k_9}$$

$$a_4 = \epsilon_{k_5 k_6 k_7 k_9}$$

**Diagram 486:**

$$\begin{aligned}
 \text{PO4.486} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_5 k_2}^{02} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_6 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_5}} e^{-\tau_3 \epsilon_{k_3 k_4}^{k_6 k_7}} e^{-\tau_4 \epsilon_{k_6 k_7}} \\
 &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_5 k_2}^{02} \Omega_{k_6 k_7 k_3 k_4}^{22} \Omega_{k_6 k_7}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_5} \epsilon_{k_3 k_4} \epsilon_{k_6 k_7}} \\
 &\quad (985)
 \end{aligned}$$



→ T4:

$$T4 = \frac{1}{(a_1 + a_2)a_2(a_3 + a_4)a_4} \quad (986)$$

$$a_1 = \epsilon_{k_1}^{k_5}$$

$$a_2 = \epsilon_{k_2 k_5}$$

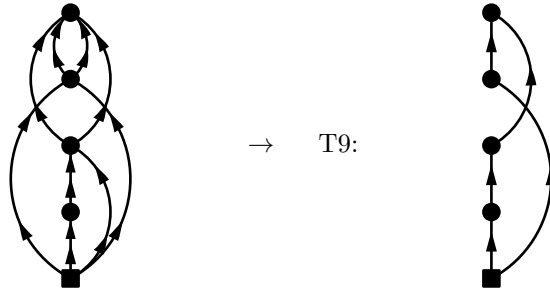
$$a_3 = \epsilon_{k_3 k_4}^{k_6 k_7}$$

$$a_4 = \epsilon_{k_6 k_7}$$

**Diagram 487:**

$$PO4.487 = \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_8 k_9 k_3 k_4}^{22} \Omega_{k_8 k_9 k_6 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_5}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_3 k_4}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_6 k_7 k_8 k_9}}$$

$$= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_8 k_9 k_3 k_4}^{22} \Omega_{k_8 k_9 k_6 k_7}^{04} \left[ \frac{1}{\epsilon_{k_1 k_6 k_7 k_8 k_9}^{k_5} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_3 k_4 k_6 k_7}^{k_5} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_6 k_7 k_8 k_9}^{k_5} \epsilon_{k_1 k_2 k_8 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_8 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_9} \epsilon_{k_8 k_9 k_3 k_4}} \right] \quad (987)$$



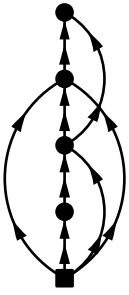

→ T9:

$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (988)$$

$$\begin{aligned} a_1 &= \epsilon_{k_3 k_4}^{k_8 k_9} \\ a_2 &= \epsilon_{k_1}^{k_5} \\ a_3 &= \epsilon_{k_2 k_5}^{k_6 k_7} \\ a_4 &= \epsilon_{k_6 k_7 k_8 k_9} \end{aligned}$$

**Diagram 488:**

$$\begin{aligned} \text{PO4.488} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_8 k_6 k_3 k_4}^{13} \Omega_{k_8 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_5}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_3 k_4 k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_5 k_2}^{22} \Omega_{k_8 k_6 k_3 k_4}^{13} \Omega_{k_8 k_7}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_3 k_4} \epsilon_{k_3 k_4 k_6 k_7} \epsilon_{k_7 k_8}} \end{aligned} \quad (989)$$

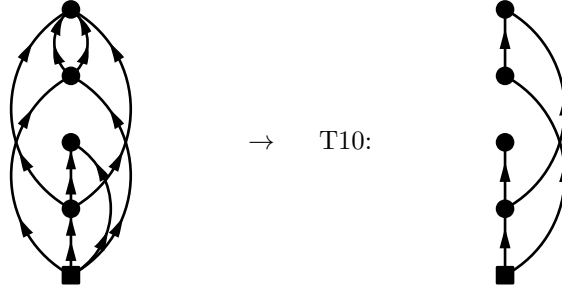

→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (990)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_2 k_5}^{k_6 k_7} \\
a_3 &= \epsilon_{k_3 k_4 k_6}^{k_8} \\
a_4 &= \epsilon_{k_7 k_8}
\end{aligned}$$

**Diagram 489:**

$$\begin{aligned}
\text{PO4.489} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_2}^{02} \Omega_{k_8 k_9 k_3 k_4}^{22} \Omega_{k_8 k_9 k_6 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5}} e^{-\tau_3 \epsilon_{k_3 k_4}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_6 k_7 k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_2}^{02} \Omega_{k_8 k_9 k_3 k_4}^{22} \Omega_{k_8 k_9 k_6 k_7}^{04} \left[ \frac{1}{\epsilon_{k_1}^{k_5 k_6 k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_3 k_4}^{k_5} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1}^{k_5 k_6 k_7} \epsilon_{k_2 k_5 k_6 k_7 k_8 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_9}} \right] \\
&\quad (991)
\end{aligned}$$



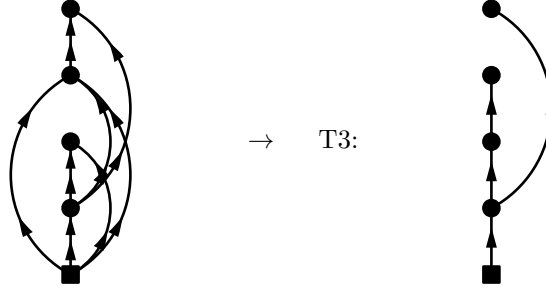
$\rightarrow$  T10:

$$\text{T10} = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (992)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_3 k_4}^{k_8 k_9} \\
a_2 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_3 &= \epsilon_{k_2 k_5} \\
a_4 &= \epsilon_{k_6 k_7 k_8 k_9}
\end{aligned}$$

**Diagram 490:**

$$\begin{aligned}
\text{PO4.490} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_2}^{02} \Omega_{k_8 k_6 k_3 k_4}^{13} \Omega_{k_8 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5}} e^{-\tau_3 \epsilon_{k_3 k_4 k_6}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_2}^{02} \Omega_{k_8 k_6 k_3 k_4}^{13} \Omega_{k_8 k_7}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5} \epsilon_{k_3 k_4 k_6 k_7} \epsilon_{k_7 k_8}}
\end{aligned} \tag{993}$$

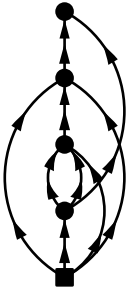



$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3 a_4} \tag{994}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_2 &= \epsilon_{k_3 k_4 k_6}^{k_8} \\
a_3 &= \epsilon_{k_7 k_8} \\
a_4 &= \epsilon_{k_2 k_5}
\end{aligned}$$

**Diagram 491:**

$$\begin{aligned}
\text{PO4.491} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_9 k_8 k_3 k_4}^{13} \Omega_{k_9 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5 k_6}^{k_8}} e^{-\tau_3 \epsilon_{k_3 k_4 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_7 k_9}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_9 k_8 k_3 k_4}^{13} \Omega_{k_9 k_7}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_3 k_4 k_7} \epsilon_{k_3 k_4 k_8 k_7} \epsilon_{k_7 k_9}}
\end{aligned} \tag{995}$$

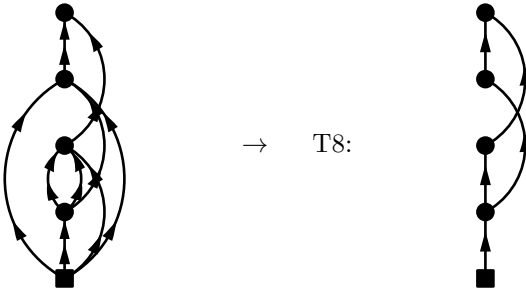

→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (996)$$

$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$   
 $a_2 = \epsilon_{k_2 k_5 k_6}^{k_8}$   
 $a_3 = \epsilon_{k_3 k_4 k_8}^{k_9}$   
 $a_4 = \epsilon_{k_7 k_9}$

**Diagram 492:**

$$\begin{aligned}
 PO4.492 &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_9 k_7 k_3 k_4}^{13} \Omega_{k_9 k_8}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\
 &\quad e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5 k_6}^{k_8}} e^{-\tau_3 \epsilon_{k_3 k_4 k_7}^{k_9}} e^{-\tau_4 \epsilon_{k_8}} \\
 &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_6 k_2}^{13} \Omega_{k_9 k_7 k_3 k_4}^{13} \Omega_{k_9 k_8}^{02} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_9} \epsilon_{k_2 k_5 k_6 k_3 k_4 k_7} \epsilon_{k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_5 k_6 k_3 k_4 k_7} \epsilon_{k_3 k_4 k_7 k_8} \epsilon_{k_8 k_9}} \right] \quad (997)
 \end{aligned}$$

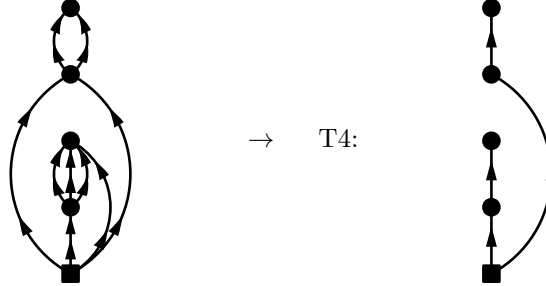


$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (998)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2 k_5 k_6}^{k_8} \\ a_3 &= \epsilon_{k_3 k_4 k_7}^{k_9} \\ a_4 &= \epsilon_{k_8 k_9} \end{aligned}$$

**Diagram 493:**

$$\begin{aligned} \text{PO4.493} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2 (3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6 k_7 k_2}^{04} \Omega_{k_8 k_9 k_3 k_4}^{22} \Omega_{k_8 k_9}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_3 k_4}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_8 k_9}} \\ &= \frac{(-1)^4}{(2!)^2 (3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_5 k_6 k_7 k_2}^{04} \Omega_{k_8 k_9 k_3 k_4}^{22} \Omega_{k_8 k_9}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_2 k_5 k_6 k_7} \epsilon_{k_3 k_4} \epsilon_{k_8 k_9}} \end{aligned} \quad (999)$$



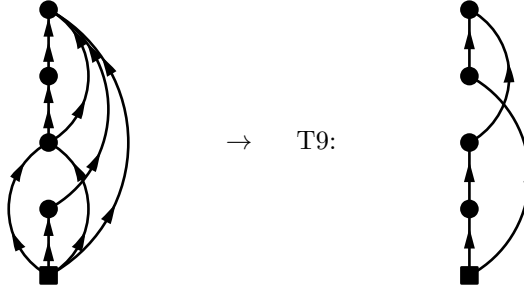
$$\text{T4} = \frac{1}{(a_1 + a_2)a_2(a_3 + a_4)a_4} \quad (1000)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2 k_5 k_6 k_7} \\ a_3 &= \epsilon_{k_3 k_4}^{k_8 k_9} \\ a_4 &= \epsilon_{k_8 k_9} \end{aligned}$$



**Diagram 494:**

$$\begin{aligned}
\text{PO4.494} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_2 k_3}^{22} \Omega_{k_8 k_6}^{11} \Omega_{k_8 k_7 k_5 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_5 k_7 k_8}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_2 k_3}^{22} \Omega_{k_8 k_6}^{11} \Omega_{k_8 k_7 k_5 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_6 k_4 k_5 k_7} \epsilon_{k_4 k_5 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_6 k_4 k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_6 k_4 k_5 k_7} \epsilon_{k_4 k_5 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_4 k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_6 k_4 k_5 k_7} \epsilon_{k_4 k_5 k_7 k_8}} \right] \\
&\hspace{15cm} (1001)
\end{aligned}$$

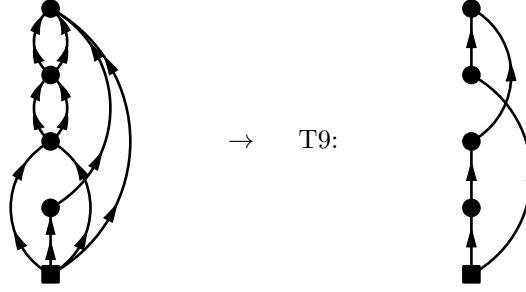


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1002)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_2 k_3}^{k_6 k_7} \\
a_2 &= \epsilon_{k_6}^{k_8} \\
a_3 &= \epsilon_{k_1}^{k_5} \\
a_4 &= \epsilon_{k_4 k_5 k_7 k_8}
\end{aligned}$$

**Diagram 495:**

$$\begin{aligned}
\text{PO4.495} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_2 k_3}^{22} \Omega_{k_8 k_9 k_6 k_7}^{22} \Omega_{k_8 k_9 k_5 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_6}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_4}^{k_5 k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_2 k_3}^{22} \Omega_{k_8 k_9 k_6 k_7}^{22} \Omega_{k_8 k_9 k_5 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4 k_8 k_9}^{k_6 k_7}} \frac{1}{\epsilon_{k_2 k_3 k_4 k_5 k_8 k_9}^{k_6 k_7}} \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_5 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5 k_8 k_9}^{k_6 k_7}} \frac{1}{\epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_4 k_5 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5 k_8 k_9}^{k_6 k_7}} \frac{1}{\epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_4 k_5 k_8 k_9}} \right] \\
&\quad (1003)
\end{aligned}$$

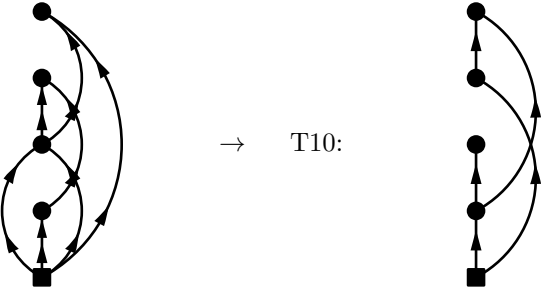


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1004)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_2 k_3}^{k_6 k_7} \\
a_3 &= \epsilon_{k_6 k_7}^{k_8 k_9} \\
a_4 &= \epsilon_{k_4 k_5 k_8 k_9}
\end{aligned}$$

