Exercise 4.7 Return in functions

```
1    {a,b,c,d,e,f,g,h,i,j,k,l#}::Indices(position=independent).
2
3    # ---------------------------------------------------------------
4    # this function uses in-place changes for obj
5
6    def tidy (obj):
7
8        sort_product    (obj)
9        rename_dummies (obj)
10       canonicalise    (obj)
11
12   foo := C^{f} B^{a} A_{f a}.                # cdb (ex-0407.101,foo)
13   tidy (foo)                                 # cdb (ex-0407.102,foo)
14
15   # ---------------------------------------------------------------
16   # this function creates new objects,
17   # it will not give the correct result
18
19   def tidy (obj):
20
21       bah := @(obj).
22
23       sort_product    (bah)
24       rename_dummies (bah)
25       canonicalise    (bah)
26
27       obj := @(bah).
28
29   foo := C^{f} B^{a} A_{f a}.                # cdb (ex-0407.201,foo)
30   tidy (foo)                                 # cdb (ex-0407.202,foo)
31
32   # ---------------------------------------------------------------
33   # this function uses a return statement
34   # it will give the correct result
35
36   def tidy (obj):
```

```
37
38      bah := @(obj).
39
40      sort_product    (bah)
41      rename_dummies (bah)
42      canonicalise    (bah)
43
44      obj := @(bah).
45
46      return obj
47
48  foo := C^{f} B^{a} A_{f a}.              # cdb (ex-0407.301,foo)
49  foo = tidy (foo)                         # cdb (ex-0407.302,foo)
```

$$C^f B^a A_{fa} = A_{ab} B^b C^a \tag{ex-0407.102}$$

$$C^f B^a A_{fa} = C^f B^a A_{fa} \tag{ex-0407.202}$$

$$C^f B^a A_{fa} = A_{ab} B^b C^a \tag{ex-0407.302}$$