Definition 12.11 A conditional mutual independency on $X_1, X_2, \cdots, X_n$ is full if all $X_1, X_2, \cdots, X_n$ are involved. Such a conditional mutual independency is called a full conditional mutual independency (FCMI).

Example 12.11 For $n = 5$,

X_1, X_2, X_4, and X_5 are mutually independent conditioning on X_3

is an FCMI. However,

X_1, X_2, and X_5 are mutually independent conditioning on X_3

is not an FCMI because X_4 is not involved.