**Diagram 496:**

$$\begin{aligned}
\text{PO4.496} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_2 k_3}^{22} \Omega_{k_6 k_5}^{02} \Omega_{k_7 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_5 k_6}} e^{-\tau_4 \epsilon_{k_4 k_7}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_2 k_3}^{22} \Omega_{k_6 k_5}^{02} \Omega_{k_7 k_4}^{02} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_4} \epsilon_{k_5 k_6} \epsilon_{k_4 k_7}} + \frac{1}{\epsilon_{k_1 k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_4 k_7}} \right] \quad (1005)
\end{aligned}$$



$$T10 = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \quad (1006)$$

$$a_1 = \epsilon_{k_2 k_3}^{k_6 k_7}$$

$$a_2 = \epsilon_{k_4 k_7}$$

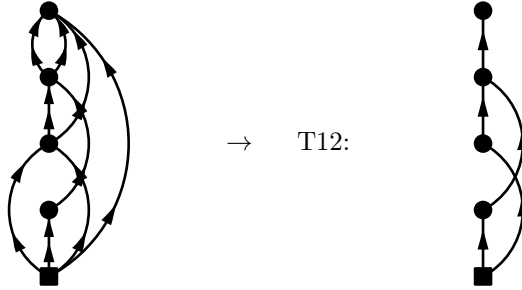
$$a_3 = \epsilon_{k_1}^{k_5}$$

$$a_4 = \epsilon_{k_5 k_6}$$

**Diagram 497:**

$$PO4.497 = \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_2 k_3}^{22} \Omega_{k_8 k_9 k_6 k_5}^{22} \Omega_{k_8 k_9 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_5 k_6}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_4 k_7 k_8 k_9}}$$

$$= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_2 k_3}^{22} \Omega_{k_8 k_9 k_6 k_5}^{22} \Omega_{k_8 k_9 k_7 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_6 k_4 k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_4 k_7} \epsilon_{k_4 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_4} \epsilon_{k_5 k_6 k_4 k_7} \epsilon_{k_4 k_7 k_8 k_9}} \right] \quad (1007)$$

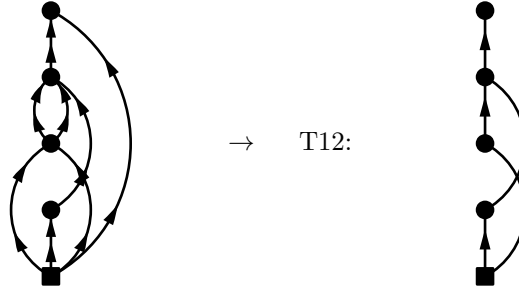


$$\text{T12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1008)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_2 k_3}^{k_6 k_7} \\ a_3 &= \epsilon_{k_5 k_6}^{k_8 k_9} \\ a_4 &= \epsilon_{k_4 k_7 k_8 k_9} \end{aligned}$$

**Diagram 498:**

$$\begin{aligned} \text{PO4.498} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_2 k_3}^{22} \Omega_{k_8 k_6 k_7 k_5}^{13} \Omega_{k_8 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_5 k_6 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_8}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_2 k_3}^{22} \Omega_{k_8 k_6 k_7 k_5}^{13} \Omega_{k_8 k_4}^{02} \left[ \frac{1}{\epsilon_{k_1 k_6 k_7 k_4} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_4} \epsilon_{k_4 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_4} \epsilon_{k_5 k_6 k_7 k_4} \epsilon_{k_4 k_8}} \right] \end{aligned} \quad (1009)$$



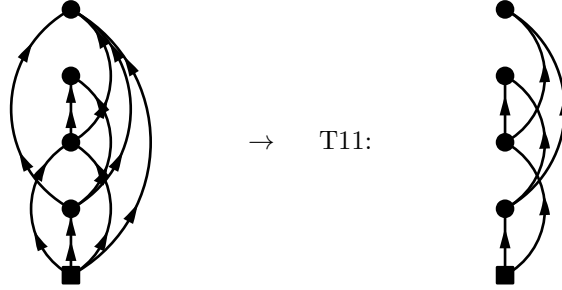
$\rightarrow$  T12:

$$\text{T12} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1010)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_2 k_3}^{k_6 k_7} \\
a_3 &= \epsilon_{k_5 k_6 k_7}^{k_8} \\
a_4 &= \epsilon_{k_4 k_8}
\end{aligned}$$

**Diagram 499:**

$$\begin{aligned}
\text{PO4.499} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_2 k_3}^{22} \Omega_{k_8 k_5}^{02} \Omega_{k_9 k_6 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_5 k_8}} e^{-\tau_4 \epsilon_{k_4 k_6}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_2 k_3}^{22} \Omega_{k_8 k_5}^{02} \Omega_{k_9 k_6 k_7 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_8 k_4 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_8} \epsilon_{k_4 k_6 k_7 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_4 k_6 k_7} \epsilon_{k_5 k_8} \epsilon_{k_4 k_6 k_7 k_9}} \right] \\
&\hspace{15cm} (1011)
\end{aligned}$$

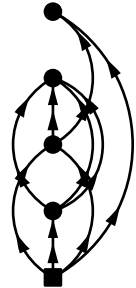
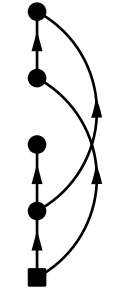


$$\text{T11} = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3 a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \quad (1012)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
a_2 &= \epsilon_{k_2 k_3}^{k_8 k_9} \\
a_3 &= \epsilon_{k_5 k_8} \\
a_4 &= \epsilon_{k_4 k_6 k_7 k_9}
\end{aligned}$$

**Diagram 500:**

$$\begin{aligned}
\text{PO4.500} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_2 k_3}^{22} \Omega_{k_8 k_5 k_6 k_7}^{04} \Omega_{k_9 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_8 k_9}} e^{-\tau_3 \epsilon_{k_5 k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_4 k_9}} \\
&= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_9 k_2 k_3}^{22} \Omega_{k_8 k_5 k_6 k_7}^{04} \Omega_{k_9 k_4}^{02} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4}^{k_5 k_6 k_7 k_8} \epsilon_{k_2 k_3}^{k_8 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3}^{k_8 k_9} \epsilon_{k_5 k_6 k_7 k_8 k_4 k_9} \epsilon_{k_4 k_9}} \right]
\end{aligned} \tag{1013}$$

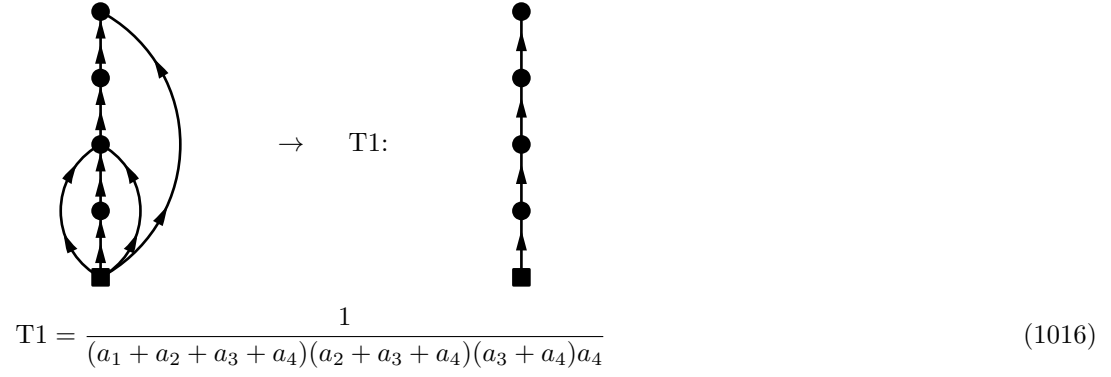

→ T10:


$$\text{T10} = \frac{1}{(a_1 + a_2 + a_4)a_2(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)a_2(a_3 + a_4)a_4} \tag{1014}$$

$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$   
 $a_2 = \epsilon_{k_2 k_3}^{k_8 k_9}$   
 $a_3 = \epsilon_{k_5 k_6 k_7 k_8}$   
 $a_4 = \epsilon_{k_4 k_9}$

**Diagram 501:**

$$\begin{aligned}
\text{PO4.501} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5 k_2 k_3}^{13} \Omega_{k_7 k_6}^{11} \Omega_{k_7 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_3 k_5}^{k_6}} e^{-\tau_3 \epsilon_{k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_4 k_7}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5 k_2 k_3}^{13} \Omega_{k_7 k_6}^{11} \Omega_{k_7 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_4} \epsilon_{k_6 k_4} \epsilon_{k_4 k_7}}
\end{aligned} \tag{1015}$$

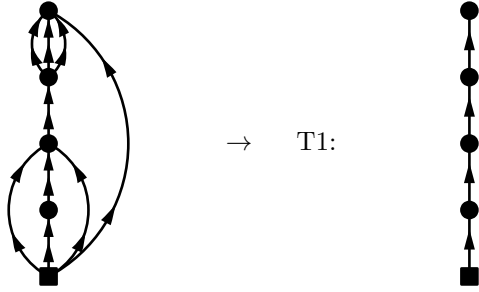


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1016)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_2 k_3 k_5}^{k_6} \\ a_3 &= \epsilon_{k_6}^{k_7} \\ a_4 &= \epsilon_{k_4 k_7} \end{aligned}$$

**Diagram 502:**

$$\begin{aligned} \text{PO4.502} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5 k_2 k_3}^{13} \Omega_{k_7 k_8 k_9 k_6}^{31} \Omega_{k_7 k_8 k_9 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_3 k_5}^{k_6}} e^{-\tau_3 \epsilon_{k_6}^{k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_4 k_7 k_8 k_9}} \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5 k_2 k_3}^{13} \Omega_{k_7 k_8 k_9 k_6}^{31} \Omega_{k_7 k_8 k_9 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_4} \epsilon_{k_6 k_4} \epsilon_{k_4 k_7 k_8 k_9}} \end{aligned} \quad (1017)$$

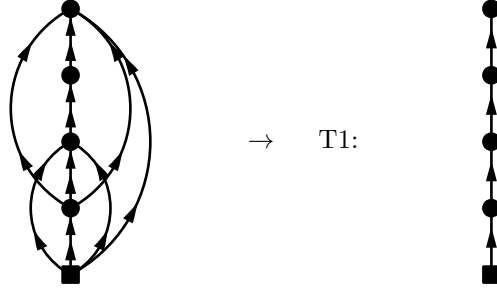


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1018)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_2 k_3 k_5}^{k_6} \\ a_3 &= \epsilon_{k_6}^{k_7 k_8 k_9} \\ a_4 &= \epsilon_{k_4 k_7 k_8 k_9} \end{aligned}$$

**Diagram 503:**

$$\begin{aligned} \text{PO4.503} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_2 k_3}^{13} \Omega_{k_9 k_8}^{11} \Omega_{k_9 k_6 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_3 k_5}^{k_8}} e^{-\tau_3 \epsilon_{k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_6 k_7}^{k_9}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_2 k_3}^{13} \Omega_{k_9 k_8}^{11} \Omega_{k_9 k_6 k_7 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_4 k_6 k_7} \epsilon_{k_8 k_4 k_6 k_7} \epsilon_{k_4 k_6 k_7 k_9}} \end{aligned} \quad (1019)$$



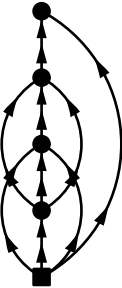

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1020)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2 k_3 k_5}^{k_8} \\ a_3 &= \epsilon_{k_8}^{k_9} \\ a_4 &= \epsilon_{k_4 k_6 k_7 k_9} \end{aligned}$$



**Diagram 504:**

$$\begin{aligned}
\text{PO4.504} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_2 k_3}^{13} \Omega_{k_9 k_8 k_6 k_7}^{13} \Omega_{k_9 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_3 k_5}^{k_8}} e^{-\tau_3 \epsilon_{k_6 k_7 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_9}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_2 k_3}^{13} \Omega_{k_9 k_8 k_6 k_7}^{13} \Omega_{k_9 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_6 k_7 k_4} \epsilon_{k_6 k_7 k_8 k_4} \epsilon_{k_4 k_9}} \quad (1021)
\end{aligned}$$

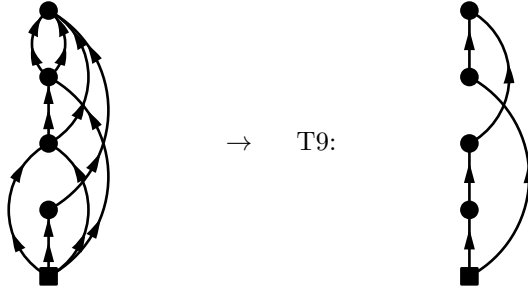

→ T1:


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1022)$$

$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$   
 $a_2 = \epsilon_{k_2 k_3 k_5}^{k_8}$   
 $a_3 = \epsilon_{k_6 k_7 k_8}^{k_9}$   
 $a_4 = \epsilon_{k_4 k_9}$

**Diagram 505:**

$$\begin{aligned}
\text{PO4.505} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_2 k_3}^{22} \Omega_{k_8 k_9 k_6 k_4}^{22} \Omega_{k_8 k_9 k_7 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_4 k_6}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_5 k_7 k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_2 k_3}^{22} \Omega_{k_8 k_9 k_6 k_4}^{22} \Omega_{k_8 k_9 k_7 k_5}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_8 k_9}^{k_6} \epsilon_{k_2 k_3 k_5 k_8 k_9}^{k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_8 k_9}^{k_6} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_5 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_8 k_9}^{k_6} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_5 k_7 k_8 k_9}} \right] \quad (1023)
\end{aligned}$$

