

1 가 10 ,
 가 ,
 가 .
 가 .
 가 ,
 >
 >
 12 6 ,
 - [] , ,

	()		()
1	0	12	12
2	0	15	15
3	0	9	9
4	0	17	17
5	1	5	4
6	1	7	6
7	3	12	9
8	3	5	2
9	5	10	5
10	6	18	12

가
 , 6
 가 가 ,

➤ **(Survival Function)**

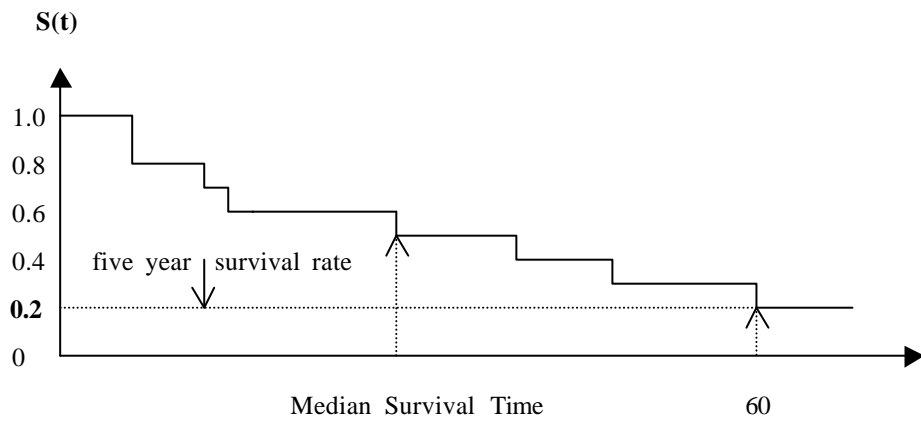
(Survival Function)

: t t
S(t) = P (an individual survives longer than t)

$$S(t) = \frac{t}{\dots}$$

: 5 60
 Median Survival Time 0.5

Kaplan-Meier



➤ **(Hazard Function)**

: t t t

$$h(t) = \lim_{\Delta t \rightarrow 0} \frac{P[t \dots (t, t + \Delta t) \dots]}{\Delta t}$$



■

$f(t) = -S'(t)$ 가

$$h(t) = -\frac{S'(t)}{S(t)} = \frac{\frac{d}{dt}S(t)}{S(t)} = -\frac{d}{dt}\log S(t)$$

$\log S(t) = -\int_0^t h(u)du$ 가

$$S(t) = \exp[-\int_0^t h(u)du] = \exp[H(t)] \quad , \quad H(t) = -\int_0^t h(u)du$$

➤

Kaplan-Meier

가

< Kaplan-meier >

가 30

(P_1)

(P_2)

