

## 4.2.5.6 FP Principles

### Principles of *FP-Growth*

#### Pattern growth property

Let  $\alpha$  be a frequent itemset in DB,  $B$  be  $\alpha$ 's conditional pattern base, and  $\beta$  be an itemset in  $B$ . Then  $\alpha \cup \beta$  is a frequent itemset in DB iff  $\beta$  is frequent in  $B$ .

#### Is "*fcabm*" a frequent pattern?

"*fcab*" is a branch of  $m$ 's conditional pattern base : if *fcab* is FI in  $m$ -CPB

" $b$ " is NOT frequent in transactions containing "*fcab*"

" $bm$ " is NOT a frequent itemset.

$\alpha = m; \beta = b; B = \{fca:3, b:1, \dots\}$  is a CPB of  $m$

Is  $bm$  a frequent pattern? NO

Is  $\tilde{fcbm}$  a frequent pattern? NO