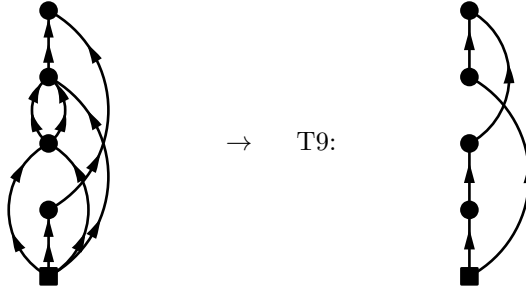


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1024)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_2 k_3}^{k_6 k_7} \\ a_3 &= \epsilon_{k_4 k_6}^{k_8 k_9} \\ a_4 &= \epsilon_{k_5 k_7 k_8 k_9} \end{aligned}$$

**Diagram 506:**

$$\begin{aligned} \text{PO4.506} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_2 k_3}^{22} \Omega_{k_8 k_6 k_7 k_4}^{13} \Omega_{k_8 k_5}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_4 k_6 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_5 k_8}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_2 k_3}^{22} \Omega_{k_8 k_6 k_7 k_4}^{13} \Omega_{k_8 k_5}^{02} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_8}^{k_6 k_7} \epsilon_{k_2 k_3 k_5 k_8}^{k_6 k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_8}^{k_6 k_7} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_5 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_4 k_6 k_7 k_8}} \right] \quad (1025) \end{aligned}$$

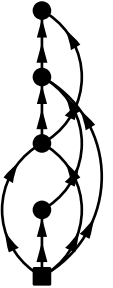



$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1026)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_2 k_3}^{k_6 k_7} \\ a_3 &= \epsilon_{k_4 k_6 k_7}^{k_8} \\ a_4 &= \epsilon_{k_5 k_8} \end{aligned}$$

**Diagram 507:**

$$\begin{aligned} \text{PO4.507} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_2 k_3}^{22} \Omega_{k_8 k_6 k_5 k_4}^{13} \Omega_{k_8 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_3}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_4 k_5 k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_7 k_2 k_3}^{22} \Omega_{k_8 k_6 k_5 k_4}^{13} \Omega_{k_8 k_7}^{02} \left[ \frac{1}{\epsilon_{k_1 k_4 k_6 k_7} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_5 k_6 k_7} \epsilon_{k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_4 k_5 k_6 k_7} \epsilon_{k_7 k_8}} \right] \quad (1027) \end{aligned}$$

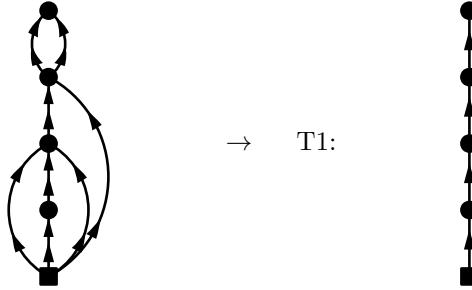

→ T12:


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1028)$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1}^{k_5} \\
 a_2 &= \epsilon_{k_2 k_3}^{k_6 k_7} \\
 a_3 &= \epsilon_{k_4 k_5 k_6}^{k_8} \\
 a_4 &= \epsilon_{k_7 k_8}
 \end{aligned}$$

**Diagram 508:**

$$\begin{aligned}
 PO4.508 &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5 k_2 k_3}^{13} \Omega_{k_7 k_8 k_6 k_4}^{22} \Omega_{k_7 k_8}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_3 k_4}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_4 k_5 k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\
 &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_5 k_2 k_3}^{13} \Omega_{k_7 k_8 k_6 k_4}^{22} \Omega_{k_7 k_8}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_4} \epsilon_{k_4 k_6} \epsilon_{k_7 k_8}} \quad (1029)
 \end{aligned}$$

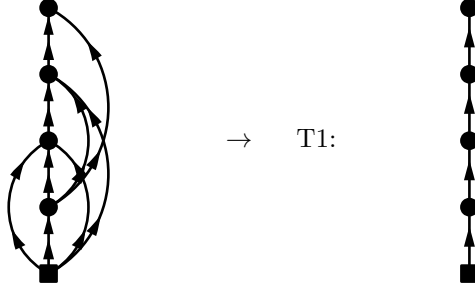


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1030)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5} \\ a_2 &= \epsilon_{k_2 k_3 k_5}^{k_6} \\ a_3 &= \epsilon_{k_4 k_6}^{k_7 k_8} \\ a_4 &= \epsilon_{k_7 k_8} \end{aligned}$$

**Diagram 509:**

$$\begin{aligned} \text{PO4.509} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_2 k_3}^{13} \Omega_{k_9 k_8 k_6 k_4}^{13} \Omega_{k_9 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_3 k_5}^{k_8}} e^{-\tau_3 \epsilon_{k_4 k_6}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_5 k_2 k_3}^{13} \Omega_{k_9 k_8 k_6 k_4}^{13} \Omega_{k_9 k_7}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_5 k_4 k_6 k_7} \epsilon_{k_4 k_6 k_8 k_7} \epsilon_{k_7 k_9}} \end{aligned} \quad (1031)$$

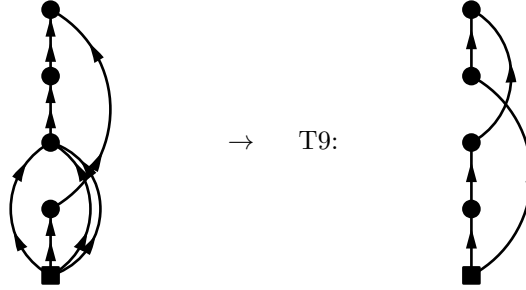


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1032)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\ a_2 &= \epsilon_{k_2 k_3 k_5}^{k_8} \\ a_3 &= \epsilon_{k_4 k_6 k_8}^{k_9} \\ a_4 &= \epsilon_{k_7 k_9} \end{aligned}$$

**Diagram 510:**

$$\begin{aligned}
\text{PO4.510} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2 k_3 k_4}^{13} \Omega_{k_7 k_6}^{11} \Omega_{k_7 k_5}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_3 k_4}^{k_6}} e^{-\tau_3 \epsilon_{k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_5 k_7}} \\
&= \frac{-(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2 k_3 k_4}^{13} \Omega_{k_7 k_6}^{11} \Omega_{k_7 k_5}^{02} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4 k_7}^{k_6} \epsilon_{k_2 k_3 k_4 k_5 k_7}^{k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_7}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5 k_7}^{k_6} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_5 k_7}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_6 k_5} \epsilon_{k_6 k_7}} \right] \\
&\hspace{15cm} (1033)
\end{aligned}$$

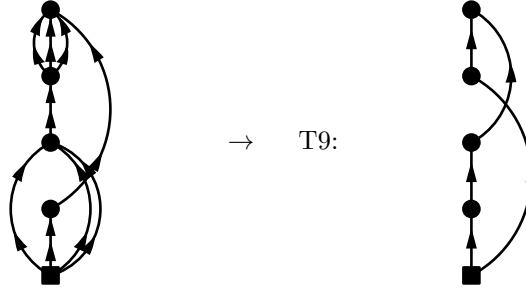


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1034)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_2 k_3 k_4}^{k_6} \\
a_3 &= \epsilon_{k_6}^{k_7} \\
a_4 &= \epsilon_{k_5 k_7}
\end{aligned}$$

**Diagram 511:**

$$\begin{aligned}
\text{PO4.511} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2 k_3 k_4}^{13} \Omega_{k_7 k_8 k_9 k_6}^{31} \Omega_{k_7 k_8 k_9 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_3 k_4}^{k_6}} e^{-\tau_3 \epsilon_{k_6}^{k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_5 k_7 k_8 k_9}} \\
&= \frac{-(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2 k_3 k_4}^{13} \Omega_{k_7 k_8 k_9 k_6}^{31} \Omega_{k_7 k_8 k_9 k_5}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4 k_7 k_8 k_9}^{k_6} \epsilon_{k_2 k_3 k_4 k_5 k_7 k_8 k_9}^{k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5 k_7 k_8 k_9}^{k_6} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_5 k_7 k_8 k_9}} + \right. \\
&\quad \left. \right] \quad (1035)
\end{aligned}$$

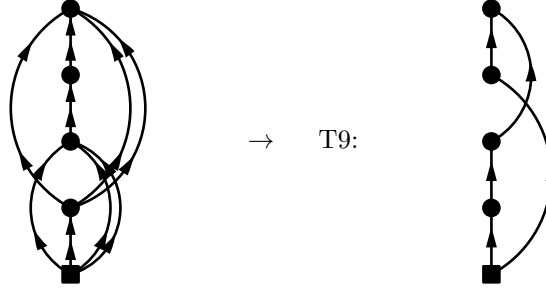


$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1036)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1}^{k_5} \\
a_2 &= \epsilon_{k_2 k_3 k_4}^{k_6} \\
a_3 &= \epsilon_{k_6}^{k_7 k_8 k_9} \\
a_4 &= \epsilon_{k_5 k_7 k_8 k_9}
\end{aligned}$$

**Diagram 512:**

$$\begin{aligned}
 \text{PO4.512} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_2 k_3 k_4}^{13} \Omega_{k_9 k_8}^{11} \Omega_{k_9 k_5 k_6 k_7}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_3 k_4}^{k_8}} e^{-\tau_3 \epsilon_{k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7 k_9}} \\
 &= \frac{-(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_2 k_3 k_4}^{13} \Omega_{k_9 k_8}^{11} \Omega_{k_9 k_5 k_6 k_7}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4 k_9}^{k_8} \epsilon_{k_2 k_3 k_4 k_5 k_6 k_7 k_9}^{k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_7 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5 k_6 k_7 k_9}^{k_8} \epsilon_{k_2 k_3 k_4 k_5 k_6 k_7} \epsilon_{k_5 k_6 k_7 k_9}} + \dots \right] \\
 &\quad (1037)
 \end{aligned}$$



→ T9:

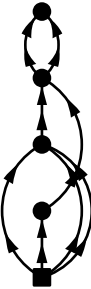

$$\text{T9} = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1038)$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1}^{k_5 k_6 k_7} \\
 a_2 &= \epsilon_{k_2 k_3 k_4}^{k_8} \\
 a_3 &= \epsilon_{k_8}^{k_9} \\
 a_4 &= \epsilon_{k_5 k_6 k_7 k_9}
 \end{aligned}$$

**Diagram 513:**

$$\begin{aligned}
 \text{PO4.513} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2 k_3 k_4}^{13} \Omega_{k_7 k_8 k_6 k_5}^{22} \Omega_{k_7 k_8}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1}^{k_5}} e^{-\tau_2 \epsilon_{k_2 k_3 k_4}^{k_6}} e^{-\tau_3 \epsilon_{k_5 k_6}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\
 &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1}^{11} \Omega_{k_6 k_2 k_3 k_4}^{13} \Omega_{k_7 k_8 k_6 k_5}^{22} \Omega_{k_7 k_8}^{02} \left[ \frac{1}{\epsilon_{k_1 k_6} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5} \epsilon_{k_5 k_6} \epsilon_{k_7 k_8}} \right] \quad (1039)
 \end{aligned}$$



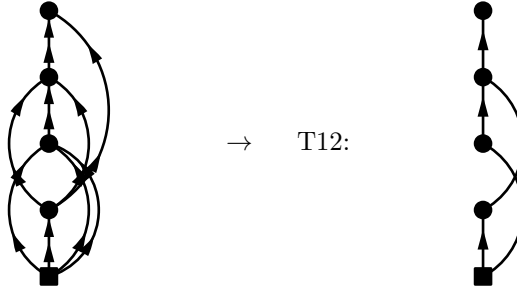

→ T12:


$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1040)$$

$a_1 = \epsilon_{k_1}^{k_5}$   
 $a_2 = \epsilon_{k_2 k_3 k_4}^{k_6}$   
 $a_3 = \epsilon_{k_5 k_6}^{k_7 k_8}$   
 $a_4 = \epsilon_{k_7 k_8}$

**Diagram 514:**

$$\begin{aligned}
 PO4.514 &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_2 k_3 k_4}^{13} \Omega_{k_9 k_8 k_5 k_6}^{13} \Omega_{k_9 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) \\
 &\quad e^{-\tau_1 \epsilon_{k_1}^{k_5 k_6 k_7}} e^{-\tau_2 \epsilon_{k_2 k_3 k_4}^{k_8}} e^{-\tau_3 \epsilon_{k_5 k_6 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\
 &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_7 k_1}^{31} \Omega_{k_8 k_2 k_3 k_4}^{13} \Omega_{k_9 k_8 k_5 k_6}^{13} \Omega_{k_9 k_7}^{02} \left[ \frac{1}{\epsilon_{k_1 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_8 k_7} \epsilon_{k_7 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_2 k_3 k_4 k_5 k_6 k_7} \epsilon_{k_5 k_6 k_8 k_7} \epsilon_{k_7 k_9}} \right] \quad (1041)
 \end{aligned}$$



$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1042)$$

$$a_1 = \epsilon_{k_1}^{k_5 k_6 k_7}$$

$$a_2 = \epsilon_{k_2 k_3 k_4}^{k_8}$$

$$a_3 = \epsilon_{k_5 k_6 k_8}^{k_9}$$

$$a_4 = \epsilon_{k_7 k_9}$$

**Diagram 515:**

$$\begin{aligned} \text{PO4.515} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_6 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5}} e^{-\tau_3 \epsilon_{k_5}^{k_6}} e^{-\tau_4 \epsilon_{k_4 k_6}} \\ &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_5}^{11} \Omega_{k_6 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_5 k_4} \epsilon_{k_4 k_6}} \end{aligned} \quad (1043)$$



$\rightarrow$  T1:



