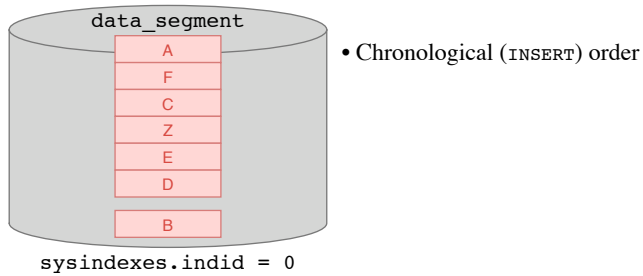
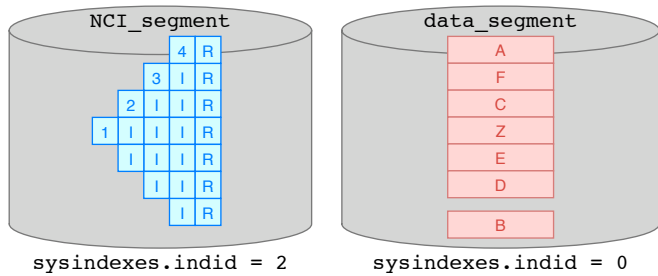


AllPage Locked

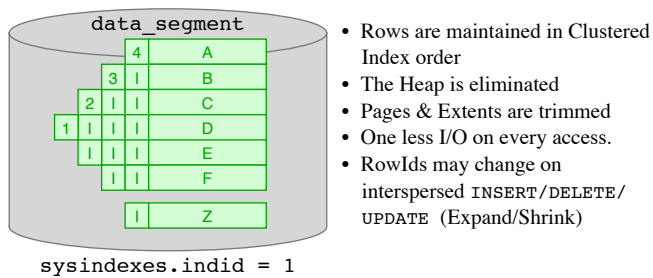
19.1 Heap (When No Clustered Index)



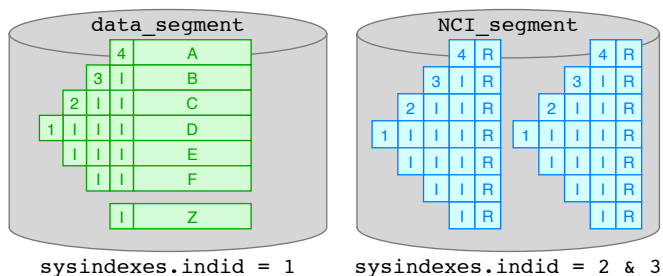
19.2 Heap plus NCI (When No Clustered Index)



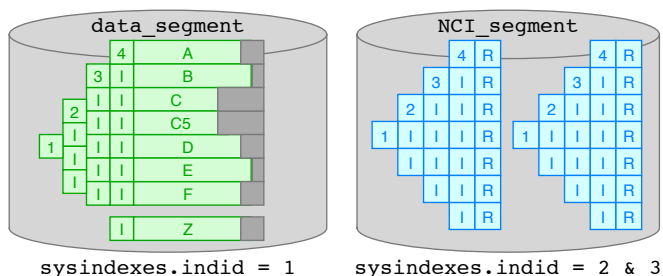
19.3 Clustered Index



19.4 Clustered Index plus NCI



19.5 No Level III Fragmentation



APL Dis/Advantage

- Extents and Pages are kept trim, to maintain contiguity
- RowIds change if Page is split or row is expanded:
  - NCI entries need to be updated if the RowId in the CI changes
- Clustered Index & Page Chain allows Range Queries
- No Level III fragmentation; REORG is not required

Indices are B-Trees:

- 4 | Level, Index Height
- 1 | Intermediate Level
- Z | CI Leaf: Data row
- R | NCI Leaf: RowId

