$$F\text{-hat} = \sum_{i=1}^{n} \hat{p_{ij}}\, I_{x_{ij} \le t}$$

$T_1 : (1, 2)$ $nn = 4$

$T_2 : (3, 4)$

$T_{12} : (1, 2, 3, 4)$

$$\hat{p_1} = (0.5857864,\ 0.4142136)$$

$$\hat{p_2} = (0.5714286,\ 0.4285714)$$

$$\hat{F_1} = \begin{bmatrix} 0.5857864 & 0.4142136 \\ \vdots & \vdots \\ \vdots & \vdots \end{bmatrix} \times \begin{pmatrix} T & F \\ T & T \\ T & T \end{pmatrix}$$

$\hat{p_1}$

$$(T_1 \le T_{12})$$

$$= \begin{pmatrix} 1 & 2 \\ 1 & 2 \\ 1 & 2 \end{pmatrix} \le \begin{pmatrix} 1 & 1 \\ 2 & 2 \\ 3 & 3 \end{pmatrix} = \begin{pmatrix} T & F \\ T & T \\ T & T \end{pmatrix}$$

$$\hat{F_1} = \text{sum} \begin{pmatrix} 0.5857864 & 0 \\ \vdots & 0.4142136 \\ \vdots & \vdots \end{pmatrix} = \begin{matrix} 0.5857864 \\ 0.5\ldots + 0.4\ldots \\ \vdots \end{matrix}$$

$$= (0.5857864,\ 1,\ 1)$$

$\hat{F_2}$:

$$\begin{pmatrix} 0.5714286 & 0.4285714 \\ \vdots & \vdots \\ \vdots & \vdots \end{pmatrix} \times \begin{pmatrix} F & F \\ F & F \\ T & F \end{pmatrix}$$

$$\begin{pmatrix} 3 & 4 \\ 3 & 4 \\ 3 & 4 \end{pmatrix} \leq \begin{pmatrix} 1 & 1 \\ 2 & 2 \\ 3 & 3 \end{pmatrix} = \begin{pmatrix} F & F \\ F & F \\ T & F \end{pmatrix}$$

$$= (0, 0, 0.5714286) \checkmark$$

$$\hat{\theta}_{t,t} = \sum_{j=1}^{2} \sum_{i=1}^{n_j} \hat{w}_j^2 \{ I_{x_{ij} \leq t} - \hat{H}(t) \}^2 \Big/ n k_j^2 w_{ij}^2$$

$$k_j = \frac{n_j}{n}$$

$$\hat{H}(t) = \{ n_1 \hat{F_1}(t) + n_2 \hat{F_2}(t) \}$$

$\hat{\theta}_{t,s}$ $j=1$ $ns[1] = (1, 2)$

$t = 2$

$s = 1$

$$\hat{\theta}(s,t) = w_j^2 \left\{ \underline{I_{x_{ij} \le s}} - \hat{H}(s) \right\} \left\{ I_{x_{ij} \le t} - \hat{H}(t) \right\}$$

$$\begin{bmatrix} T & F \\ T & T \\ T & T \end{bmatrix} - \hat{H}$$

$$= \begin{bmatrix} 0.7071068 & -0.2928932 \\ 0.5 & 0.5 \\ 0.21428 = & \vdots \end{bmatrix}$$

$j=1$

$$\sum_{i=1}^{n_1} \hat{w}_i^2 \{ I_{x_{i1} \le t} - \hat{H}(t) \}^2 / n k_j^2 w_{ij}^2$$

$1 \sim 3$

$n_1 = 3$

$$\begin{bmatrix} 1 & 2 \\ 1 & 2 \\ 1 & 2 \end{bmatrix} \le \begin{bmatrix} 1 & 1 \\ 2 & 2 \\ 3 & 3 \end{bmatrix}$$

$nn : 4$

$ns : 2$

$\underline{T/2[-nn], ns[j]}$

4

nx

$$k_j = \frac{n_1}{n} = \frac{2}{4} = \frac{1}{2} = \frac{1}{4}$$

AD1:

all_t:

$\hat{v}=1 \quad k=2$

(all_t[1], a21_t[1,2]

a21_t[1,2], a22_t[2], 2, 2)

$I(s,t) =$

$$\begin{bmatrix} 0.9202404, & 0.681444 \\ 0.68\ldots, & 1.024922 \end{bmatrix}^{-1}$$

$$= \begin{bmatrix} 2.150990 & -1.433705 \\ -1.433705 & 1.931294 \end{bmatrix}$$

AD1_unit_t[1,2] =

$$\begin{pmatrix} b1[1] \\ b2[2] \end{pmatrix}^T \left(I(s,t) \times \begin{pmatrix} b1[1] \\ b2[2] \end{pmatrix} \right)$$

$$= \begin{bmatrix} 0.5857864 \\ 1 \end{bmatrix}^T \begin{bmatrix} I(s,t) \end{bmatrix} \begin{bmatrix} 0.5857864 \\ 1 \end{bmatrix}$$

$$= \begin{bmatrix} 0.5857864 & 1 \end{bmatrix} \begin{bmatrix} 2.150990 & -1.433705 \\ \vdots & 1.931294 \end{bmatrix} \begin{bmatrix} \quad \end{bmatrix}$$

$$= \begin{bmatrix} 0.1736881 & 1.091452 \end{bmatrix} \begin{bmatrix} \quad \end{bmatrix}$$

$$= 0.9897079 \checkmark$$

$$ADJ = 0.9897079 \times 0.2928932 \times 0.5$$

$$= 0.1449394 \checkmark$$

Bootstrap:

$b = 1$

$x_{i1} = [-0.1666013 \quad 0.1531257]$

$x_{i2} = [0.1315123 \quad -0.8889433]$

$$D_1^* = \underbrace{\begin{pmatrix} -0.4490646 & 0.06342694 \\ \vdots & \vdots \\ & \vdots \end{pmatrix}}_{A} \times \begin{pmatrix} T/F \end{pmatrix}$$

$$\begin{pmatrix} 1 & 2 \\ 1 & 2 \\ 1 & 2 \end{pmatrix} \le \begin{pmatrix} 1 & 1 \\ 2 & 2 \\ 3 & 3 \end{pmatrix} = \begin{pmatrix} T & F \\ T & T \\ T & T \end{pmatrix}$$

$$\sum_{i=1}^{n_j} A \left\{ I_{X_{ij} \le t} - \hat{H}(t) \right\}$$

$$= \sum_{i=1}^{n_j} A \left\{ \begin{pmatrix} T & F \\ T & T \\ T & T \end{pmatrix} - \begin{pmatrix} 0.2928932 & \vdots \\ 0.5 & \vdots \\ 0.7857143 & \vdots \end{pmatrix} \right\}$$

$$= \sum_{i=1}^{n_j} A \left\{ B \right\}$$

$$= \left(-0.3361139,\ -0.19281895,\ 0.05263669 \right)$$

$$AD_6 = n \int_{t_1}^{t_2} \frac{\left(D_1^* - D_2^*\right)^2}{\theta(t,t)} \, d\hat{H}(t)$$