

I. Capabilities

- A. a pair basic object, allowed operations
- B. certain operations on capabilities are permitted
 - 1) copy
 - 2) reduce allowed operations
 - a) parameters
 - capability O,A
 - set of allowed operations A'
 - b) result
 - A:=AnA'

II. Basic objects

Associated with each kind of basic object are a number of possible operations. Each possible operation has 1 or more parameters, the first of which must be a capability for an object of the proper kind, and one of the allowed operations of the capability must be the operation in question.

A. Permanent file

- 1) This is a scope file which is stored in a special area of the disk, or might be saved on tape.
- 2) Possible operations
 - a) read
 - b) re-write
 - c) destroy
 - d) append

B. Directory Page

- 1) This is a sequence of pairs
 - The 1st member of the pair is a BCD name
 - The 2nd member of the pair is a capability
- 2) Possible Operations
 - a) get entry
 - 2nd parameter is a BCD name
 - b) make new entry
 - 2nd parameter is a BCD name
 - 3rd parameter is a capability
 - c) delete entry
 - 2nd parameter is a capability
 - d) modify entry
 - same parameters as b)
 - e) destroy page

c. Accounting Block

- 1) This specifies who or what job number is to be charged for files and directory pages.
- 2) Possible Operations
 - a) more permanent file
 - b) more directory page
 - c) more accounting block

Copy capability (D2,D2P)
Reduce capabilities (DLP,{Get entry})
Modify entry (DS,'J1',D2P)
Make entry (D2,'password',D1)
Make entry (D,'D2',D2)

This places control under password control, known only to the person who ran this job.

- B) To allow persons with job number JU to make files of up to H half tracks total, and make directory pages step to P sectors total:
- 1) Directory (D2)
Get entry (D2,'password',D)
Get entry (D,'A',A)
Make account block (A,AU,H,P)
Make directory page (A,DU)
Make entry (DU,'A',AU)
Make entry (DU,'D',DU)
Get entry (D,'DS',DS)
Make entry (DS,'JU',DU)
 - 2) The user can now place his accounting block under password control if he desires, similiar to the way directory D was placed under password control.
 - 3) This same directory could have been placed under several job numbers if desired.