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1044)$$

$$a_1 = \epsilon_{k_1 k_2}^{k_3 k_4}$$

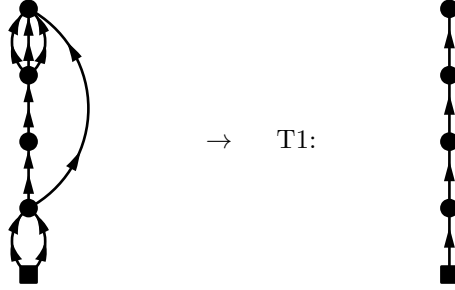
$$a_2 = \epsilon_{k_3}^{k_5}$$

$$a_3 = \epsilon_{k_5}^{k_6}$$

$$a_4 = \epsilon_{k_4 k_6}$$

**Diagram 516:**

$$\begin{aligned}
\text{PO4.516} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_6 k_7 k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5}} e^{-\tau_3 \epsilon_{k_5}^{k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_4 k_6 k_7 k_8}} \\
&= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_6 k_7 k_8 k_4}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_5 k_4} \epsilon_{k_4 k_6 k_7 k_8}}
\end{aligned} \tag{1045}$$

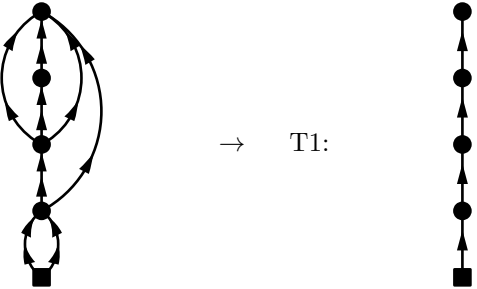


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{1046}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_3 k_4} \\
a_2 &= \epsilon_{k_3}^{k_5} \\
a_3 &= \epsilon_{k_5}^{k_6 k_7 k_8} \\
a_4 &= \epsilon_{k_4 k_6 k_7 k_8}
\end{aligned}$$

**Diagram 517:**

$$\begin{aligned}
\text{PO4.517} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_8 k_6 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_5}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_6 k_7 k_8}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_5}^{11} \Omega_{k_8 k_6 k_7 k_4}^{04}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_5 k_4 k_6 k_7} \epsilon_{k_4 k_6 k_7 k_8}}
\end{aligned} \tag{1047}$$

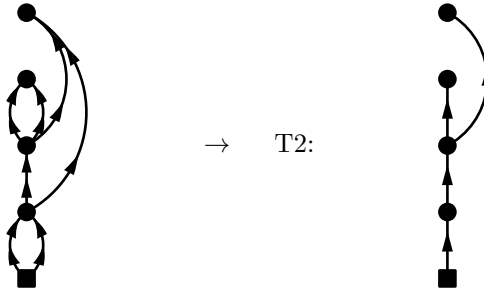


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1048)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_3 k_4} \\ a_2 &= \epsilon_{k_3}^{k_5 k_6 k_7} \\ a_3 &= \epsilon_{k_5}^{k_8} \\ a_4 &= \epsilon_{k_4 k_6 k_7 k_8} \end{aligned}$$

**Diagram 518:**

$$\begin{aligned} \text{PO4.518} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_7 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_5 k_6}} e^{-\tau_4 \epsilon_{k_4 k_7}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_5 k_6}^{02} \Omega_{k_7 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_4 k_7}} \end{aligned} \quad (1049)$$

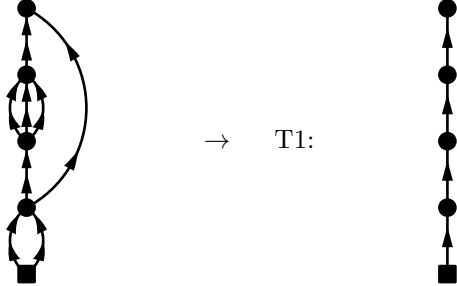


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (1050)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_3 k_4} \\ a_2 &= \epsilon_{k_3}^{k_5 k_6 k_7} \\ a_3 &= \epsilon_{k_5 k_6} \\ a_4 &= \epsilon_{k_4 k_7} \end{aligned}$$

**Diagram 519:**

$$\begin{aligned} \text{PO4.519} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_8 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_5 k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_8}} \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_5 k_6 k_7}^{13} \Omega_{k_8 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_5 k_6 k_7 k_4} \epsilon_{k_4 k_8}} \end{aligned} \quad (1051)$$



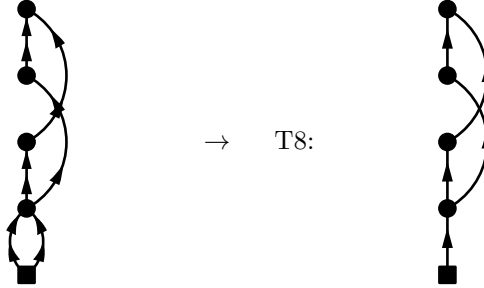
→ T1:

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1052)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_3 k_4} \\ a_2 &= \epsilon_{k_3}^{k_5 k_6 k_7} \\ a_3 &= \epsilon_{k_5 k_6 k_7}^{k_8} \\ a_4 &= \epsilon_{k_4 k_8} \end{aligned}$$

**Diagram 520:**

$$\begin{aligned}
 \text{PO4.520} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_4}^{11} \Omega_{k_6 k_5}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5}} e^{-\tau_3 \epsilon_{k_4}^{k_6}} e^{-\tau_4 \epsilon_{k_5 k_6}} \\
 &= \frac{-(-1)^4}{2(2!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_4}^{11} \Omega_{k_6 k_5}^{02} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_6} \epsilon_{k_3 k_4} \epsilon_{k_5 k_6}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_4 k_5} \epsilon_{k_5 k_6}} \right] \quad (1053)
 \end{aligned}$$

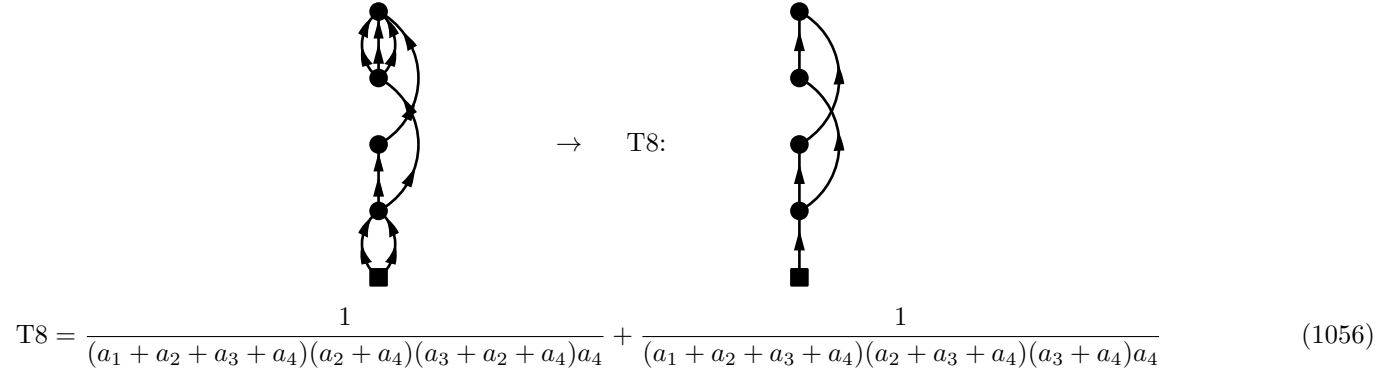


$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1054)$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1 k_2}^{k_3 k_4} \\
 a_2 &= \epsilon_{k_3}^{k_5} \\
 a_3 &= \epsilon_{k_4}^{k_6} \\
 a_4 &= \epsilon_{k_5 k_6}
 \end{aligned}$$

**Diagram 521:**

$$\begin{aligned}
 \text{PO4.521} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_7 k_8 k_4}^{31} \Omega_{k_6 k_7 k_8 k_5}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5}} e^{-\tau_3 \epsilon_{k_4}^{k_6 k_7 k_8}} e^{-\tau_4 \epsilon_{k_5 k_6 k_7 k_8}} \\
 &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_7 k_8 k_4}^{31} \Omega_{k_6 k_7 k_8 k_5}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_6 k_7 k_8} \epsilon_{k_3 k_4} \epsilon_{k_5 k_6 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_4 k_5} \epsilon_{k_5 k_6 k_7 k_8}} \right] \quad (1055)
 \end{aligned}$$

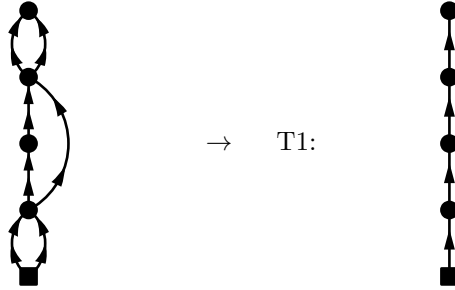


$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1056)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_3 k_4} \\ a_2 &= \epsilon_{k_3}^{k_5} \\ a_3 &= \epsilon_{k_4}^{k_6 k_7 k_8} \\ a_4 &= \epsilon_{k_5 k_6 k_7 k_8} \end{aligned}$$

**Diagram 522:**

$$\begin{aligned} \text{PO4.522} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_7 k_5 k_4}^{22} \Omega_{k_6 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5}} e^{-\tau_3 \epsilon_{k_4 k_5}^{k_6 k_7}} e^{-\tau_4 \epsilon_{k_6 k_7}^{k_8}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_3}^{11} \Omega_{k_6 k_7 k_5 k_4}^{22} \Omega_{k_6 k_7}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_4 k_5} \epsilon_{k_6 k_7}} \end{aligned} \quad (1057)$$



$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1058)$$

$$a_1 = \epsilon_{k_1 k_2}^{k_3 k_4}$$

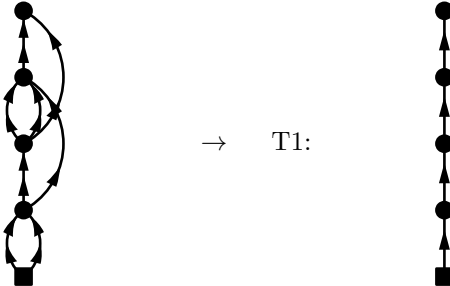
$$a_2 = \epsilon_{k_3}^{k_5}$$

$$a_3 = \epsilon_{k_4 k_5}^{k_6 k_7}$$

$$a_4 = \epsilon_{k_6 k_7}$$

**Diagram 523:**

$$\begin{aligned}
\text{PO4.523} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_5 k_6 k_4}^{13} \Omega_{k_8 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3}^{k_5 k_6 k_7}} e^{-\tau_3 \epsilon_{k_4 k_5 k_6}^{k_8}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_7 k_3}^{31} \Omega_{k_8 k_5 k_6 k_4}^{13} \Omega_{k_8 k_7}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_4 k_5 k_6 k_7} \epsilon_{k_7 k_8}} \quad (1059)
\end{aligned}$$



$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1060)$$

$$a_1 = \epsilon_{k_1 k_2}^{k_3 k_4}$$

$$a_2 = \epsilon_{k_3}^{k_5 k_6 k_7}$$

$$a_3 = \epsilon_{k_4 k_5 k_6}^{k_8}$$

$$a_4 = \epsilon_{k_7 k_8}$$



**Diagram 524:**

$$\begin{aligned}
\text{PO4.524} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_7 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_5}^{k_7}} e^{-\tau_4 \epsilon_{k_6 k_7}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_7 k_6}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_6 k_7}}
\end{aligned} \tag{1061}$$



$\rightarrow$  T1:

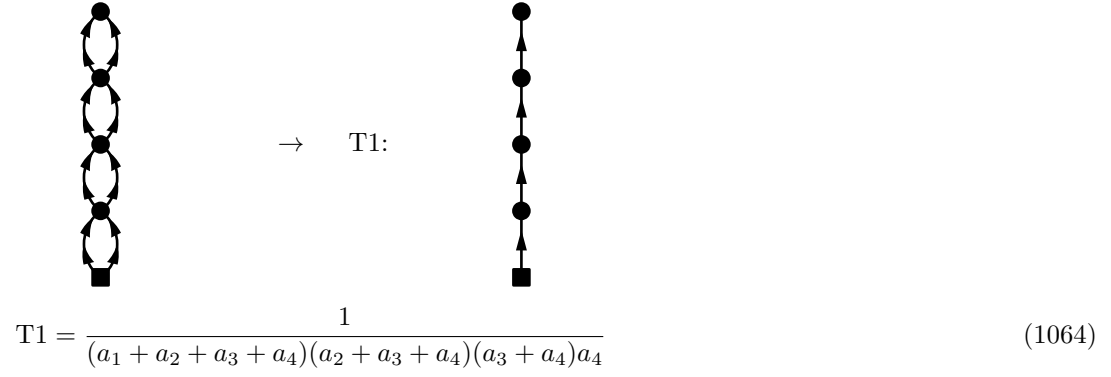


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{1062}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_3 k_4} \\
a_2 &= \epsilon_{k_3 k_4}^{k_5 k_6} \\
a_3 &= \epsilon_{k_5}^{k_7} \\
a_4 &= \epsilon_{k_6 k_7}
\end{aligned}$$

**Diagram 525:**

$$\begin{aligned}
\text{PO4.525} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_7 k_8}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_3 k_4}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_5 k_6}} e^{-\tau_3 \epsilon_{k_5 k_6}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\
&= \frac{(-1)^4}{(2!)^4} \sum_{k_i} \frac{O_{k_1 k_2}^{20} \Omega_{k_3 k_4 k_1 k_2}^{22} \Omega_{k_5 k_6 k_3 k_4}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_7 k_8}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_3 k_4} \epsilon_{k_5 k_6} \epsilon_{k_7 k_8}}
\end{aligned} \tag{1063}$$

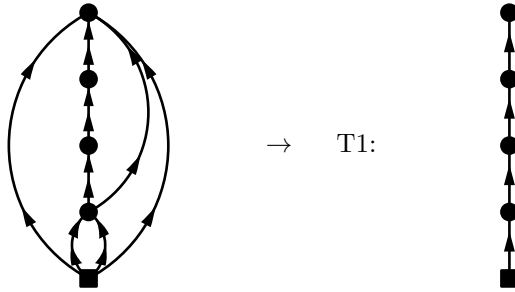


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1064)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_3 k_4} \\ a_2 &= \epsilon_{k_3 k_4}^{k_5 k_6} \\ a_3 &= \epsilon_{k_5 k_6}^{k_7 k_8} \\ a_4 &= \epsilon_{k_7 k_8} \end{aligned}$$

