

Chapter 5 Exercise

2(a) support for $\{e\}$ $\{b, d\}$ $\{b, d, e\}$

$$s\{e\} = \frac{8}{10}$$

$$s\{b, d\} = \frac{2}{10}$$

$$s\{b, d, e\} = \frac{2}{10}$$

(b) confidence for $\{b, d\} \rightarrow \{e\}$ and $\{e\} \rightarrow \{b, d\}$

$$c\{b, d\} \rightarrow \{e\} = \frac{s\{b, d, e\}}{s\{b, d\}} = \frac{0.2}{0.2} = 1$$

$$c\{e\} \rightarrow \{b, d\} = \frac{s\{b, d, e\}}{s\{e\}} = \frac{0.2}{0.8} = 0.25$$

(c) $s\{e\} = \frac{4}{5}$

$$s\{b, d\} = \frac{5}{5}$$

$$s\{b, d, e\} = \frac{4}{5}$$

(d) $c\{b, d\} \rightarrow \{e\} = \frac{s\{b, d, e\}}{s\{b, d\}} = \frac{0.8}{1} = 0.8$

$$c\{e\} \rightarrow \{b, d\} = \frac{s\{b, d, e\}}{s\{e\}} = \frac{0.8}{0.8} = 1$$

6(a) 6 unique items in the dataset

$$C_6^1 + C_6^2 + C_6^3 + C_6^4 + C_6^5 = 62$$

(b) 4 because the largest transaction contains 4 goods.

(c) $C_6^3 = 20$

(d) $s\{\text{Bread, Butter}\} = \frac{5}{10}$ largest

(e) Bread, Butter : they never individually appear in transactions.

4.(a)

$\{p, a, r\}$ $\{p, a, t\}$ $\{p, a, s\}$

$\{p, r, s\}$ $\{p, r, t\}$

$\{p, s, a\}$ $\{p, s, r\}$

$\{p, t, s\}$ $\{p, t, r\}$

$\{a, r, s\}$ $\{a, r, t\}$

$\{r, s, t\}$

(b)