joe@it4100-a1-sample:~$ echo "Now corrupt files so that 2 files point so same block"
Now corrupt files so that 2 files point so same block
joe@it4100-a1-sample:~$
joe@it4100-a1-sample:~$ mount | grep sda
/dev/sda1 on / type ext4 (rw,relatime,errors=remount-ro,data=ordered)
/dev/sda3 on /home type ext4 (rw,relatime,data=ordered)
/dev/sda5 on /home/joe/mymounts/d1 type ext4 (rw,relatime,data=ordered)
/dev/sda6 on /home/joe/mymounts/d2 type ext4 (rw,relatime,data=ordered)
/dev/sda7 on /home/joe/mymounts/d3 type ext4 (rw,relatime,data=ordered)
joe@it4100-a1-sample:~$ echo "See what is mounted"
See what is mounted
joe@it4100-a1-sample:~$
joe@it4100-a1-sample:~$ echo "Here is a file" | sudo tee mymounts/d1/file1.txt
Here is a file
joe@it4100-a1-sample:~$ cat mymounts/d1/file1.txt
Here is a file
joe@it4100-a1-sample:~$  

joe@it4100-a1-sample:~$ echo "Another awesome file" | sudo tee mymounts/d1/file2.txt

Another awesome file

joe@it4100-a1-sample:~$ cat mymounts/d1/file2.txt

Another awesome file

joe@it4100-a1-sample:~$
We will corrupt file2 to point at file1
debugfs:  stat file1.txt
_inode: 12  type: regular  mode: 0644  flags: 0x80000
_generation: 1747398615  version: 0x00000001
_user: 0  group: 0  size: 15
_file_acl: 0  directory_acl: 0
_links: 1  blockcount: 2
_fragment: address: 0  number: 0  size: 0
_ctime: 0x58825ac4  --  fri jan 20 11:45:24 2017
_atime: 0x58825ac6  --  fri jan 20 11:45:26 2017
_mtime: 0x58825ac4  --  fri jan 20 11:45:24 2017
_extents:
 (0): 8705
 (end)
debugfs: remember address 8705 (that's where the file is at)
debugfs:  mi file2.txt

Mode          [0100644]
User ID       [0]
Group ID      [0]
Size          [21]
Creation time [1484937946]
Modification time [1484937946]
Access time   [1484937950]
Deletion time [0]
Link count    [1]
Block count high [0]
Block count   [2]
File flags    [0x800000]
Generation    [0x68272fd8]
File acl       [0]
High 32bits of size [0]
Fragment address [0]
Direct Block #0 [127754]
Direct Block #1 [4]
Direct Block #2 [0]
Direct Block #3 [0]
Direct Block #4 [1]
Direct Block #5 [8452] 8705
Link count [1]
Block count high [0]
Block count [2]
File flags [0x80000]
Generation [0x68272fd8]
File acl [0]
High 32bits of size [0]
Fragment address [0]
Direct Block #0 [127754]
Direct Block #1 [4]
Direct Block #2 [0]
Direct Block #3 [0]
Direct Block #4 [1]
Direct Block #5 [8452] 8705
Direct Block #6 [0]
Direct Block #7 [0]
Direct Block #8 [0]
Direct Block #9 [0]
Direct Block #10 [0]
Direct Block #11 [0]
Indirect Block [0]
Double Indirect Block [0]
Triple Indirect Block [0]
debugfs:


Unmount and remount

```
$ echo "Unmount and remount"
Unmount and remount

$ sudo umount mymounts/d1

$ sudo mount /dev/sda5 mymounts/d1/
```
Here is a file

Here is a file

See that they point to same block
Run fsck to fix it!

sudo umount mymounts/d1
joe@it4100-a1-sample:~$ sudo fsck.ext4 -f /dev/sda5
Running additional passes to resolve blocks claimed by more than one inode...

Pass 1B: Rescanning for multiply-claimed blocks
Multiply-claimed block(s) in inode 12: 8705
Multiply-claimed block(s) in inode 13: 8705

Pass 1C: Scanning directories for inodes with multiply-claimed blocks
Pass 1D: Reconciling multiply-claimed blocks
(There are 2 inodes containing multiply-claimed blocks.)

File /file1.txt (inode #12, mod time Fri Jan 20 11:45:24 2017)
  has 1 multiply-claimed block(s), shared with 1 file(s):
    /file2.txt (inode #13, mod time Fri Jan 20 11:45:46 2017)
Clone multiply-claimed blocks<y>? yes

File /file2.txt (inode #13, mod time Fri Jan 20 11:45:46 2017)
  has 1 multiply-claimed block(s), shared with 1 file(s):
    /file1.txt (inode #12, mod time Fri Jan 20 11:45:24 2017)
Multiply-claimed blocks already reassigned or cloned.

Pass 2: Checking directory structure
Pass 3: Checking directory connectivity
Pass 4: Checking reference counts
Pass 5: Checking group summary information
Block bitmap differences:  -8452
Fix<y>? yes
Free blocks count wrong for group #0 (3823, counted=3822).
Fix<y>? yes
Free blocks count wrong for group #1 (7931, counted=7932).
Fix<y>? yes

/dev/sda5: ***** FILE SYSTEM WAS MODIFIED *****
/dev/sda5: 13/128016 files (0.0% non-contiguous), 26668/512000 blocks
joe@it4100-a1-sample:$
Remount and test

```
joe@it4100-a1-sample:~$ echo "Remount and test"
Remount and test

joe@it4100-a1-sample:~$ sudo mount /dev/sda5 mymounts/d1/
joe@it4100-a1-sample:~$ cat mymounts/d1/file*
Here is a file
Here is a file

joe@it4100-a1-sample:~$ echo "Hmmm.... did it work?"
Hmmm.... did it work?
```


debugfs:  stat file1.txt
Inode: 12  Type: regular  Mode: 0644  Flags: 0x80000
Generation: 1747398615  Version: 0x00000001
User: 0  Group: 0  Size: 15
File ACL: 0  Directory ACL: 0
Links: 1  Blockcount: 2
Fragment: Address: 0  Number: 0  Size: 0
time: 0x58825ac4  -- Fri Jan 20 11:45:24 2017
atime: 0x58825ac6  -- Fri Jan 20 11:45:26 2017
mtime: 0x58825ac4  -- Fri Jan 20 11:45:24 2017
EXTENTS:
(0):4370
(END)
debugfs:  stat file1.txt
debugfs:  stat file2.txt
debugfs:  

Inode: 13  Type: regular  Mode: 0644  Flags: 0x80000
Generation: 1747398616  Version: 0x00000001
User: 0  Group: 0  Size: 21
File ACL: 0  Directory ACL: 0
Links: 1  Blockcount: 2
Fragment: 0  Address: 0  Number: 0  Size: 0
ctime: 0x58825ada -- Fri Jan 20 11:45:46 2017
atime: 0x58825ade -- Fri Jan 20 11:45:50 2017
mtime: 0x58825ada -- Fri Jan 20 11:45:46 2017
EXTENTS:
(0): 8705
(END)
Did you note the 2 different addresses now? It doesn't give us the original block back. It doesn't know where it was. It just gives us a new block with the same data.
Could you change the block address of file 1 back and retrieve the original data?