**Diagram 526:**

$$\begin{aligned} \text{PO4.526} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_8}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_6 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_4 k_6} \epsilon_{k_7 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_6 k_8}} \end{aligned} \quad (1065)$$

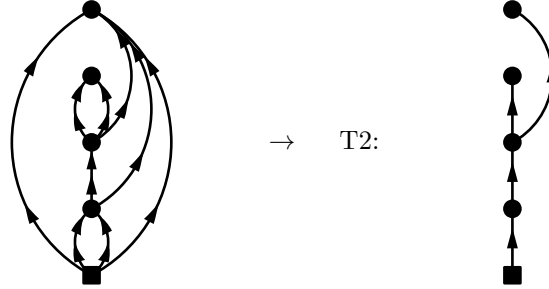


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1066)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7} \\ a_3 &= \epsilon_{k_7}^{k_8} \\ a_4 &= \epsilon_{k_3 k_4 k_6 k_8} \end{aligned}$$

**Diagram 527:**

$$\begin{aligned} \text{PO4.527} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_8}^{02} \Omega_{k_9 k_6 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_6 k_8}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_8}^{02} \Omega_{k_9 k_6 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_4 k_6} \epsilon_{k_7 k_8} \epsilon_{k_3 k_4 k_6 k_9}} \end{aligned} \quad (1067)$$

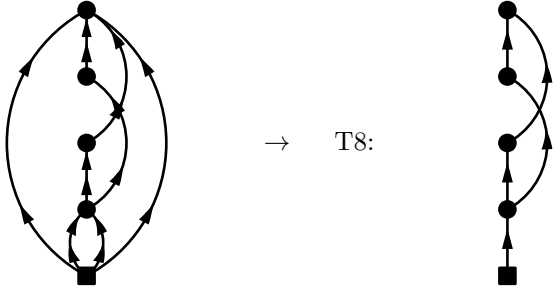



$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \quad (1068)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7 k_8 k_9} \\ a_3 &= \epsilon_{k_7 k_8} \\ a_4 &= \epsilon_{k_3 k_4 k_6 k_9} \end{aligned}$$

**Diagram 528:**

$$\begin{aligned}
 \text{PO4.528} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_6}^{11} \Omega_{k_8 k_7 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_3 k_4 k_7 k_8}} \\
 &= \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_6}^{11} \Omega_{k_8 k_7 k_3 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_4 k_8} \epsilon_{k_5 k_6 k_3 k_4} \epsilon_{k_3 k_4 k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_3 k_4} \epsilon_{k_6 k_3 k_4 k_7} \epsilon_{k_3 k_4 k_7 k_8}} \right]
 \end{aligned} \tag{1069}$$

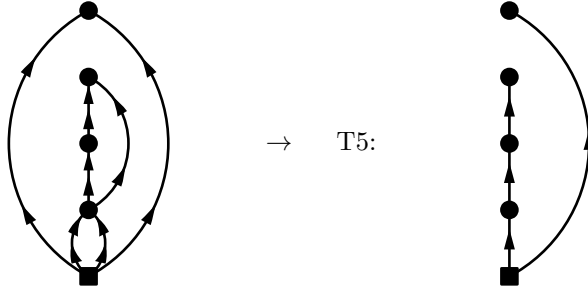

→ T8:


$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{1070}$$

$a_1 = \epsilon_{k_1 k_2}^{k_5 k_6}$   
 $a_2 = \epsilon_{k_5}^{k_7}$   
 $a_3 = \epsilon_{k_6}^{k_8}$   
 $a_4 = \epsilon_{k_3 k_4 k_7 k_8}$

**Diagram 529:**

$$\begin{aligned}
 \text{PO4.529} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_7 k_6}^{02} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_6 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
 &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_7 k_6}^{02} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_5 k_6} \epsilon_{k_6 k_7} \epsilon_{k_3 k_4}}
 \end{aligned} \tag{1071}$$



→ T5:

$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (1072)$$

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

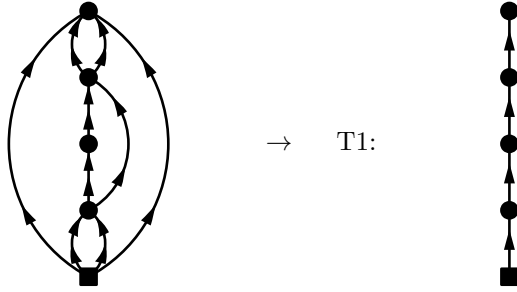
$$a_2 = \epsilon_{k_5}^{k_7}$$

$$a_3 = \epsilon_{k_6 k_7}$$

$$a_4 = \epsilon_{k_3 k_4}$$

**Diagram 530:**

$$\begin{aligned} \text{PO4.530} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_9 k_7 k_6}^{22} \Omega_{k_8 k_9 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_6 k_7}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_3 k_4 k_8 k_9}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_9 k_7 k_6}^{22} \Omega_{k_8 k_9 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_3 k_4} \epsilon_{k_6 k_7 k_3 k_4} \epsilon_{k_3 k_4 k_8 k_9}} \end{aligned} \quad (1073)$$



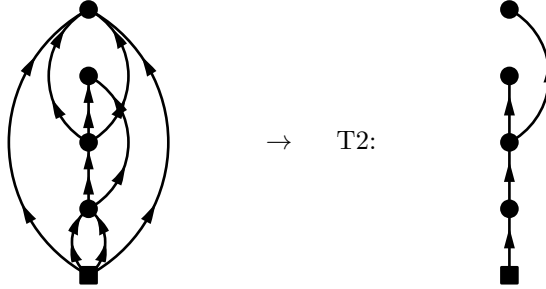
→ T1:

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1074)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7} \\ a_3 &= \epsilon_{k_6 k_7}^{k_8 k_9} \\ a_4 &= \epsilon_{k_3 k_4 k_8 k_9} \end{aligned}$$

**Diagram 531:**

$$\begin{aligned} \text{PO4.531} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_6}^{02} \Omega_{k_8 k_9 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_6 k_7}} e^{-\tau_4 \epsilon_{k_3 k_4 k_8 k_9}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_6}^{02} \Omega_{k_8 k_9 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_3 k_4} \epsilon_{k_6 k_7} \epsilon_{k_3 k_4 k_8 k_9}} \end{aligned} \quad (1075)$$

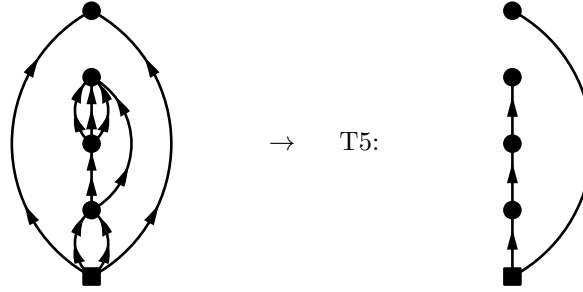


$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \quad (1076)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7 k_8 k_9} \\ a_3 &= \epsilon_{k_6 k_7} \\ a_4 &= \epsilon_{k_3 k_4 k_8 k_9} \end{aligned}$$

**Diagram 532:**

$$\begin{aligned}
\text{PO4.532} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_8 k_9 k_6}^{04} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_6 k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\
&= \frac{(-1)^4}{(2!)^2(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_8 k_9 k_6}^{04} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_5 k_6} \epsilon_{k_6 k_7 k_8 k_9} \epsilon_{k_3 k_4}}
\end{aligned} \tag{1077}$$

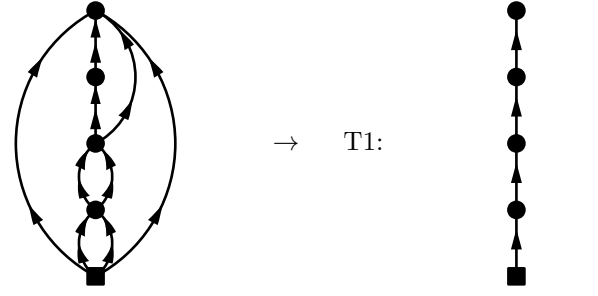


$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3 a_4} \tag{1078}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_2 &= \epsilon_{k_5}^{k_7 k_8 k_9} \\
a_3 &= \epsilon_{k_6 k_7 k_8 k_9} \\
a_4 &= \epsilon_{k_3 k_4}
\end{aligned}$$

**Diagram 533:**

$$\begin{aligned}
\text{PO4.533} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_7}^{11} \Omega_{k_9 k_8 k_3 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_7}^{k_9}} e^{-\tau_4 \epsilon_{k_3 k_4 k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_7}^{11} \Omega_{k_9 k_8 k_3 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_3 k_4} \epsilon_{k_7 k_3 k_4 k_8} \epsilon_{k_3 k_4 k_8 k_9}}
\end{aligned} \tag{1079}$$

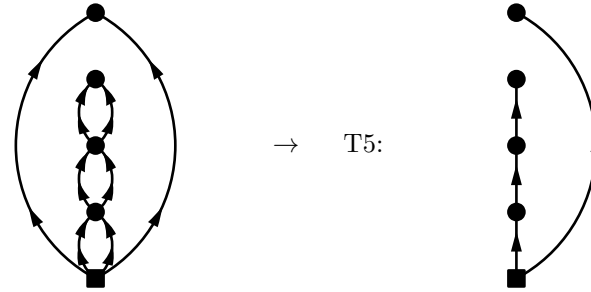


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1080)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_5 k_6}^{k_7 k_8} \\ a_3 &= \epsilon_{k_7}^{k_9} \\ a_4 &= \epsilon_{k_3 k_4 k_8 k_9} \end{aligned}$$

**Diagram 534:**

$$\begin{aligned} \text{PO4.534} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^4} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_7 k_8}^{02} \Omega_{k_3 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_7 k_8}} e^{-\tau_4 \epsilon_{k_3 k_4}} \\ &= \frac{(-1)^4}{(2!)^4} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_7 k_8}^{02} \Omega_{k_3 k_4}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_5 k_6} \epsilon_{k_7 k_8} \epsilon_{k_3 k_4}} \end{aligned} \quad (1081)$$



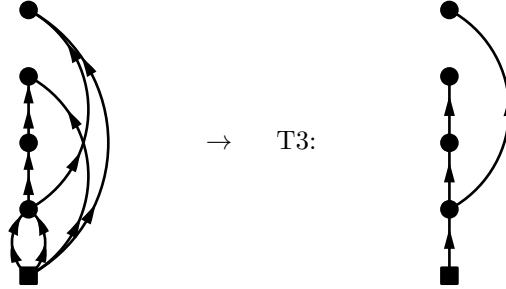


$$T5 = \frac{1}{(a_1 + a_2 + a_3)(a_2 + a_3)a_3a_4} \quad (1082)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_5 k_6}^{k_7 k_8} \\ a_3 &= \epsilon_{k_7 k_8} \\ a_4 &= \epsilon_{k_3 k_4} \end{aligned}$$

**Diagram 535:**

$$\begin{aligned} PO4.535 &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_7 k_3}^{02} \Omega_{k_6 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_7}} e^{-\tau_3 \epsilon_{k_3 k_7}} e^{-\tau_4 \epsilon_{k_4 k_6}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_7 k_3}^{02} \Omega_{k_6 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3} \epsilon_{k_3 k_7} \epsilon_{k_4 k_6}} \end{aligned} \quad (1083)$$

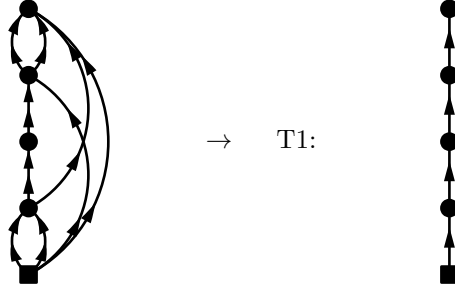


$$T3 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (1084)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7} \\ a_3 &= \epsilon_{k_3 k_7} \\ a_4 &= \epsilon_{k_4 k_6} \end{aligned}$$

**Diagram 536:**

$$\begin{aligned}
\text{PO4.536} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_9 k_7 k_3}^{22} \Omega_{k_8 k_9 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_3 k_7}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_4 k_6 k_8 k_9}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_9 k_7 k_3}^{22} \Omega_{k_8 k_9 k_6 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_4 k_6} \epsilon_{k_3 k_7 k_4 k_6} \epsilon_{k_4 k_6 k_8 k_9}}
\end{aligned} \tag{1085}$$

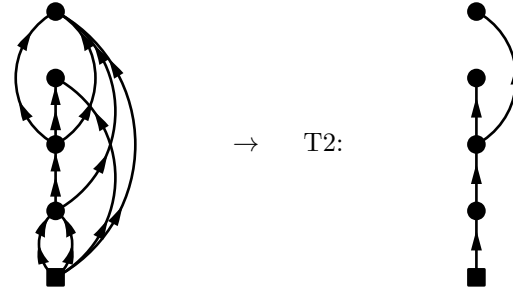


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{1086}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_2 &= \epsilon_{k_5}^{k_7} \\
a_3 &= \epsilon_{k_3 k_7}^{k_8 k_9} \\
a_4 &= \epsilon_{k_4 k_6 k_8 k_9}
\end{aligned}$$

**Diagram 537:**

$$\begin{aligned}
\text{PO4.537} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_3}^{02} \Omega_{k_8 k_9 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_3 k_7}} e^{-\tau_4 \epsilon_{k_4 k_6}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_3}^{02} \Omega_{k_8 k_9 k_6 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_4 k_6} \epsilon_{k_3 k_7} \epsilon_{k_4 k_6 k_8 k_9}}
\end{aligned} \tag{1087}$$



