
数字世界精彩无限

Unit 5

——Multi-Level Gate Circuits
NAND and NOR Gates

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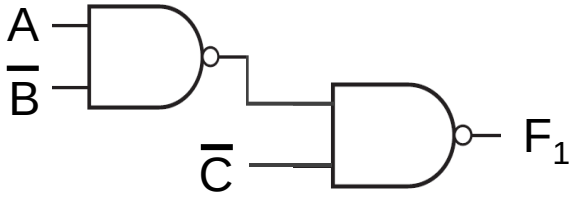
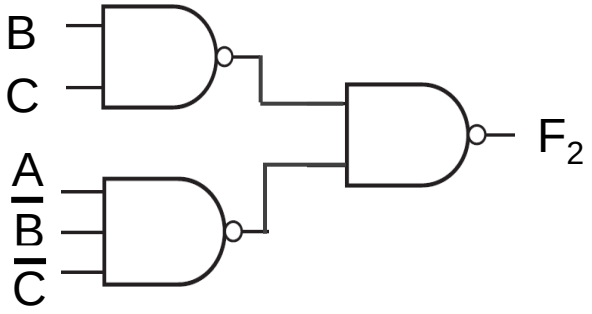
5.3 多输出电路的设计

- 代数法
- 卡诺图法

多输出电路的设计——代数法

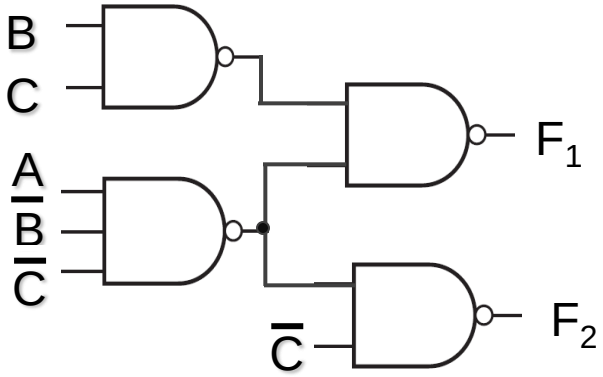
利用与非门设计二级电路：　$F_1 = C + A\bar{B}$，　$F_2 = BC + A\bar{B}\bar{C}$





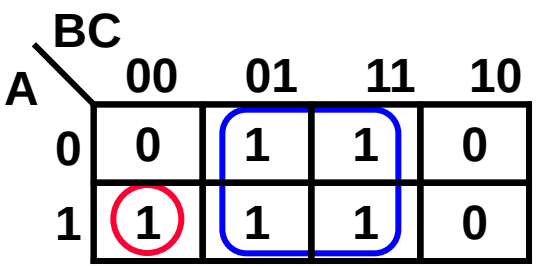
关键：寻找**共享项**，追求整体最简

$$
\begin{aligned}
F_1 &= C + A\bar{B} \\
&= C + A\bar{B}(C + \bar{C}) \\
&= C + A\bar{B}C + A\bar{B}\bar{C} \\
&= C + A\bar{B}\bar{C}
\end{aligned}
$$

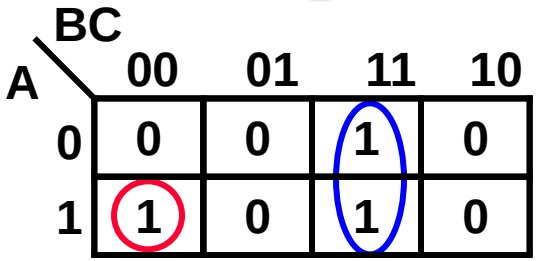


多输出电路的设计——卡诺图法

F_1



F_2

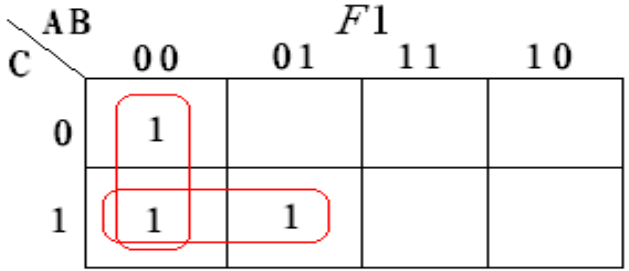


$F_1 = C + A\bar{B}\bar{C}$

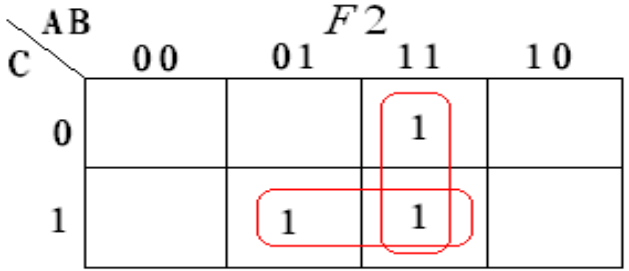
$F_2 = BC + A\bar{B}\bar{C}$

关键：寻找**共享项**，追求整体最简

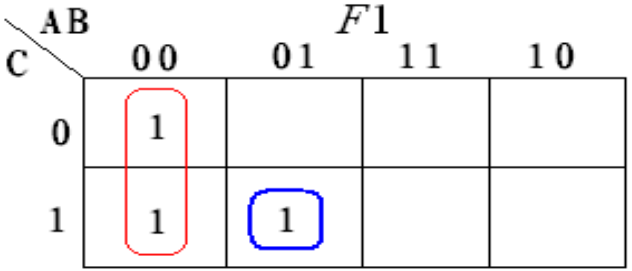
多输出电路的设计——卡诺图法



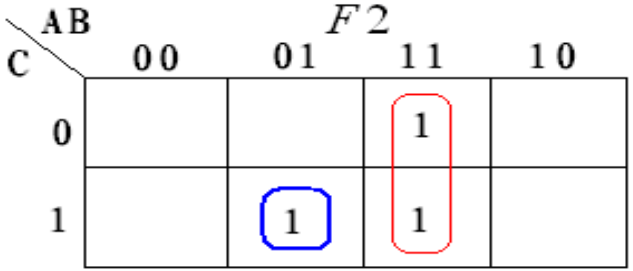
$$F1 = A' \cdot B' + A' \cdot C$$



$$F2 = A \cdot B + B \cdot C$$



$$F1 = A' \cdot B' + A' \cdot B \cdot C$$



$$F2 = A \cdot B + A' \cdot B \cdot C$$

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