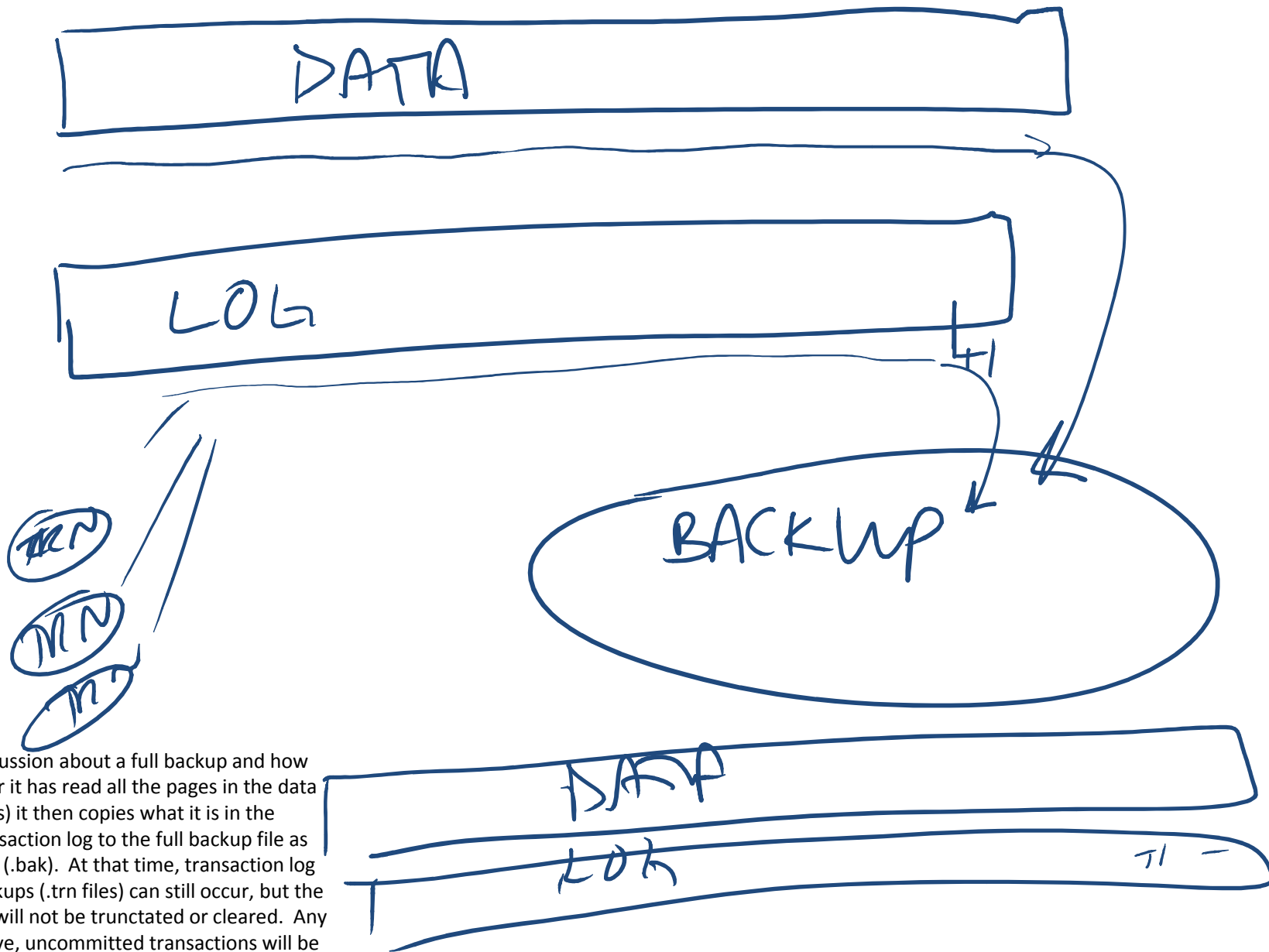


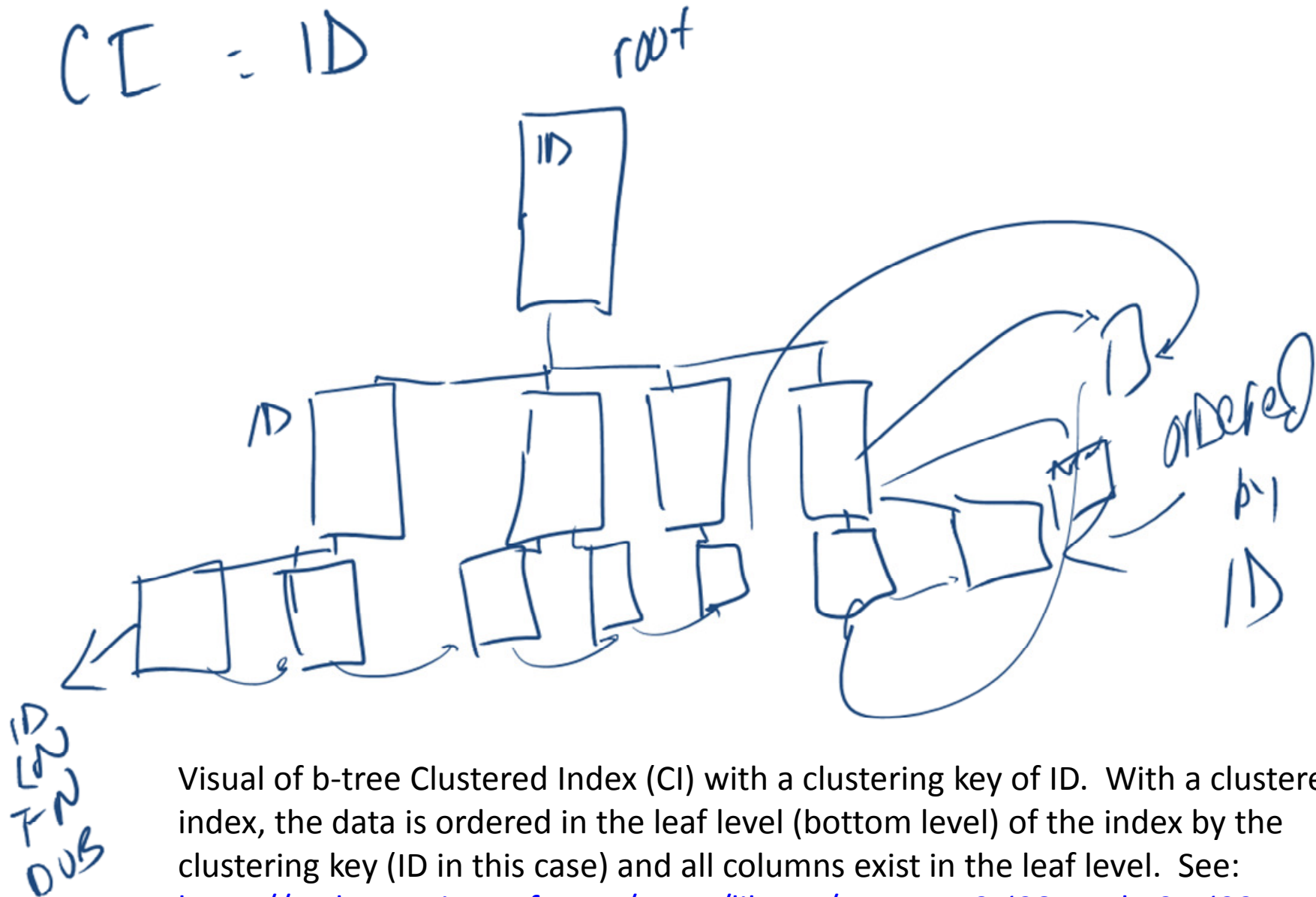


What happens when you shrink a log file? The end of the log file is “removed” (that space is deallocated and given back to the OS) assuming there are no active VLFs. So if the top drawing is a 200GB log file with 3 active VLFs in the middle, and we want to remove 50GB of that, it removes the last 50GB of the file to create the file shown in the bottom drawing.