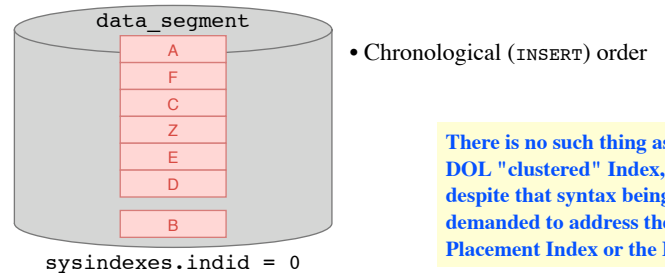
Only DPL/DRL tables are afflicted by Level III Fragmentation, shown here in summary form:



[Full Detail](#)

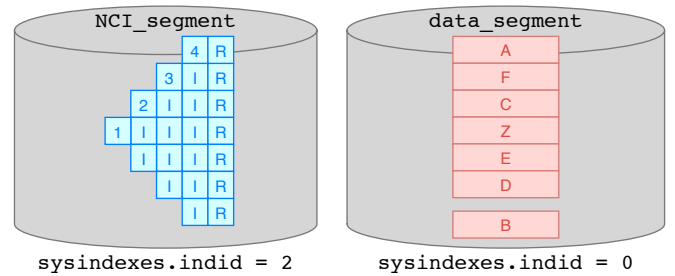
DataPage/DataRow Locked

Heap (Always)

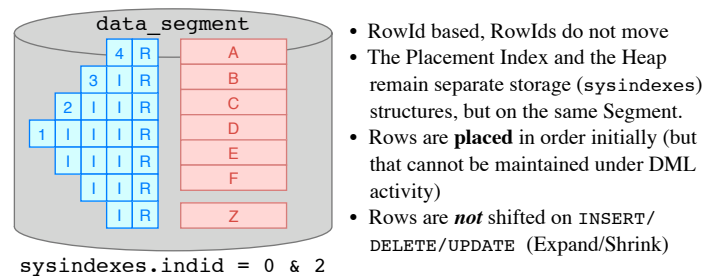


There is no such thing as a DOL "clustered" Index, despite that syntax being demanded to address the Placement Index or the Heap.

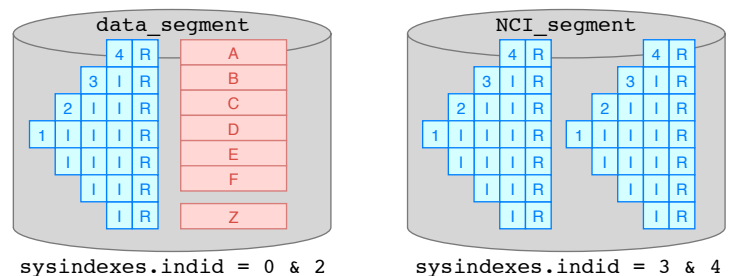
Heap plus NCI (No Placement Index)



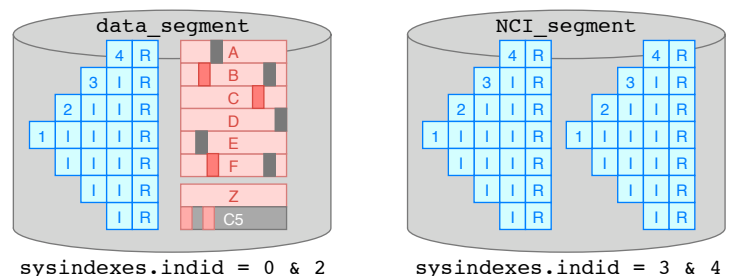
Heap & Placement Index



Heap & Placement Index plus NCI



Level III Fragmentation



DPL/DRL Dis/Advantage

- Row Ids do not change: Rows do not move
- No Page Chain
- No Range Queries
- Becomes heavily fragmented (Level III) over time
  - Expanded rows are forwarded
  - Inserted rows placed at end of Heap
  - Deleted rows are not deleted (only marked for deletion)
  - Regular de-fragmentation via REORG REBUILD (offline) is required
  - REORG RECLAIM\_SPACE & FORWARDED\_ROWS are ineffective in correcting Level III Fragmentation

