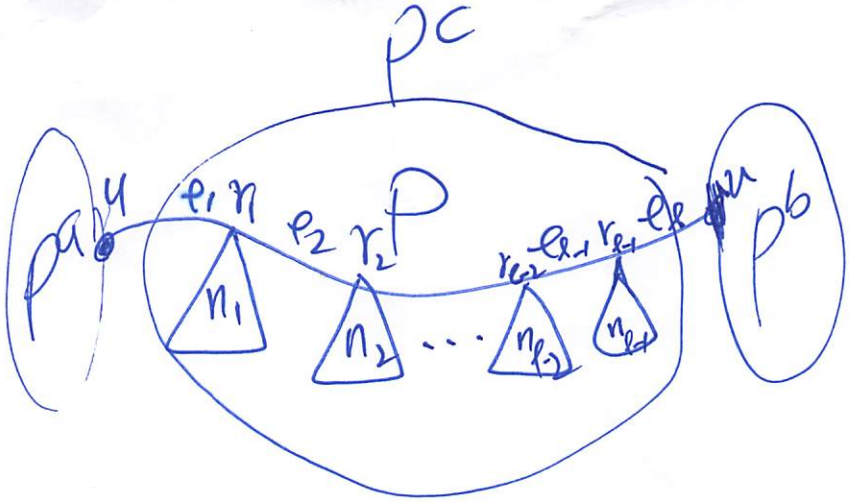

Nov., 2010
Kun-Mao Chao
April, 2019

$$C(X) \geq 2(1-\delta)n \sum d_T(q,p) + 2\Big((p^a+p^c)\cdot p^b \omega(p) + (p^a-p^b)\cdot \sum_{j=1}^{\ell-1} n_j\, d_T(u,r_j)\Big)$$

$$C(X') \leq 2\Big((p^a+p^c)\cdot p^b \omega(p) + n\sum d_T(q,p) + n\sum_{j=1}^{\ell-1} n_j\, d_T(u,r_j)\Big)$$

$$C(X'') \leq 2\Big((p^b+p^c)\, p^a \cdot \omega(p) + n\sum d_T(q,p) + n p^c \omega(p) - n\sum_{j=1}^{\ell-1} n_j\, d_T(u,r_j)\Big)$$

p^a	p^b	p^c	$\sum d_T(q,p)$ $\omega(p)$ $\sum_{j=1}^{\ell-1} n_j d_T(u,r_j)$
$(1-\frac{3}{2}\delta)n$	δn	$\frac{\delta}{2}n$	$\frac{C(X')}{C(X)} \leq \max\left\{\frac{1}{1-\delta},\ 1,\ \frac{n}{(1-\frac{3}{2}\delta)n-\delta n}\right\} = \frac{1}{1-\frac{5}{2}\delta}$
$\frac{n}{2}$	$\frac{n}{2}-\frac{\delta}{2}n$	$\frac{\delta}{2}n$	$n\sum_{j=1}^{\ell-1} n_j d_T(u,r_j) \leq n\cdot p^c \cdot \omega(p) = \frac{\delta}{2}n^2\omega(p)$
			$\frac{C(X')}{C(X)} \leq \max\left\{\frac{1}{1-\delta},\ 1+\frac{\frac{\delta}{2}n^2}{(\frac{n}{2}+\frac{\delta}{2}n)(\frac{n}{2}-\frac{\delta}{2}n)}\right\}$

$1+\frac{2\delta}{1-\delta^2}$ ⟵ $1+\frac{\frac{\delta}{2}n^2}{\frac{n^2}{4}-\frac{\delta^2 n^2}{4}} \simeq 1+2\delta$ ← $\omega(p)$