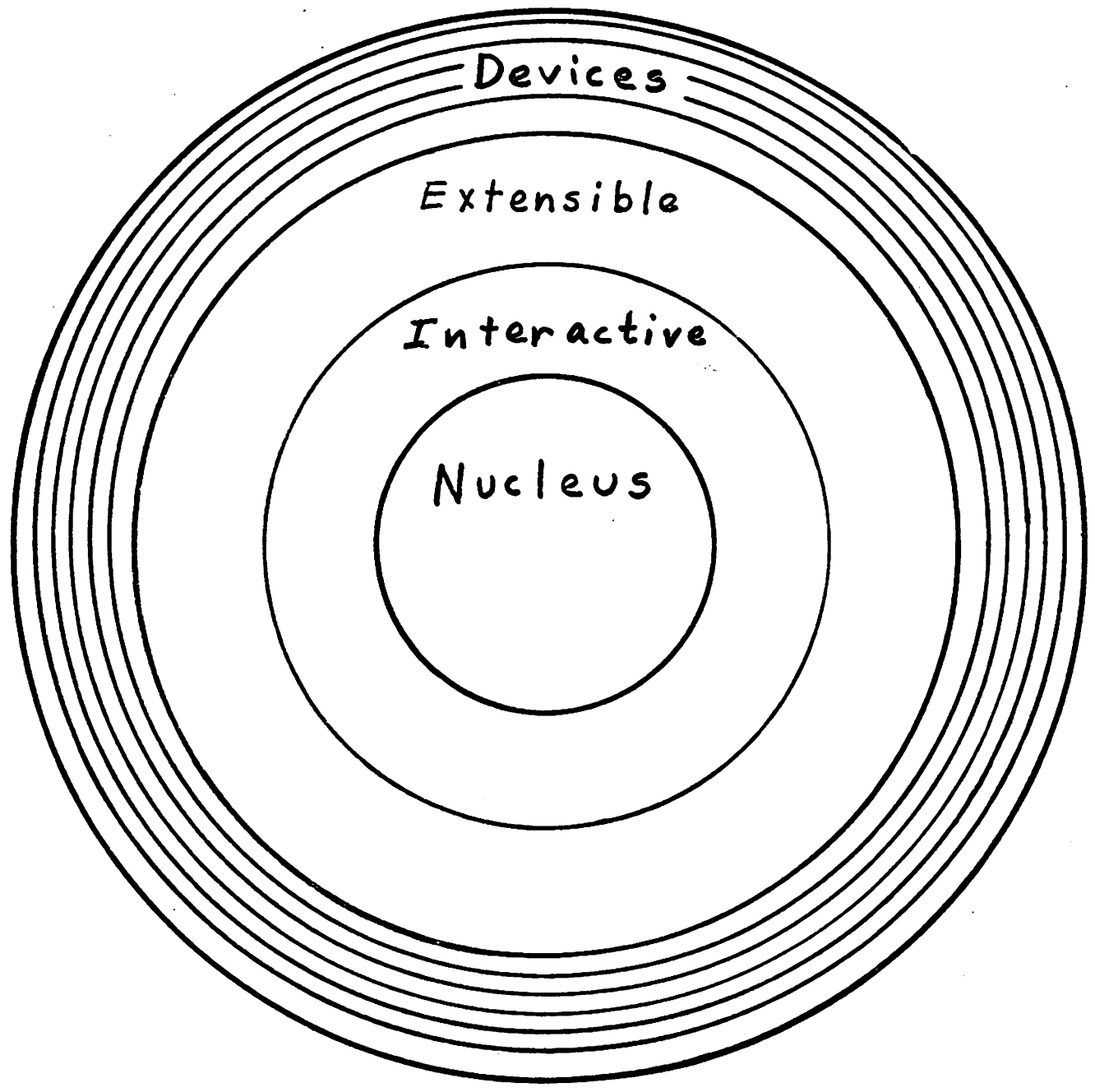


# MASS STORAGE

Application  
Layers



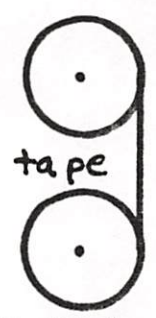
# MASS STORAGE

a generalized interface

single density  
8" floppy  
256K bytes

double density  
8" floppy  
512K bytes

hard  
winchester  
10M bytes



tape  
22.8M bytes  
10 501 .. 32 767

*example only*

blocks 0 .. 249

*example*  
↙ ↘  
250 .. 749

750 .. 10 500

block # mass storage address  
of 1024 byte "block"