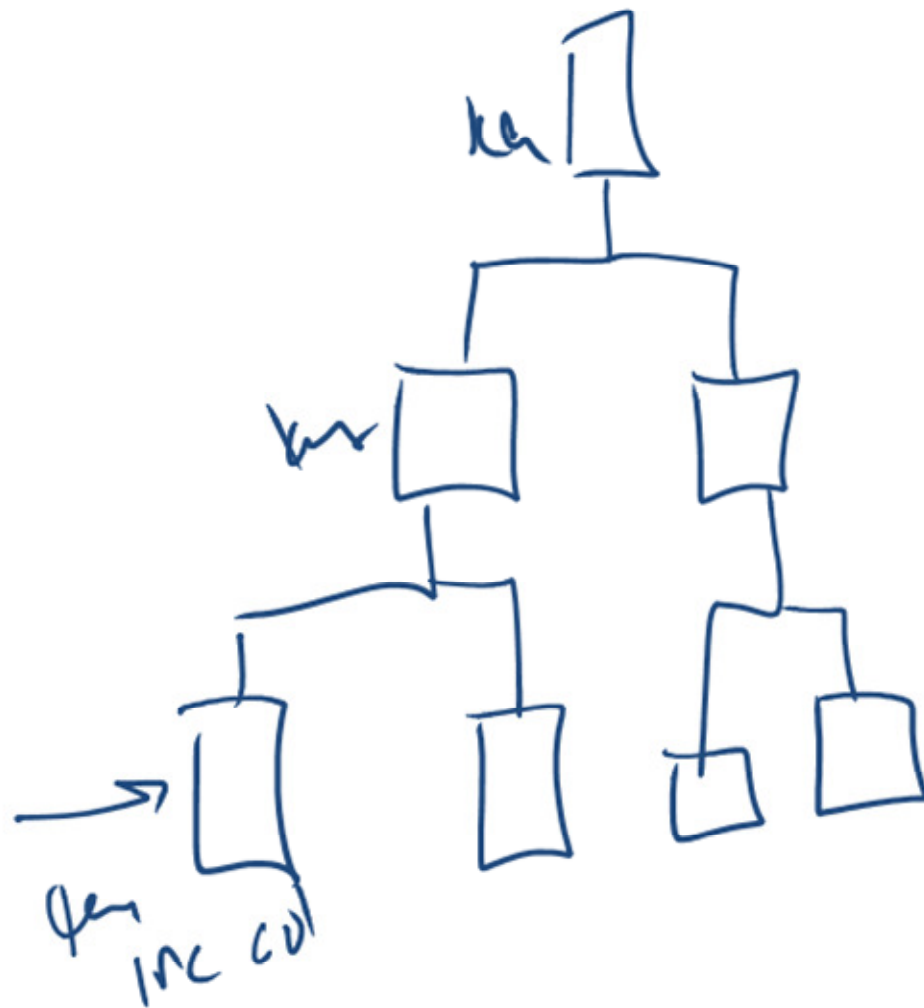
*drawings not to scale!



Discussion about a full backup and how after it has read all the pages in the data file(s) it then copies what it is in the transaction log to the full backup file as well (.bak). At that time, transaction log backups (.trn files) can still occur, but the log will not be truncated or cleared. Any active, uncommitted transactions will be rolled back if the full backup is restored alone (no additional tlog backups), WITH RECOVERY.



Visual of b-tree Clustered Index (CI) with a clustering key of ID. With a clustered index, the data is ordered in the leaf level (bottom level) of the index by the clustering key (ID in this case) and all columns exist in the leaf level. See: <https://technet.microsoft.com/en-us/library/ms177443%28v=sql.105%29.aspx> for additional details.



