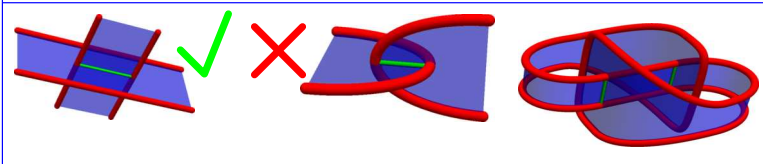
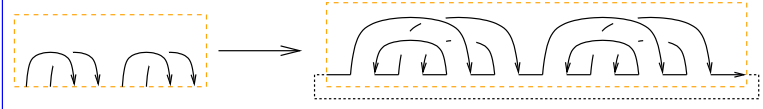


```

F := F[w1_, l1_] F[w2_, l2_] := F[w1*w2, l1+l2];
m_{a,b} := Module[{alpha, beta, gamma, delta, epsilon, phi, psi, xi, mu},
  {
    alpha beta epsilon
    gamma delta epsilon
    phi psi xi
  } = {
    {
      partial_{t_a, h_a} lambda, partial_{t_a, h_b} lambda, partial_{t_a} lambda
      partial_{t_b, h_a} lambda, partial_{t_b, h_b} lambda, partial_{t_b} lambda
      partial_{h_a} lambda, partial_{h_b} lambda, lambda
    } /. (t|h)_{a|b} -> 0;
  }
  F[(mu = 1 - beta) omega, {t_c, 1} . {gamma + alpha delta / mu, epsilon + delta theta / mu} . {h_c, 1}]
  S = Union@Cases[F[omega, lambda], (h|t)_{a} -> a, omega];
  M = Outer[Factor[partial_{h_i, t_{a_i}} lambda], S, S];
  M = Prepend[M, t_{a_i} & /@ S] // Transpose;
  M = Prepend[M, Prepend[h_{a_i} & /@ S, omega]];
  M // MatrixForm;
  Rm_{a,b} := Rp_{ab} /. T_{a} -> 1 / T_{a};
  Rm_{a,b} := Rp_{ab} /. T_{a} -> 1 / T_{a};
  
```

$$\xi = \Gamma[\omega, \{t_1, t_2, t_3, t_s\} \cdot \begin{pmatrix} \alpha_{11} & \alpha_{12} & \alpha_{13} & \theta_1 \\ \alpha_{21} & \alpha_{22} & \alpha_{23} & \theta_2 \\ \alpha_{31} & \alpha_{32} & \alpha_{33} & \theta_3 \\ \phi_1 & \phi_2 & \phi_3 & \Xi \end{pmatrix} \cdot \{h_1, h_2, h_3, h_s\}];$$

$$(\xi // m_{12 \rightarrow 1} // m_{13 \rightarrow 1}) = (\xi // m_{23 \rightarrow 2} // m_{12 \rightarrow 1})$$



True

```

{Rm_{51} Rm_{62} Rp_{34} // m_{14 \rightarrow 1} // m_{25 \rightarrow 2} // m_{36 \rightarrow 3},
Rp_{61} Rm_{24} Rm_{35} // m_{14 \rightarrow 1} // m_{25 \rightarrow 2} // m_{36 \rightarrow 3}}

```

$$\begin{pmatrix} 1 & h_1 & h_2 & h_3 \\ t_1 & \frac{T_3}{T_2} & 0 & 0 \\ t_2 & \frac{-1+T_2}{T_2} & \frac{1}{T_3} & 0 \\ t_3 & \frac{-1+T_3}{T_2} & \frac{-1+T_3}{T_3} & 1 \end{pmatrix}, \begin{pmatrix} 1 & h_1 & h_2 & h_3 \\ t_1 & \frac{T_3}{T_2} & 0 & 0 \\ t_2 & \frac{-1+T_2}{T_2} & \frac{1}{T_3} & 0 \\ t_3 & \frac{-1+T_3}{T_2} & \frac{-1+T_3}{T_3} & 1 \end{pmatrix}$$

```

z = Rm_{12,1} Rm_{27} Rm_{83} Rm_{4,11} Rp_{16,5} Rp_{6,13} Rp_{14,9} Rp_{10,15};
Do[z = z // m_{1k \rightarrow 1}, {k, 2, 16}];
z

```

$$\left(11 - \frac{1}{T_1^3} + \frac{4}{T_1^2} - \frac{8}{T_1} - 8T_1 + 4T_1^2 - T_1^3, h_1 \right)$$