← directs you  
to appropriate  
device

A 16 bit block# addresses 33.5 M bytes

A 32 bit block# addresses 2.2 tera bytes

to a program

to a device

logical  
block #

mapping  
process

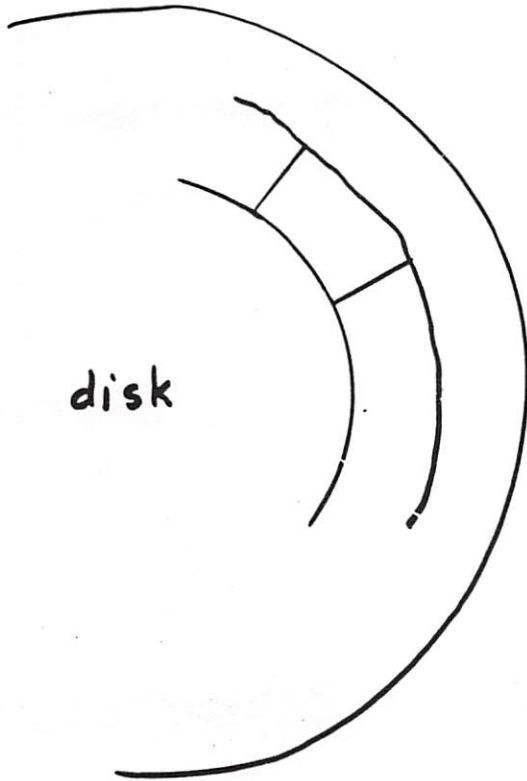


physical  
block #

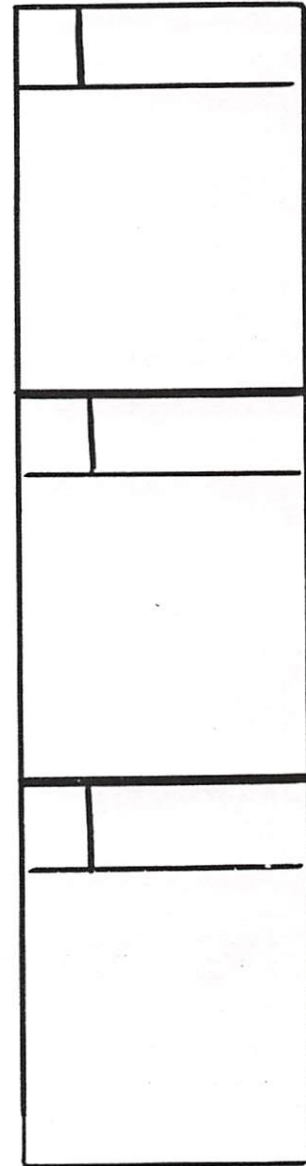
OFFSET @ +