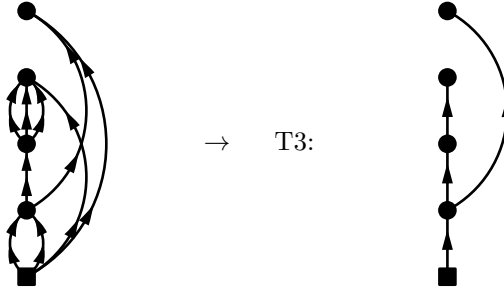
→ T2:

$$T2 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (1088)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7 k_8 k_9} \\ a_3 &= \epsilon_{k_3 k_7} \\ a_4 &= \epsilon_{k_4 k_6 k_8 k_9} \end{aligned}$$

**Diagram 538:**

$$\begin{aligned} \text{PO4.538} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_8 k_9 k_3}^{04} \Omega_{k_6 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7 k_8 k_9}} e^{-\tau_3 \epsilon_{k_3 k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_4 k_6}} \\ &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_9 k_5}^{31} \Omega_{k_7 k_8 k_9 k_3}^{04} \Omega_{k_6 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3} \epsilon_{k_3 k_7 k_8 k_9} \epsilon_{k_4 k_6}} \end{aligned} \quad (1089)$$



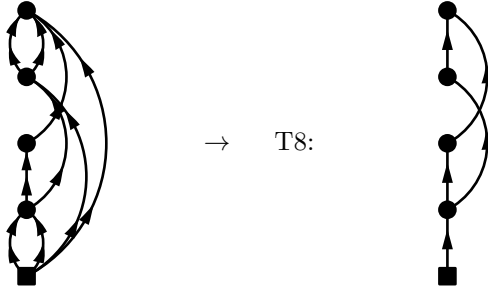
→ T3:

$$\text{T3} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (1090)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_5}^{k_7 k_8 k_9} \\ a_3 &= \epsilon_{k_3 k_7 k_8 k_9} \\ a_4 &= \epsilon_{k_4 k_6} \end{aligned}$$

**Diagram 539:**

$$\begin{aligned} \text{PO4.539} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_9 k_6 k_3}^{22} \Omega_{k_8 k_9 k_7 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\ &\quad e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_3 k_6}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_4 k_7 k_8 k_9}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_9 k_6 k_3}^{22} \Omega_{k_8 k_9 k_7 k_4}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_4 k_8 k_9} \epsilon_{k_5 k_3 k_6 k_4} \epsilon_{k_4 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_6 k_4} \epsilon_{k_3 k_6 k_4 k_7} \epsilon_{k_4 k_7 k_8 k_9}} \right] \end{aligned} \quad (1091)$$

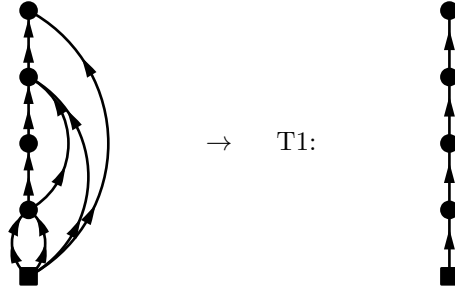


$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1092)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_2 &= \epsilon_{k_5}^{k_7} \\
a_3 &= \epsilon_{k_3 k_6}^{k_8 k_9} \\
a_4 &= \epsilon_{k_4 k_7 k_8 k_9}
\end{aligned}$$

**Diagram 540:**

$$\begin{aligned}
\text{PO4.540} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_7 k_6 k_3}^{13} \Omega_{k_8 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) \\
&\quad e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_3 k_6}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_4 k_8}} \\
&= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_7 k_6 k_3}^{13} \Omega_{k_8 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_6 k_4} \epsilon_{k_3 k_6 k_7 k_4} \epsilon_{k_4 k_8}}
\end{aligned} \tag{1093}$$

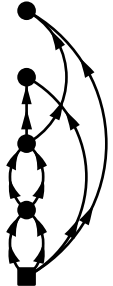



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{1094}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_2 &= \epsilon_{k_5}^{k_7} \\
a_3 &= \epsilon_{k_3 k_6 k_7}^{k_8} \\
a_4 &= \epsilon_{k_4 k_8}
\end{aligned}$$

**Diagram 541:**

$$\begin{aligned}
\text{PO4.541} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_7 k_3}^{02} \Omega_{k_8 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_7}} e^{-\tau_4 \epsilon_{k_4 k_8}} \\
&= \frac{-(-1)^4}{2(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_7 k_3}^{02} \Omega_{k_8 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_3 k_4} \epsilon_{k_3 k_7} \epsilon_{k_4 k_8}}
\end{aligned} \tag{1095}$$

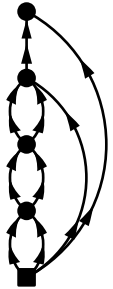


→ T2:


$$\text{T2} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \tag{1096}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_2 &= \epsilon_{k_5 k_6}^{k_7 k_8} \\
a_3 &= \epsilon_{k_3 k_7} \\
a_4 &= \epsilon_{k_4 k_8}
\end{aligned}$$

**Diagram 542:**

$$\begin{aligned}
\text{PO4.542} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_7 k_8 k_3}^{13} \Omega_{k_9 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_7}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_7 k_8 k_3}^{13} \Omega_{k_9 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_3 k_4} \epsilon_{k_3 k_7 k_8 k_4} \epsilon_{k_4 k_9}}
\end{aligned} \tag{1097}$$

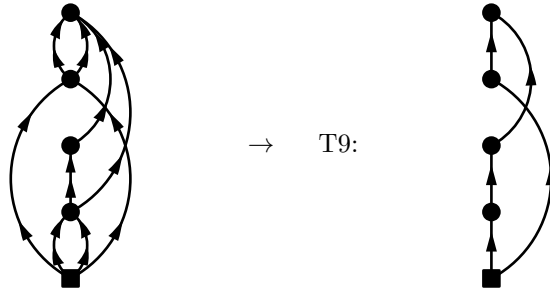

→ T1:


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1098)$$

$a_1 = \epsilon_{k_1 k_2}^{k_5 k_6}$   
 $a_2 = \epsilon_{k_5 k_6}^{k_7 k_8}$   
 $a_3 = \epsilon_{k_3 k_7 k_8}^{k_9}$   
 $a_4 = \epsilon_{k_4 k_9}$

**Diagram 543:**

$$\begin{aligned}
 PO4.543 &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_9 k_3 k_4}^{22} \Omega_{k_8 k_9 k_7 k_6}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\
 &\quad e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_3 k_4}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_6 k_7 k_8 k_9}} \\
 &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_9 k_3 k_4}^{22} \Omega_{k_8 k_9 k_7 k_6}^{04} \left[ \frac{1}{\epsilon_{k_1 k_2 k_7 k_8 k_9}^{k_5} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_1 k_2 k_3 k_4 k_7}^{k_5} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_7 k_8 k_9}^{k_5} \epsilon_{k_1 k_2 k_8 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_8 k_9} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_6 k_7 k_8 k_9}} \right] \quad (1099)
 \end{aligned}$$

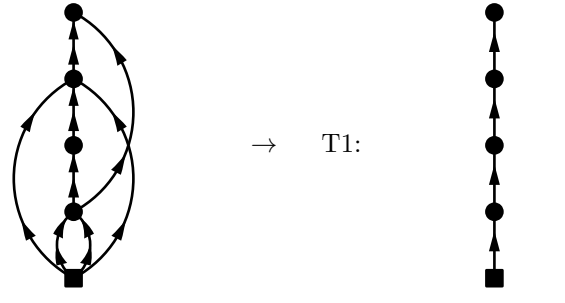


$$T9 = \frac{1}{(a_1 + a_2 + a_4)(a_2 + a_4)(a_3 + a_1 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1100)$$

$$\begin{aligned} a_1 &= \epsilon_{k_3 k_4}^{k_8 k_9} \\ a_2 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_3 &= \epsilon_{k_5}^{k_7} \\ a_4 &= \epsilon_{k_6 k_7 k_8 k_9} \end{aligned}$$

**Diagram 544:**

$$\begin{aligned} \text{PO4.544} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_7 k_3 k_4}^{13} \Omega_{k_8 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_3 k_4 k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_6 k_8}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_7 k_3 k_4}^{13} \Omega_{k_8 k_6}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_7 k_6} \epsilon_{k_6 k_8}} \end{aligned} \quad (1101)$$



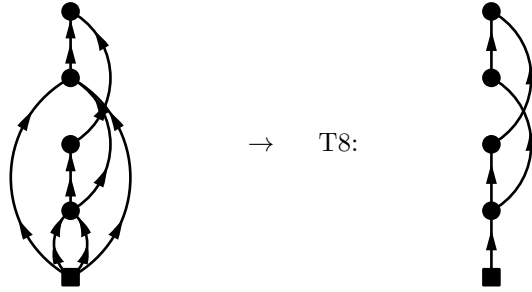
$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1102)$$



$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_2 &= \epsilon_{k_5}^{k_7} \\
a_3 &= \epsilon_{k_3 k_4 k_7}^{k_8} \\
a_4 &= \epsilon_{k_6 k_8}
\end{aligned}$$

**Diagram 545:**

$$\begin{aligned}
\text{PO4.545} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_6 k_3 k_4}^{13} \Omega_{k_8 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) \\
&\quad e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_3 k_4 k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\
&= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5}^{11} \Omega_{k_8 k_6 k_3 k_4}^{13} \Omega_{k_8 k_7}^{02} \left[ \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_8} \epsilon_{k_5 k_3 k_4 k_6} \epsilon_{k_7 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_3 k_4 k_6} \epsilon_{k_3 k_4 k_6 k_7} \epsilon_{k_7 k_8}} \right]
\end{aligned} \tag{1103}$$

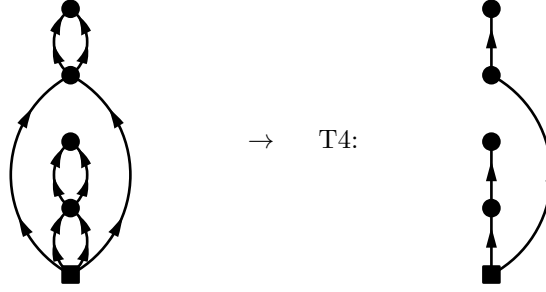


$$\text{T8} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_4)(a_3 + a_2 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{1104}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_2 &= \epsilon_{k_5}^{k_7} \\
a_3 &= \epsilon_{k_3 k_4 k_6}^{k_8} \\
a_4 &= \epsilon_{k_7 k_8}
\end{aligned}$$

**Diagram 546:**

$$\begin{aligned}
\text{PO4.546} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{2(2!)^4} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_5 k_6}^{02} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_7 k_8}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5 k_6}} e^{-\tau_3 \epsilon_{k_3 k_4}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\
&= \frac{(-1)^4}{2(2!)^4} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_5 k_6}^{02} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_7 k_8}^{02}}{\epsilon_{k_1 k_2} \epsilon_{k_5 k_6} \epsilon_{k_3 k_4} \epsilon_{k_7 k_8}}
\end{aligned} \tag{1105}$$



$$T4 = \frac{1}{(a_1 + a_2)a_2(a_3 + a_4)a_4} \tag{1106}$$

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

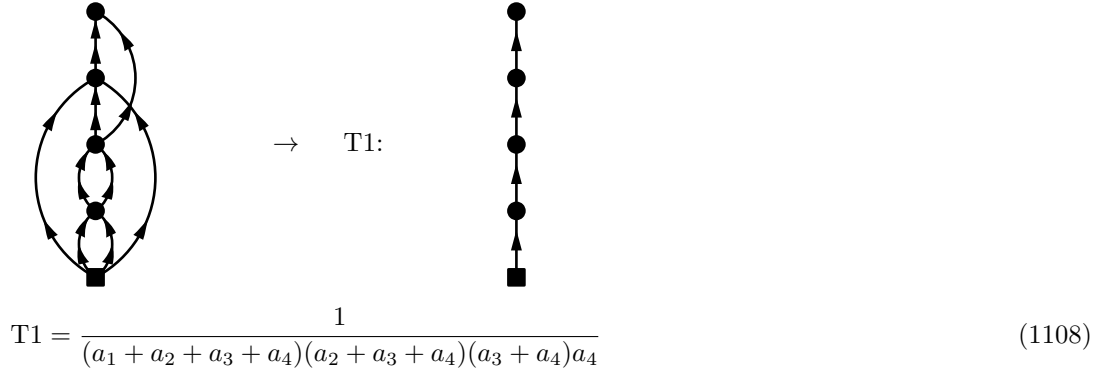
$$a_2 = \epsilon_{k_5 k_6}$$

$$a_3 = \epsilon_{k_3 k_4}^{k_7 k_8}$$

$$a_4 = \epsilon_{k_7 k_8}$$

**Diagram 547:**

$$\begin{aligned}
\text{PO4.547} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_7 k_3 k_4}^{13} \Omega_{k_9 k_8}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_5 k_6}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_3 k_4}^{k_9}} e^{-\tau_4 \epsilon_{k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_6}^{22} \Omega_{k_9 k_7 k_3 k_4}^{13} \Omega_{k_9 k_8}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_6 k_3 k_4} \epsilon_{k_3 k_4 k_7 k_8} \epsilon_{k_8 k_9}}
\end{aligned} \tag{1107}$$

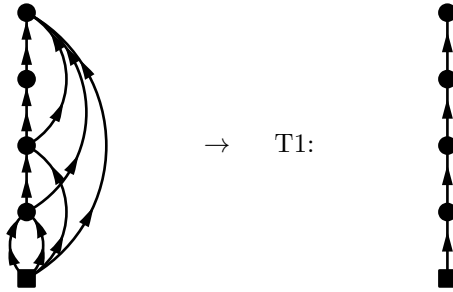


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1108)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_5 k_6}^{k_7 k_8} \\ a_3 &= \epsilon_{k_3 k_4 k_7}^{k_9} \\ a_4 &= \epsilon_{k_8 k_9} \end{aligned}$$

