

## Exercise 1.5 A sort hack

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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,v,w,x,y,z#}::Indices(position=independent).
2
3 foo := A_{a} A^{a} + A^{a} A_{a}.           # cdb (ex-0105.100,foo)
4
5 sort_product (foo)                          # cdb (ex-0105.101,foo)
6
7 substitute (foo, $A^{a} -> Z^{a}$)          # cdb (ex-0105.102,foo)
8 sort_product (foo)                          # cdb (ex-0105.103,foo)
9 substitute (foo, $Z^{a} -> A^{a}$)          # cdb (ex-0105.104,foo)
```

$$\text{ex-0105.100} := A_a A^a + A^a A_a$$

$$\text{ex-0105.101} := A_a A^a + A^a A_a$$

$$\text{ex-0105.102} := A_a Z^a + Z^a A_a$$

$$\text{ex-0105.103} := 2A_a Z^a$$

$$\text{ex-0105.104} := 2A_a A^a$$