Add B/BUF (const.) bytes/buffer

# DISK ACCESS



disk buffers

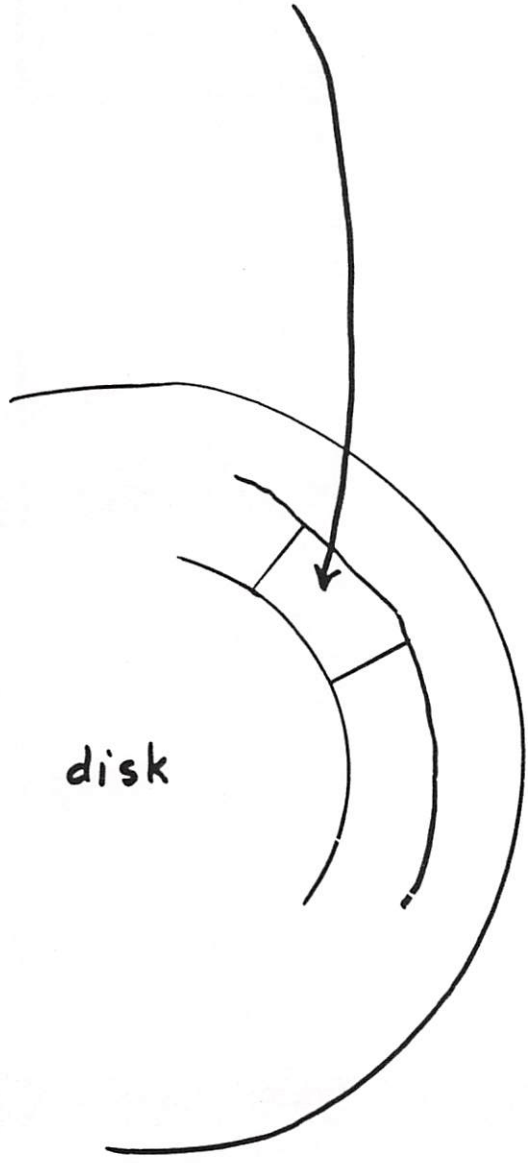


*no. buffers  
& size  
defined by  
member  
equates*

*128 byte  
in 8080  
version*

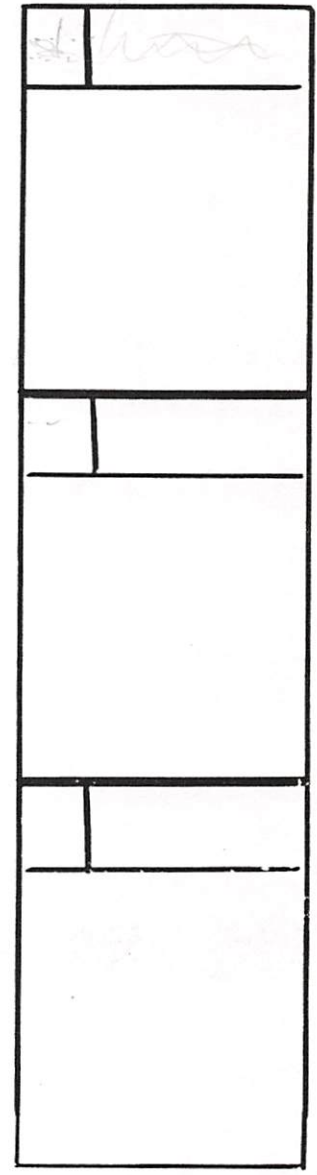
# DISK ACCESS

blk# BLOCK (takes care of I/O operations)