가

29

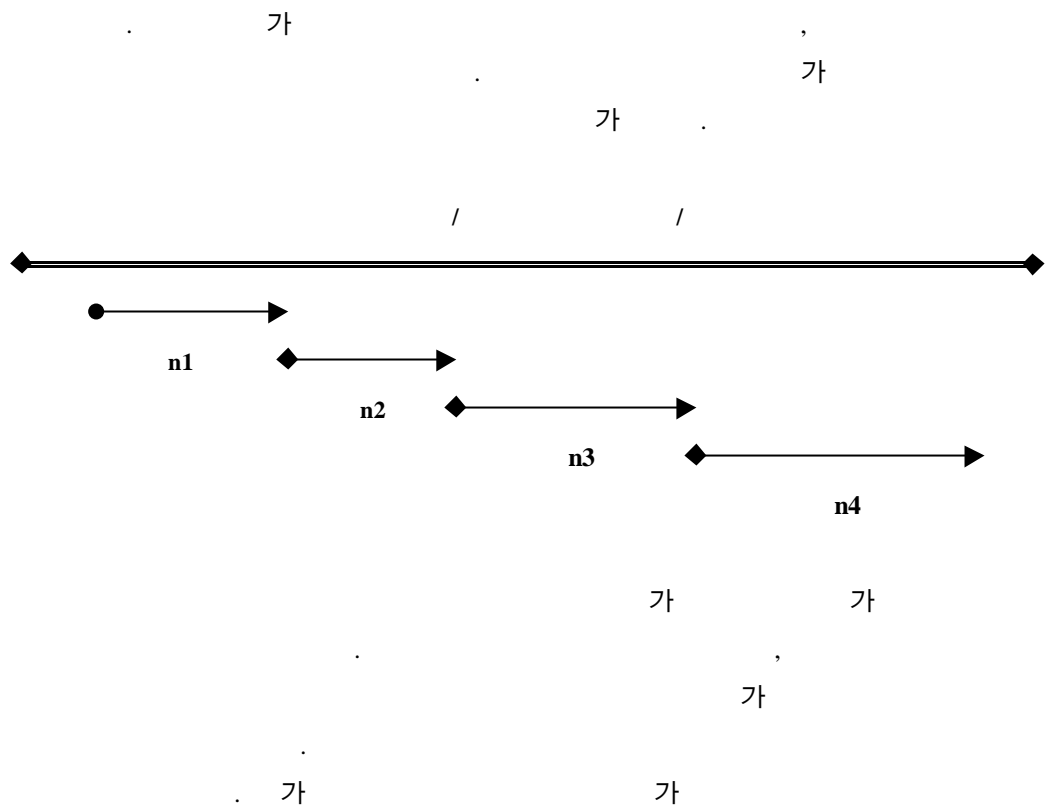
30

P_{30}

30

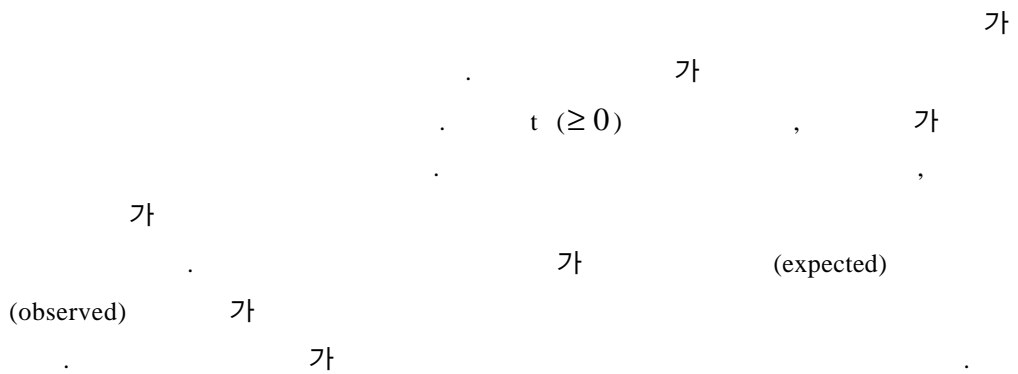
S_{30}

$$S_{30} = P_1 \times P_2 \times \dots \times P_{30}$$



➤

✓ **Log-rank test (=Mantel-Haenszel test , Peto- Mantel-Haenszel test)**



✓ **Wilcoxon test**

Wilcoxon

Wilcoxon



가

Wilcoxon

, Cox

✓ Stratified log-rank test

가

가

가

가

✓ Odds ratio

가

가

가

$$R = \frac{O_1/E_1}{O_2/E_2}$$

가

R=1

가

➤

✓

가

가

가

t_1

t_2

, t_1 t_2

가

✓

가

➤ **Cox**

가

가 ,

가

Cox가

가

$H(t;x)$ t

x

, $h_0(t)$

0

$$\mathbf{H}(\mathbf{t}; \mathbf{x}) = h_0(\mathbf{t}) \exp(b_1 x_1 + b_2 x_2 + \dots + b_p x_p)$$



Cox

가

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가

가
가