```mathematica
bas3 = {v₁, v₂, v₃, v_{1,1}, v_{1,2}, v_{1,3}, v_{2,1}, v_{2,2}, v_{2,3}, v_{3,1},
    v_{3,2}, v_{3,3}, u₁² w₁, u₁² w₂, u₁² w₃, u₁ u₂ w₁, u₁ u₂ w₂, u₁ u₂ w₃,
    u₁ u₃ w₁, u₁ u₃ w₂, u₁ u₃ w₃, u₂² w₁, u₂² w₂, u₂² w₃, u₂ u₃ w₁,
    u₂ u₃ w₂, u₂ u₃ w₃, u₃² w₁, u₃² w₂, u₃² w₃};
(bas3 // TG_{1,2} // TG_{1,3} // TG_{2,3}) == (bas3 // TG_{2,3} // TG_{1,3} // TG_{1,2})
```

```mathematica
bas3 = {$v_1$, $v_2$, $v_3$, $v_{1,1}$, $v_{1,2}$, $v_{1,3}$, $v_{2,1}$, $v_{2,2}$, $v_{2,3}$, $v_{3,1}$,
    $v_{3,2}$, $v_{3,3}$, $u_1^2 w_1$, $u_1^2 w_2$, $u_1^2 w_3$, $u_1 u_2 w_1$, $u_1 u_2 w_2$, $u_1 u_2 w_3$,
    $u_1 u_3 w_1$, $u_1 u_3 w_2$, $u_1 u_3 w_3$, $u_2^2 w_1$, $u_2^2 w_2$, $u_2^2 w_3$, $u_2 u_3 w_1$,
    $u_2 u_3 w_2$, $u_2 u_3 w_3$, $u_3^2 w_1$, $u_3^2 w_2$, $u_3^2 w_3$};
(bas3 // $TG_{1,2}$ // $TG_{1,3}$ // $TG_{2,3}$) == (bas3 // $TG_{2,3}$ // $TG_{1,3}$ // $TG_{1,2}$)
```