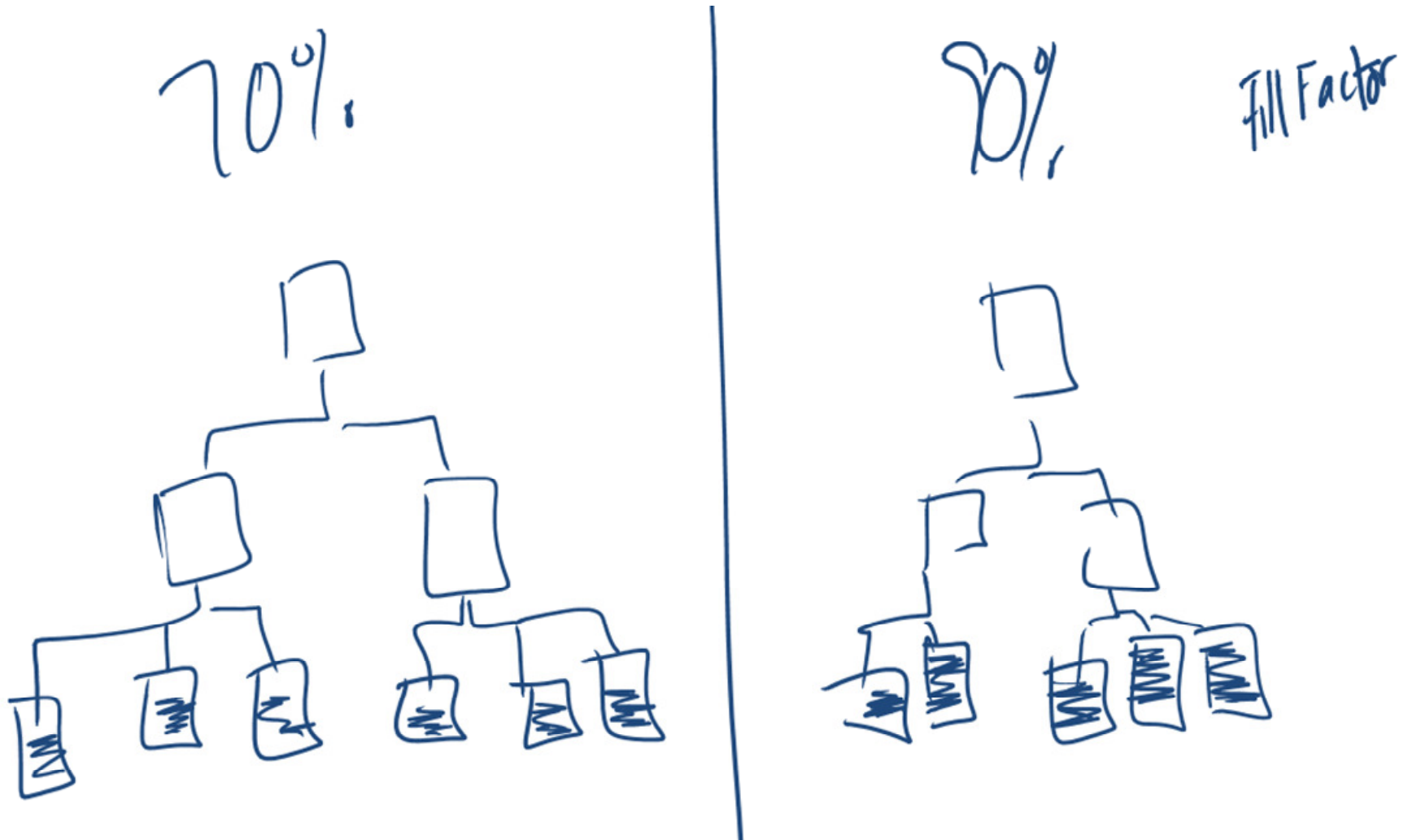
NCI

Last Name, FN

Visual of b-tree Nonclustered Index (NCI) with a clustering key of LastName, FirstName. A NCI is a subset columns from the table (typically), ordered by the index key. See:

<https://technet.microsoft.com/en-us/library/ms177484%28v=sql.105%29.aspx>

for additional details.



Discussion about the difference in size of an index if different fill factors are used. On the left, fill factor was 70%, so there is about 30% free space on each page, and therefore more pages are required to hold the data when compared to the same index where fill factor is 90%, and there is only 10% free space on each page.

Shrink

Before



After



Depiction of how SHRINK works – pages are taken from the end of the file and moved as far back to the beginning as possible, potentially reversing the order of the index pages and fully fragmenting it.