

Exercise 5.4 Deleting a term using tags

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1 {a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s,t,u#}::Indices(position=independent).
2
3 def add_tags (obj,tag):
4     n = 0
5     ans = Ex('0')
6     for i in obj.top().terms():
7         foo = obj[i]
8         bah = Ex(tag+'_'+str(n)+'')
9         ans := @(ans) + @(bah) @(foo).
10        n = n + 1
11    return ans
12
13 def clear_tags (obj,tag):
14     ans := @(obj).
15     foo = Ex(tag+'_{a?} -> 1')
16     substitute (ans,foo)
17     return ans
18
19 expr := A_{a b} B^{a b} + A_{a b} A_{c d} B^{a b} B^{c d} - C_{a b} B^{a b}. # cdb (ex-0504.100,expr)
20
21 expr = add_tags (expr,'\mu') # cdb (ex-0504.101,expr)
22
23 substitute (expr, $\mu_{1} -> 0$) # cdb (ex-0504.102,expr)
24
25 expr = clear_tags (expr,'\mu') # cdb (ex-0504.103,expr)

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$$\text{ex-0504.100} := A_{ab}B^{ab} + A_{ab}A_{cd}B^{ab}B^{cd} - C_{ab}B^{ab}$$

$$\text{ex-0504.101} := \mu_0 A_{ab}B^{ab} + \mu_1 A_{ab}A_{cd}B^{ab}B^{cd} - \mu_2 C_{ab}B^{ab}$$

$$\text{ex-0504.102} := \mu_0 A_{ab}B^{ab} - \mu_2 C_{ab}B^{ab}$$

$$\text{ex-0504.103} := A_{ab}B^{ab} - C_{ab}B^{ab}$$