


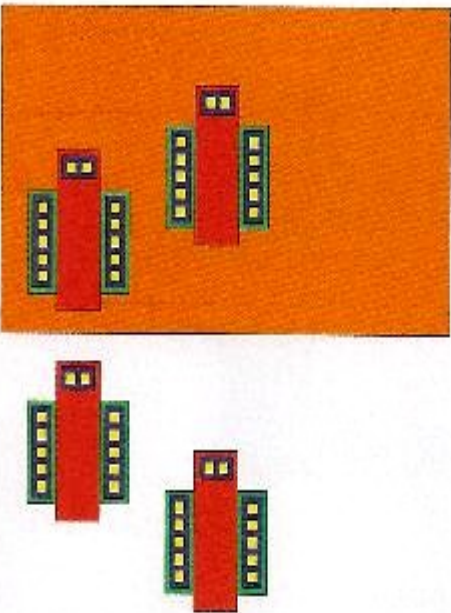
## WPE (Well Proximity Effect)

NMOS or PMOS that are close to the edge of a well will exhibit a difference in threshold and  $I_d$  from that of the device located remotely from the edge.

The WPE effect occurs to every MOS: standard  $V_t$ , high  $V_t$ , low  $V_t$ , thick/thin oxide MOS.

Below is a diagram which is taken from the IC Mask Design training course on VDSL (Very Deep Sub Micron Layout)


Device Matching:  
WPE Effect



Devices experience different well proximity effects

- Both PMOS are different distances from inside edge of N-well
  - More heavily implanted
- Both NMOS are different distances from outside edge of adjacent N-well
  - P-well has some N implantation

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Fig .1 WPE Effect