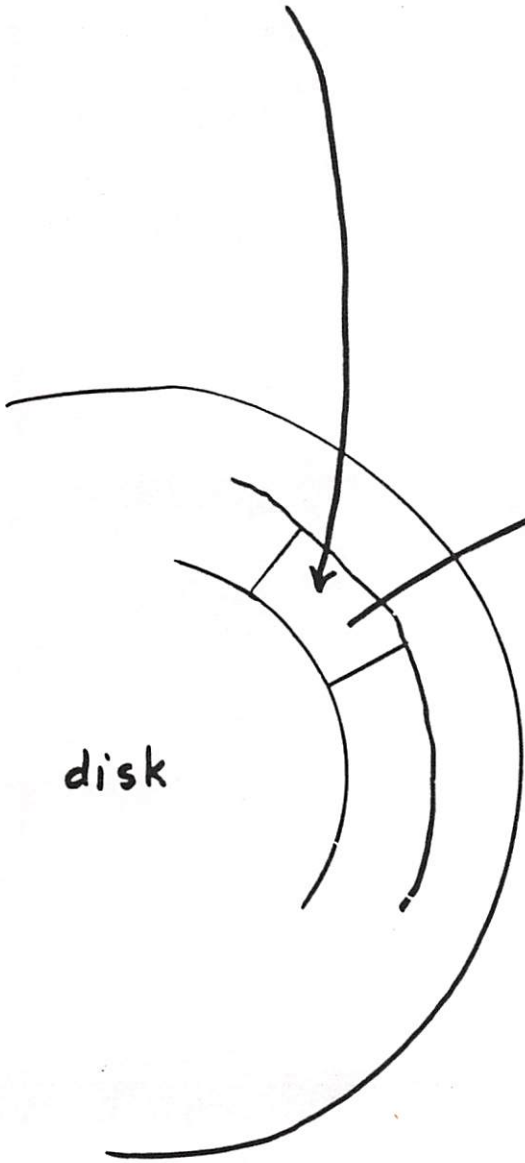
disk

disk buffers

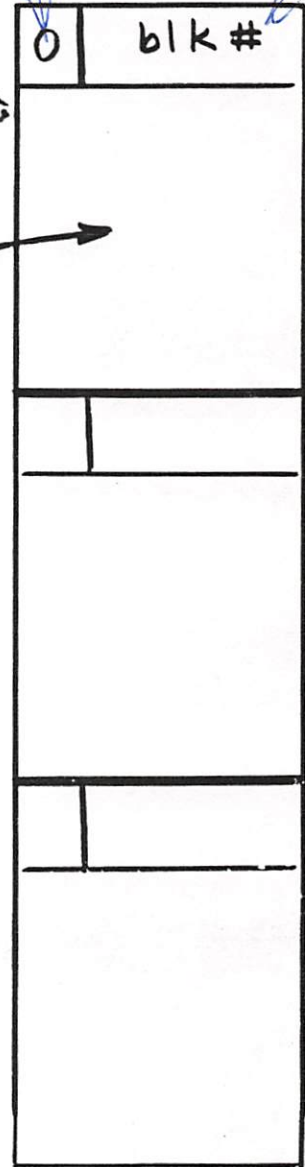


# DISK ACCESS

blk# BLOCK --- addr



disk



disk buffers

RAM = disc so far

when 1st ~~block~~ executes

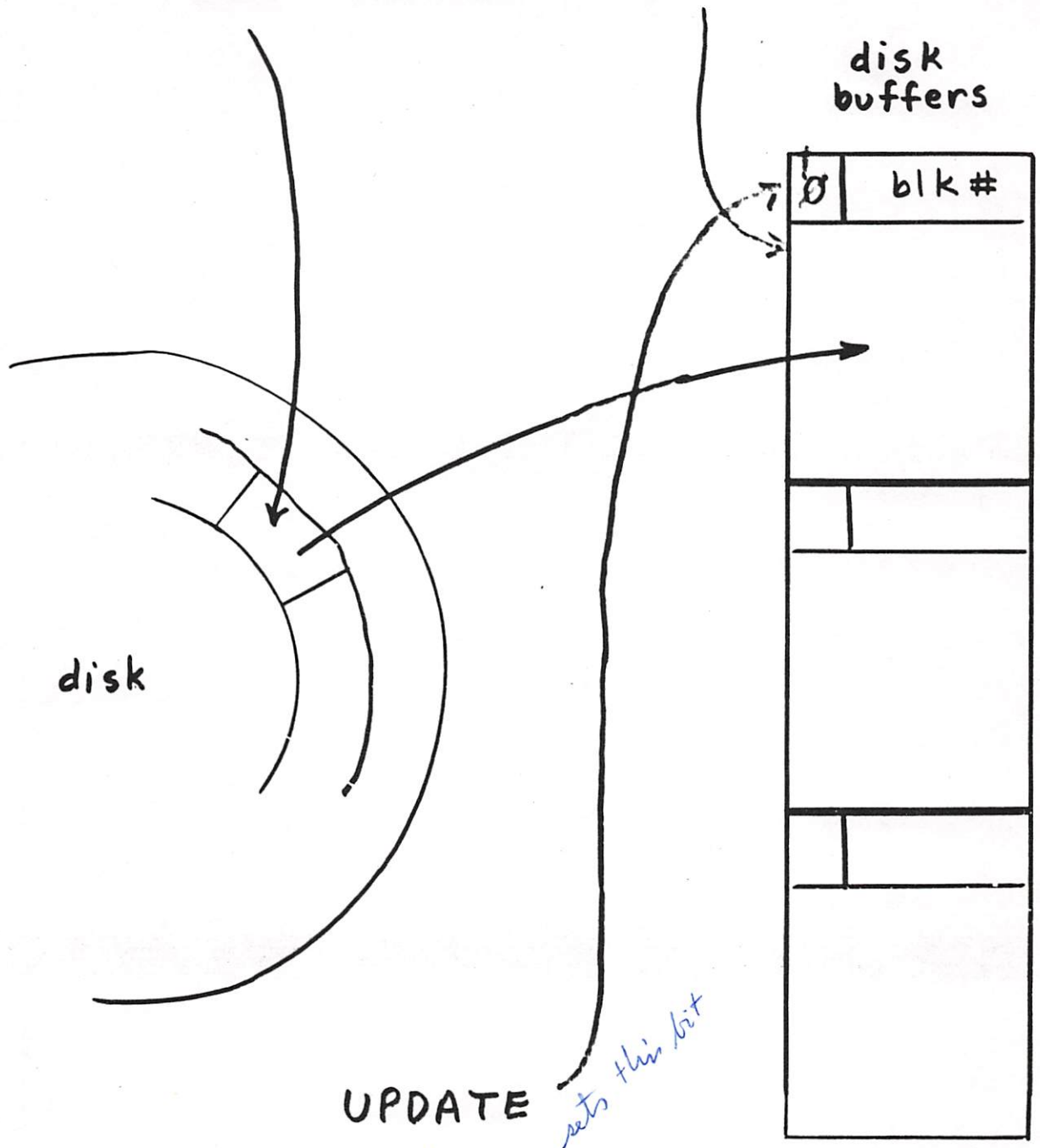
puts block no here

B2  
b



# DISK ACCESS

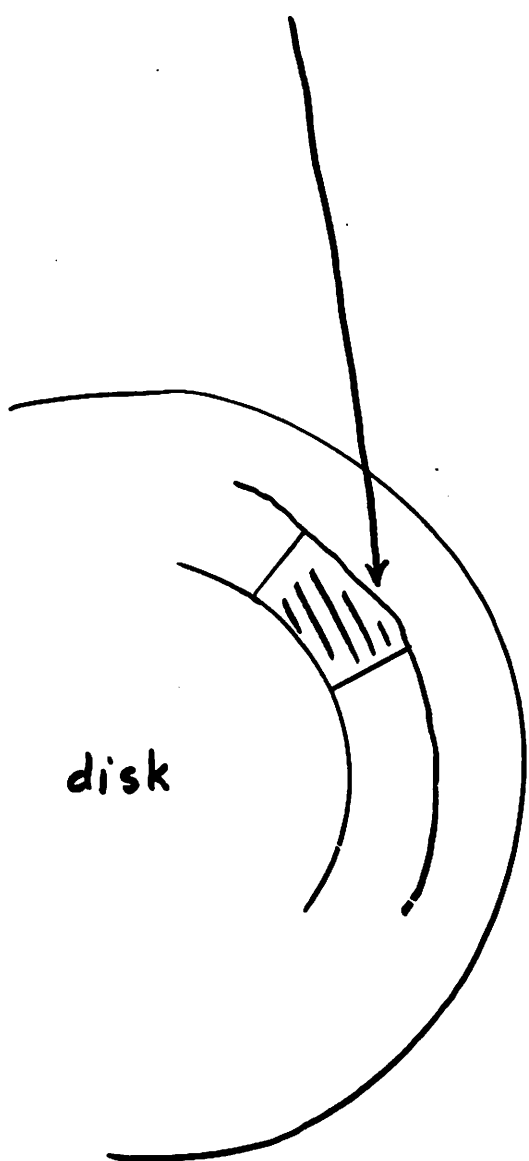
blk# BLOCK --- addr