**Diagram 548:**

$$\begin{aligned} \text{PO4.548} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_9 k_7}^{11} \Omega_{k_9 k_8 k_6 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_7}^{k_9}} e^{-\tau_4 \epsilon_{k_8 k_9}^{k_6 k_4}} \\ &= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_9 k_7}^{11} \Omega_{k_9 k_8 k_6 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_4 k_6} \epsilon_{k_7 k_4 k_6 k_8} \epsilon_{k_4 k_6 k_8 k_9}} \end{aligned} \quad (1109)$$

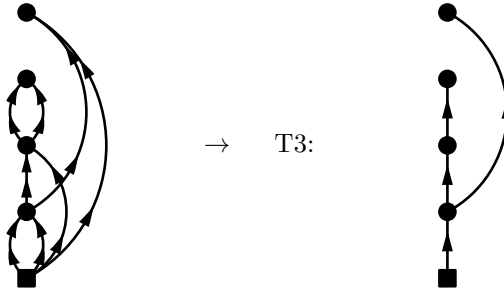


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1110)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_3 k_5}^{k_7 k_8} \\ a_3 &= \epsilon_{k_7}^{k_9} \\ a_4 &= \epsilon_{k_4 k_6 k_8 k_9} \end{aligned}$$

**Diagram 549:**

$$\begin{aligned} \text{PO4.549} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_7 k_8}^{02} \Omega_{k_6 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_7 k_8}} e^{-\tau_4 \epsilon_{k_4 k_6}} \\ &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_7 k_8}^{02} \Omega_{k_6 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5} \epsilon_{k_7 k_8} \epsilon_{k_4 k_6}} \end{aligned} \quad (1111)$$

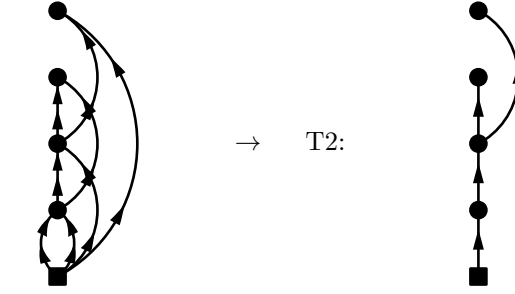


$$\text{T3} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3)a_3a_4} \quad (1112)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_3 k_5}^{k_7 k_8} \\ a_3 &= \epsilon_{k_7 k_8} \\ a_4 &= \epsilon_{k_4 k_6} \end{aligned}$$

**Diagram 550:**

$$\begin{aligned}
 \text{PO4.550} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_7 k_6}^{02} \Omega_{k_8 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_6 k_7}} e^{-\tau_4 \epsilon_{k_4 k_8}} \\
 &= \frac{(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_7 k_6}^{02} \Omega_{k_8 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_6 k_4} \epsilon_{k_6 k_7} \epsilon_{k_4 k_8}}
 \end{aligned} \tag{1113}$$



$$\text{T2} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \tag{1114}$$

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

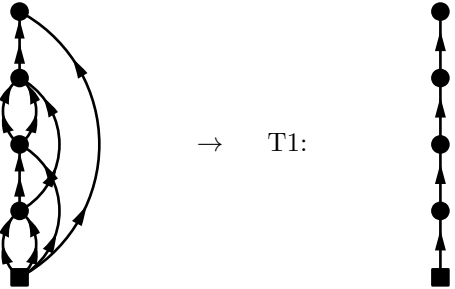
$$a_2 = \epsilon_{k_3 k_5}^{k_7 k_8}$$

$$a_3 = \epsilon_{k_6 k_7}$$

$$a_4 = \epsilon_{k_4 k_8}$$

**Diagram 551:**

$$\begin{aligned}
 \text{PO4.551} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_9 k_7 k_8 k_6}^{13} \Omega_{k_9 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_6 k_7 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_9}} \\
 &= \frac{-(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_9 k_7 k_8 k_6}^{13} \Omega_{k_9 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_6 k_4} \epsilon_{k_6 k_7 k_8 k_4} \epsilon_{k_4 k_9}}
 \end{aligned} \tag{1115}$$

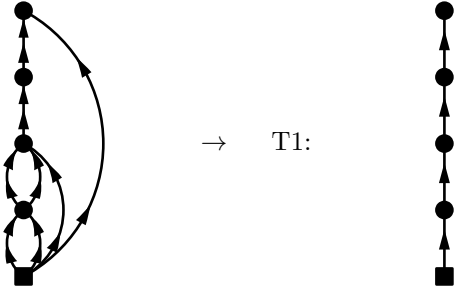


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1116)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_3 k_5}^{k_7 k_8} \\ a_3 &= \epsilon_{k_6 k_7 k_8}^{k_9} \\ a_4 &= \epsilon_{k_4 k_9} \end{aligned}$$

**Diagram 552:**

$$\begin{aligned} \text{PO4.552} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5 k_6 k_3}^{13} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_5 k_6}^{k_7}} e^{-\tau_3 \epsilon_{k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_4 k_8}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5 k_6 k_3}^{13} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_6 k_4} \epsilon_{k_7 k_4} \epsilon_{k_4 k_8}} \end{aligned} \quad (1117)$$

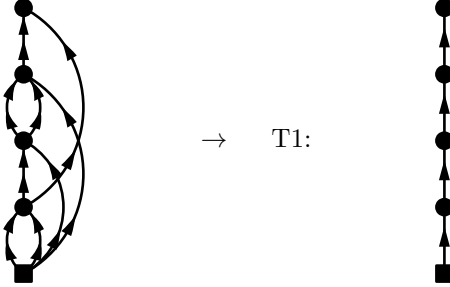


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1118)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_3 k_5 k_6}^{k_7} \\ a_3 &= \epsilon_{k_7}^{k_8} \\ a_4 &= \epsilon_{k_4 k_8} \end{aligned}$$

**Diagram 553:**

$$\begin{aligned} \text{PO4.553} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_9 k_7 k_8 k_4}^{13} \Omega_{k_9 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_4 k_7 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_6 k_9}} \\ &= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_9 k_7 k_8 k_4}^{13} \Omega_{k_9 k_6}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_4 k_6} \epsilon_{k_4 k_7 k_8 k_6} \epsilon_{k_6 k_9}} \end{aligned} \quad (1119)$$

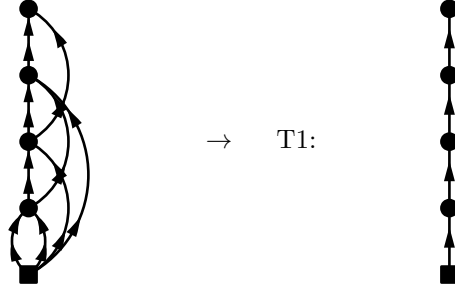


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1120)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_3 k_5}^{k_7 k_8} \\ a_3 &= \epsilon_{k_4 k_7 k_8}^{k_9} \\ a_4 &= \epsilon_{k_6 k_9} \end{aligned}$$

**Diagram 554:**

$$\begin{aligned}
\text{PO4.554} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_9 k_7 k_6 k_4}^{13} \Omega_{k_9 k_8}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_5}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_4 k_6}^{k_9 k_7}} \\
&= \frac{-(-1)^4}{(2!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_5 k_3}^{22} \Omega_{k_9 k_7 k_6 k_4}^{13} \Omega_{k_9 k_8}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_4 k_6} \epsilon_{k_4 k_6 k_7 k_8} \epsilon_{k_8 k_9}}
\end{aligned} \tag{1121}$$



$\rightarrow$  T1:

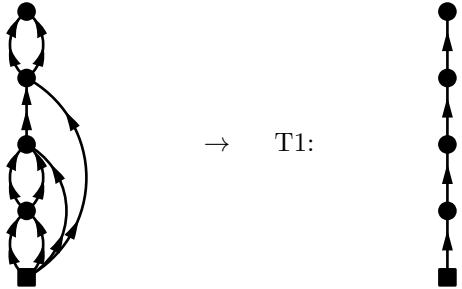
$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{1122}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_2 &= \epsilon_{k_3 k_5}^{k_7 k_8} \\
a_3 &= \epsilon_{k_4 k_6 k_7}^{k_9} \\
a_4 &= \epsilon_{k_8 k_9}
\end{aligned}$$

**Diagram 555:**

$$\begin{aligned}
\text{PO4.555} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5 k_6 k_3}^{13} \Omega_{k_8 k_9 k_7 k_4}^{22} \Omega_{k_8 k_9}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_5 k_6}^{k_7}} e^{-\tau_3 \epsilon_{k_4 k_7}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5 k_6 k_3}^{13} \Omega_{k_8 k_9 k_7 k_4}^{22} \Omega_{k_8 k_9}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_5 k_6 k_4} \epsilon_{k_4 k_7} \epsilon_{k_8 k_9}}
\end{aligned} \tag{1123}$$





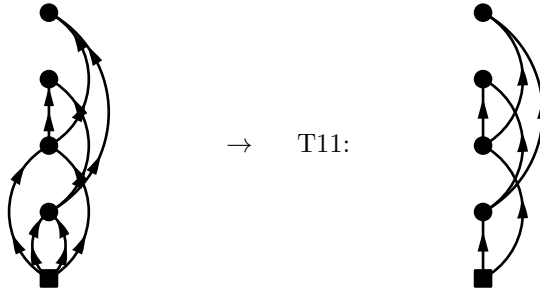
$\rightarrow \quad \text{T1:}$

$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1124)$$

$a_1 = \epsilon_{k_1 k_2}^{k_5 k_6}$   
 $a_2 = \epsilon_{k_3 k_5 k_6}^{k_7}$   
 $a_3 = \epsilon_{k_4 k_7}^{k_8 k_9}$   
 $a_4 = \epsilon_{k_8 k_9}$

**Diagram 556:**

$$\begin{aligned}
 \text{PO4.556} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{4(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_7 k_5}^{02} \Omega_{k_8 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \\
 &\quad e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_5 k_7}} e^{-\tau_4 \epsilon_{k_6 k_8}} \\
 &= \frac{-(-1)^4}{4(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_7 k_5}^{02} \Omega_{k_8 k_6}^{02} \left[ \frac{1}{\epsilon_{k_1 k_2 k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_7} \epsilon_{k_6 k_8}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_5 k_7} \epsilon_{k_6 k_8}} \right] \quad (1125)
 \end{aligned}$$

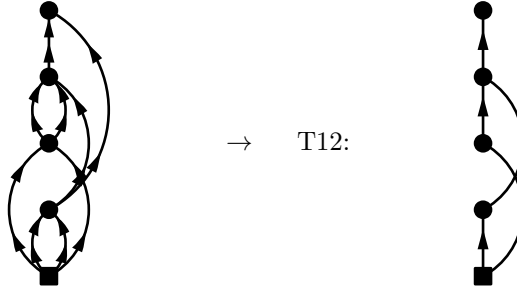


$$T11 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)a_3a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3a_4} \quad (1126)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\ a_2 &= \epsilon_{k_3 k_4}^{k_7 k_8} \\ a_3 &= \epsilon_{k_5 k_7} \\ a_4 &= \epsilon_{k_6 k_8} \end{aligned}$$

**Diagram 557:**

$$\begin{aligned} \text{PO4.557} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_7 k_8 k_5}^{13} \Omega_{k_9 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_3 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4}^{k_7 k_8}} e^{-\tau_3 \epsilon_{k_5 k_7}^{k_9}} e^{-\tau_4 \epsilon_{k_6 k_8}^{k_9}} \\ &= \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_8 k_3 k_4}^{22} \Omega_{k_9 k_7 k_8 k_5}^{13} \Omega_{k_9 k_6}^{02} \left[ \frac{1}{\epsilon_{k_1 k_2 k_7 k_8} \epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_7 k_8 k_6} \epsilon_{k_6 k_9}} + \frac{1}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_5 k_7 k_8 k_6} \epsilon_{k_6 k_9}} \right] \end{aligned} \quad (1127)$$



$$T12 = \frac{1}{(a_1 + a_3 + a_4)(a_2 + a_1 + a_3 + a_4)(a_3 + a_4)a_4} + \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1128)$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_2 &= \epsilon_{k_3 k_4}^{k_7 k_8} \\
a_3 &= \epsilon_{k_5 k_7 k_8}^{k_9} \\
a_4 &= \epsilon_{k_6 k_9}
\end{aligned}$$

**Diagram 558:**

$$\begin{aligned}
\text{PO4.558} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5 k_3 k_4}^{13} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_6}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_4 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4 k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_7}^{k_8}} e^{-\tau_4 \epsilon_{k_6 k_8}} \\
&= \frac{(-1)^4}{(2!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5 k_3 k_4}^{13} \Omega_{k_8 k_7}^{11} \Omega_{k_8 k_6}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_7 k_6} \epsilon_{k_6 k_8}}
\end{aligned} \tag{1129}$$



→ T1:

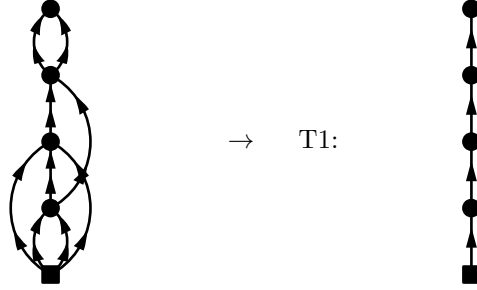


$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{1130}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_2 &= \epsilon_{k_3 k_4 k_5}^{k_7} \\
a_3 &= \epsilon_{k_7}^{k_8} \\
a_4 &= \epsilon_{k_6 k_8}
\end{aligned}$$

**Diagram 559:**

$$\begin{aligned}
\text{PO4.559} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^3} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5 k_3 k_4}^{13} \Omega_{k_8 k_9 k_7 k_6}^{22} \Omega_{k_8 k_9}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2}^{k_5 k_6}} e^{-\tau_2 \epsilon_{k_3 k_4 k_5}^{k_7}} e^{-\tau_3 \epsilon_{k_6 k_7}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^3} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_6 k_1 k_2}^{22} \Omega_{k_7 k_5 k_3 k_4}^{13} \Omega_{k_8 k_9 k_7 k_6}^{22} \Omega_{k_8 k_9}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_3 k_4 k_5 k_6} \epsilon_{k_6 k_7} \epsilon_{k_8 k_9}}
\end{aligned} \tag{1131}$$

