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In[*]:= Id = Cycles[{{}}];
σi,j := Cycles[{{i, j}}];
ht[σCycles] = 0;
δ[σCycles] = 0;
cR[Cycles[L_List]] := Cycles[k + L];
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In[*]:= W[Lft___, W[mid___], rgt___] := W[Lft, mid, rgt];
W[Lft___, 0, rgt___] = 0;
W[Lft___, s_Plus, rgt___] := W[Lft, #, rgt] & /@s;
W[Lft___, c_?NumberQ * U_, rgt___] := c W[Lft, U, rgt];
W[Lft___, Cycles@{ }, rgt___] := W[Lft, rgt];
W[Lft___, p1_Cycles, p2_Cycles, rgt___] := W[Lft, p1 ⊙ p2, rgt];
cR[w_W] := ck /@w;
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In[*]:= cR[0] = 0;
cR[s_Plus] := ck /@s;
cR[a_*w_W] := a ck[w];
cR[Uj] := Uk+j;
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In[*]:= σ[Uk] := ck[σ[U]];
σ[W[]] = Id;
σ[p_Cycles] := p;
σ[W[f_, r___]] := σ[f] ⊙ σ[W[r]];
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```
In[*]:= δ[0] = 0;
δ[s_Plus] := δ /@s;
δ[c_*w_W] := c δ[w];
δ[W[]] = 0;
δ[Uk] := ck[δ[U]];
δ[W[f_, r___]] := W[δ[f], r] + (-1)ht[f] W[f, δ[W[r]]];
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In[*]:= W[σ1,2, σ1,2 + σ1,3 - σ3,4]
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Out[*]:= W[] + W[Cycles[{{1, 2, 3}}]] - W[Cycles[{{1, 2}, {3, 4}}]]
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```
In[*]:= ht[Uk] := ht[U];
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```
In[*]:= sfil[H] = 1; vdeg[H] = 1; ht[H] = 0; δ[H] = 0; σ[H] = Id;
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In[*]:= sfil[R[1]] = 2; vdeg[R[1]] = 1; ht[R[1]] = 1;
δ[R[1]] := W[σ1,2, H0 + H1] - W[H0 + H1, σ1,2]; σ[R[1]] = σ1,2;
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