*must execute to tell system buffer is "dirty"*

# DISK ACCESS

100 BLOCK --- addr



disk

no read performed

disk buffers

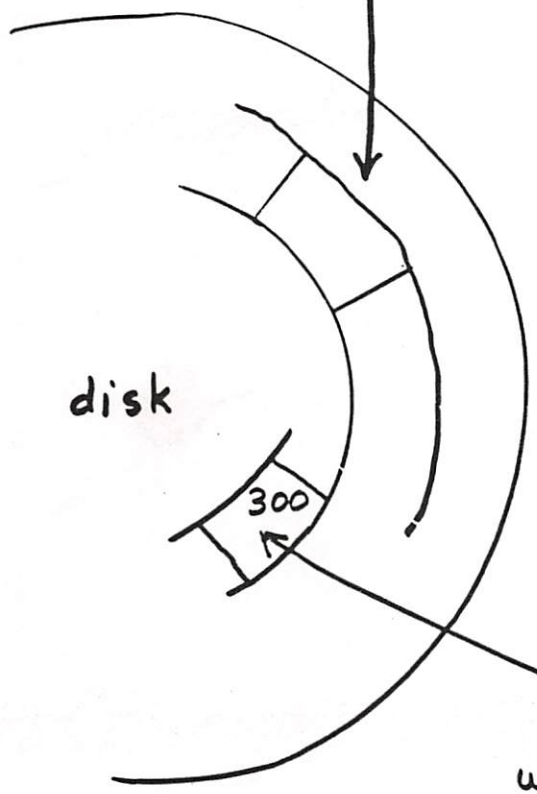
0	100
//	
1	200
1	300

# DISK ACCESS

101 BLOCK

disk buffers

0	100
1	200
1	300

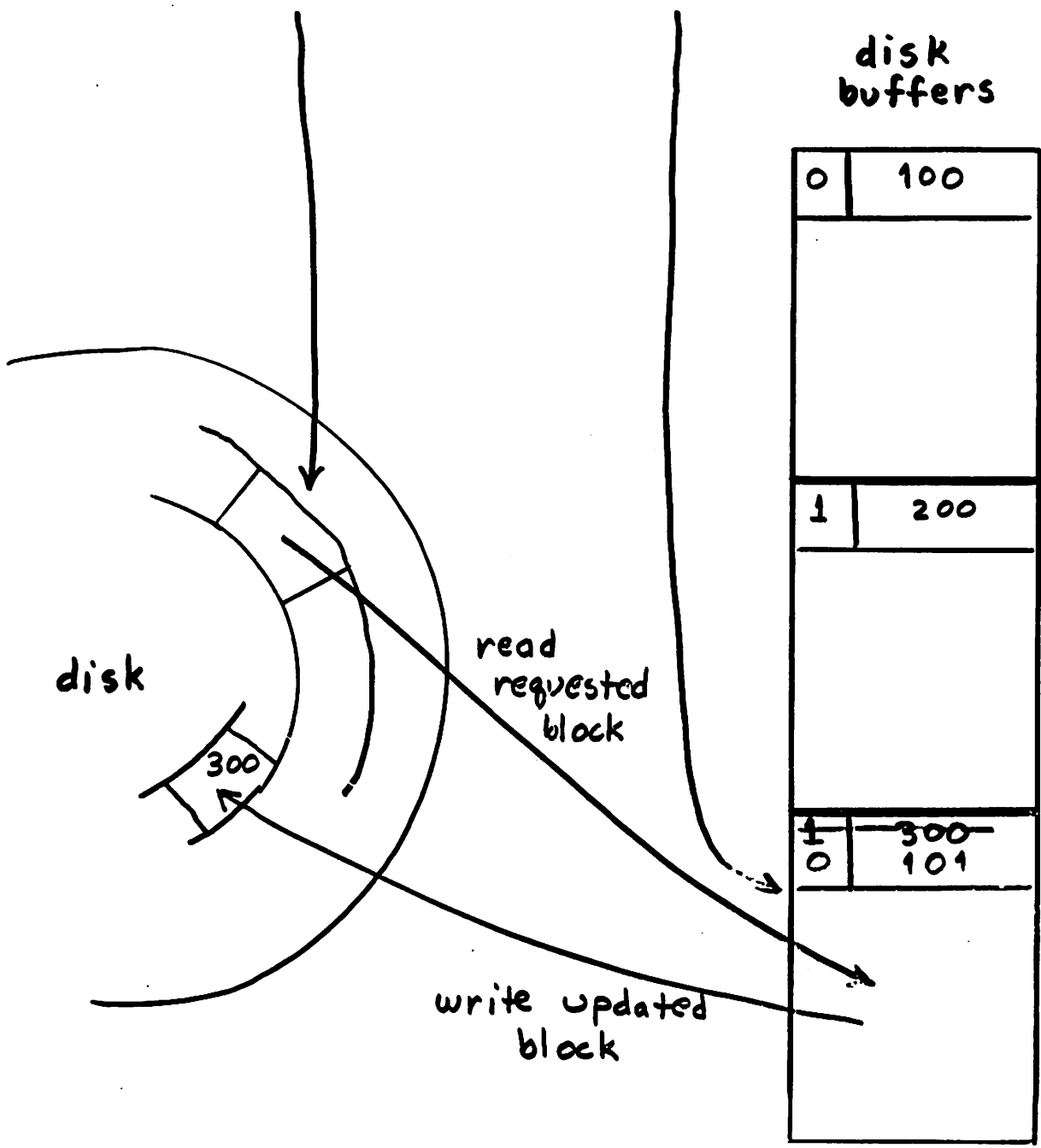


variable?  
PREV points to "oldest"  