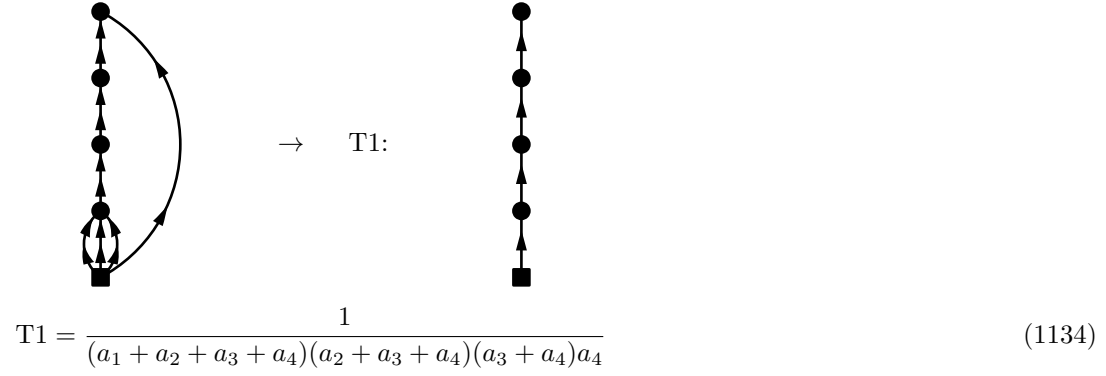


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{1132}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2}^{k_5 k_6} \\
a_2 &= \epsilon_{k_3 k_4 k_5}^{k_7} \\
a_3 &= \epsilon_{k_6 k_7}^{k_8 k_9} \\
a_4 &= \epsilon_{k_8 k_9}
\end{aligned}$$

**Diagram 560:**

$$\begin{aligned}
\text{PO4.560} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_6}^{11} \Omega_{k_7 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2 k_3}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6}} e^{-\tau_3 \epsilon_{k_6}^{k_7}} e^{-\tau_4 \epsilon_{k_4 k_7}} \\
&= \frac{(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_6}^{11} \Omega_{k_7 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_4} \epsilon_{k_6 k_4} \epsilon_{k_4 k_7}}
\end{aligned} \tag{1133}$$

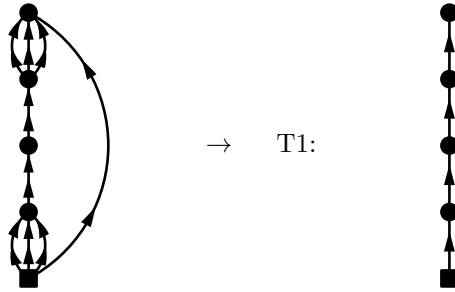


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1134)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2 k_3}^{k_5} \\ a_2 &= \epsilon_{k_5}^{k_6} \\ a_3 &= \epsilon_{k_6}^{k_7} \\ a_4 &= \epsilon_{k_4 k_7} \end{aligned}$$

**Diagram 561:**

$$\begin{aligned} \text{PO4.561} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_8 k_9 k_6}^{31} \Omega_{k_7 k_8 k_9 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2 k_3}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6}} e^{-\tau_3 \epsilon_{k_6}^{k_7 k_8 k_9}} e^{-\tau_4 \epsilon_{k_4 k_7 k_8 k_9}} \\ &= \frac{(-1)^4}{(3!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_8 k_9 k_6}^{31} \Omega_{k_7 k_8 k_9 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_4} \epsilon_{k_6 k_4} \epsilon_{k_4 k_7 k_8 k_9}} \end{aligned} \quad (1135)$$

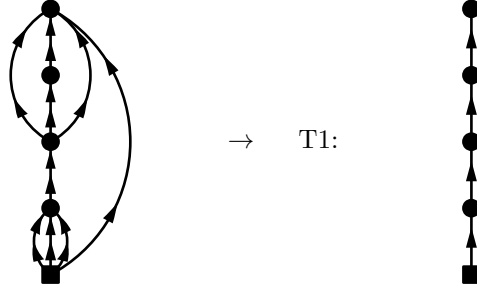


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1136)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2 k_3}^{k_5} \\ a_2 &= \epsilon_{k_5}^{k_6} \\ a_3 &= \epsilon_{k_6}^{k_7 k_8 k_9} \\ a_4 &= \epsilon_{k_4 k_7 k_8 k_9} \end{aligned}$$

**Diagram 562:**

$$\begin{aligned} \text{PO4.562} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_6}^{11} \Omega_{k_9 k_7 k_8 k_4}^{04} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2 k_3}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_6}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_7 k_8 k_9}} \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_6}^{11} \Omega_{k_9 k_7 k_8 k_4}^{04}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_4} \epsilon_{k_6 k_4 k_7 k_8} \epsilon_{k_4 k_7 k_8 k_9}} \end{aligned} \quad (1137)$$





$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1138)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2 k_3}^{k_5} \\ a_2 &= \epsilon_{k_5}^{k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_6}^{k_9} \\ a_4 &= \epsilon_{k_4 k_7 k_8 k_9} \end{aligned}$$

**Diagram 563:**

$$\begin{aligned}
\text{PO4.563} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_6 k_7}^{02} \Omega_{k_8 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) e^{-\tau_1 \epsilon_{k_1 k_2 k_3}^{k_5}} e^{-\tau_2 \epsilon_{k_6 k_7 k_8}^{k_5}} e^{-\tau_3 \epsilon_{k_6 k_7}} e^{-\tau_4 \epsilon_{k_4 k_8}} \\
&= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_6 k_7}^{02} \Omega_{k_8 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_4} \epsilon_{k_6 k_7} \epsilon_{k_4 k_8}}
\end{aligned} \tag{1139}$$


→ T2:


$$\text{T2} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)a_3 a_4} \tag{1140}$$

$a_1 = \epsilon_{k_1 k_2 k_3}^{k_5}$   
 $a_2 = \epsilon_{k_6 k_7 k_8}^{k_5}$   
 $a_3 = \epsilon_{k_6 k_7}$   
 $a_4 = \epsilon_{k_4 k_8}$

**Diagram 564:**

$$\begin{aligned}
\text{PO4.564} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)^2} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_6 k_7 k_8}^{13} \Omega_{k_9 k_4}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2 k_3}^{k_5}} e^{-\tau_2 \epsilon_{k_6 k_7 k_8}^{k_5}} e^{-\tau_3 \epsilon_{k_6 k_7 k_8}^{k_9}} e^{-\tau_4 \epsilon_{k_4 k_9}} \\
&= \frac{(-1)^4}{(3!)^2} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_6 k_7 k_8}^{13} \Omega_{k_9 k_4}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_4} \epsilon_{k_6 k_7 k_8 k_4} \epsilon_{k_4 k_9}}
\end{aligned} \tag{1141}$$

Diagrammatic equation (1142) showing a reduction of a complex diagram to a tree diagram T1. The left side shows a diagram with a vertical chain of five nodes (top to bottom: circle, circle, circle, circle, square) and a curved arrow from the top circle to the square. The right side shows the tree diagram T1, which is a vertical chain of five nodes (top to bottom: circle, circle, circle, circle, square). The equation is:

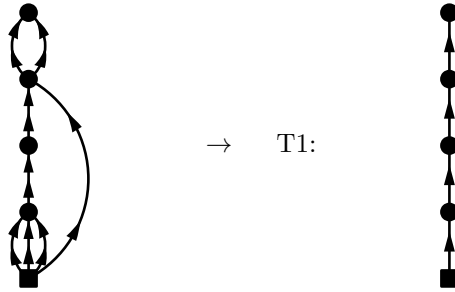
$$\text{Diagram} \rightarrow \text{T1:}$$

$$\text{T1} = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1142)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2 k_3}^{k_5} \\ a_2 &= \epsilon_{k_5}^{k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_6 k_7 k_8}^{k_9} \\ a_4 &= \epsilon_{k_4 k_9} \end{aligned}$$

**Diagram 565:**

$$\begin{aligned} \text{PO4.565} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_8 k_6 k_4}^{22} \Omega_{k_7 k_8}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2 k_3}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_4 k_6}^{k_7 k_8}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\ &= \frac{(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_5}^{11} \Omega_{k_7 k_8 k_6 k_4}^{22} \Omega_{k_7 k_8}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_4} \epsilon_{k_4 k_6} \epsilon_{k_7 k_8}} \end{aligned} \quad (1143)$$



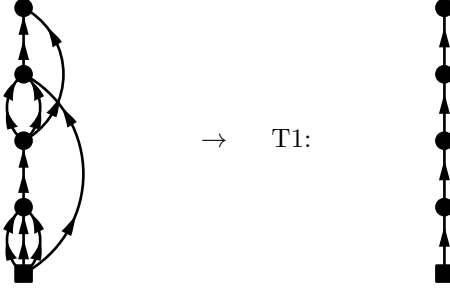


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1144)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2 k_3}^{k_5} \\ a_2 &= \epsilon_{k_5}^{k_6} \\ a_3 &= \epsilon_{k_4 k_6}^{k_7 k_8} \\ a_4 &= \epsilon_{k_7 k_8} \end{aligned}$$

**Diagram 566:**

$$\begin{aligned} \text{PO4.566} &= \lim_{\tau \rightarrow \infty} \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_6 k_7 k_4}^{13} \Omega_{k_9 k_8}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2 k_3}^{k_5}} e^{-\tau_2 \epsilon_{k_5}^{k_6 k_7 k_8}} e^{-\tau_3 \epsilon_{k_4 k_6 k_7}^{k_9}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\ &= \frac{-(-1)^4}{(2!)(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_8 k_5}^{31} \Omega_{k_9 k_6 k_7 k_4}^{13} \Omega_{k_9 k_8}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_5 k_4} \epsilon_{k_4 k_6 k_7 k_8} \epsilon_{k_8 k_9}} \end{aligned} \quad (1145)$$

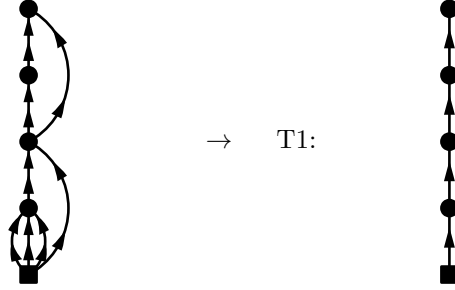


$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \quad (1146)$$

$$\begin{aligned} a_1 &= \epsilon_{k_1 k_2 k_3}^{k_5} \\ a_2 &= \epsilon_{k_5}^{k_6 k_7 k_8} \\ a_3 &= \epsilon_{k_4 k_6 k_7}^{k_9} \\ a_4 &= \epsilon_{k_8 k_9} \end{aligned}$$

**Diagram 567:**

$$\begin{aligned}
\text{PO4.567} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_5 k_4}^{22} \Omega_{k_8 k_6}^{11} \Omega_{k_8 k_7}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2 k_3}^{k_5}} e^{-\tau_2 \epsilon_{k_4 k_5}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_6}^{k_8}} e^{-\tau_4 \epsilon_{k_7 k_8}} \\
&= \frac{(-1)^4}{(3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_5 k_4}^{22} \Omega_{k_8 k_6}^{11} \Omega_{k_8 k_7}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_5} \epsilon_{k_6 k_7} \epsilon_{k_7 k_8}}
\end{aligned} \tag{1147}$$



$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{1148}$$

$$\begin{aligned}
a_1 &= \epsilon_{k_1 k_2 k_3}^{k_5} \\
a_2 &= \epsilon_{k_4 k_5}^{k_6 k_7} \\
a_3 &= \epsilon_{k_6}^{k_8} \\
a_4 &= \epsilon_{k_7 k_8}
\end{aligned}$$

**Diagram 568:**

$$\begin{aligned}
\text{PO4.568} &= \lim_{\tau \rightarrow \infty} \frac{(-1)^4}{(2!)^2 (3!)} \sum_{k_i} O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_5 k_4}^{22} \Omega_{k_8 k_9 k_6 k_7}^{22} \Omega_{k_8 k_9}^{02} \int_0^\tau d\tau_1 d\tau_2 d\tau_3 d\tau_4 \theta(\tau_2 - \tau_1) \theta(\tau_3 - \tau_2) \theta(\tau_4 - \tau_3) e^{-\tau_1 \epsilon_{k_1 k_2 k_3}^{k_5}} e^{-\tau_2 \epsilon_{k_4 k_5}^{k_6 k_7}} e^{-\tau_3 \epsilon_{k_6 k_7}^{k_8 k_9}} e^{-\tau_4 \epsilon_{k_8 k_9}} \\
&= \frac{(-1)^4}{(2!)^2 (3!)} \sum_{k_i} \frac{O_{k_1 k_2 k_3 k_4}^{40} \Omega_{k_5 k_1 k_2 k_3}^{13} \Omega_{k_6 k_7 k_5 k_4}^{22} \Omega_{k_8 k_9 k_6 k_7}^{22} \Omega_{k_8 k_9}^{02}}{\epsilon_{k_1 k_2 k_3 k_4} \epsilon_{k_4 k_5} \epsilon_{k_6 k_7} \epsilon_{k_8 k_9}}
\end{aligned} \tag{1149}$$

$\rightarrow$  T1:

$$T1 = \frac{1}{(a_1 + a_2 + a_3 + a_4)(a_2 + a_3 + a_4)(a_3 + a_4)a_4} \tag{1150}$$

$$\begin{aligned}
 a_1 &= \epsilon_{k_1 k_2 k_3}^{k_5} \\
 a_2 &= \epsilon_{k_4 k_5}^{k_6 k_7} \\
 a_3 &= \epsilon_{k_6 k_7}^{k_8 k_9} \\
 a_4 &= \epsilon_{k_8 k_9}
 \end{aligned}$$