an algorithm to decide which buffer to clothe & reuse



# DISK ACCESS

101 BLOCK ... addr



# disk operations:

**FLUSH** forces all **UPDATED** buffers to be written to mass storage

**MUST be executed:**

- before changing disks
- before powering down
- before restarting system

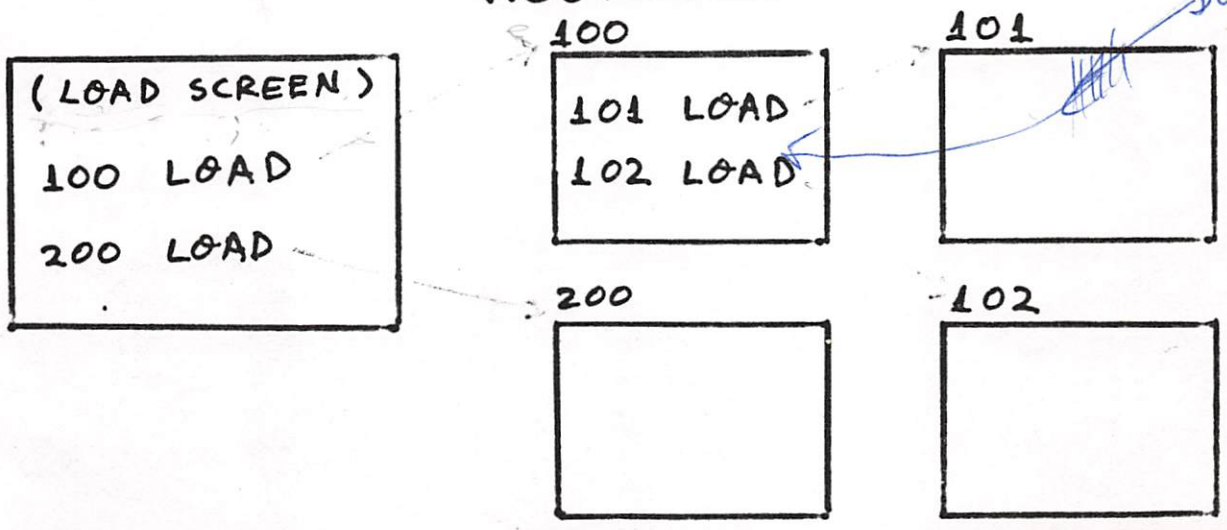
**can be executed:**  
after editing

**EMPTY-BUFFERS** writes 0's into all disk buffers without writing any **UPDATED** buffers to disk

Buffers are shared by all users.

screen# **LIST** displays screen at terminal (or other device)

screen# **LOAD** interprets & compiles screen nestable:



within a screen **IS** terminates **LOAD**.

Start screen, end screen, **INDEX**

-types out lines 0