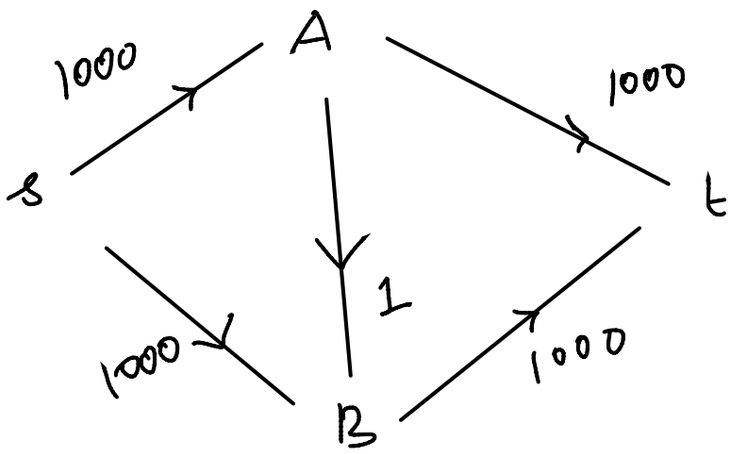
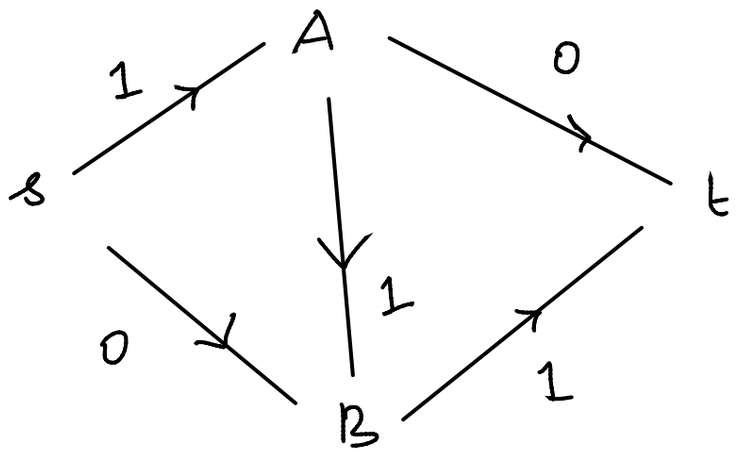
Capacity



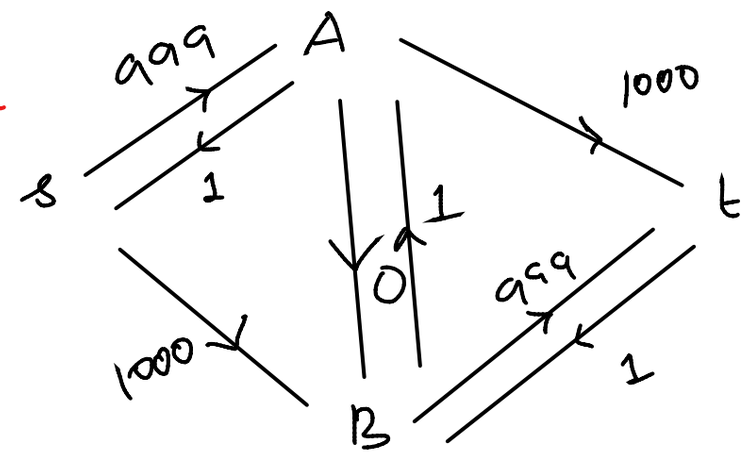
Step 1 : s A B t , $c_p = 1$

Flow

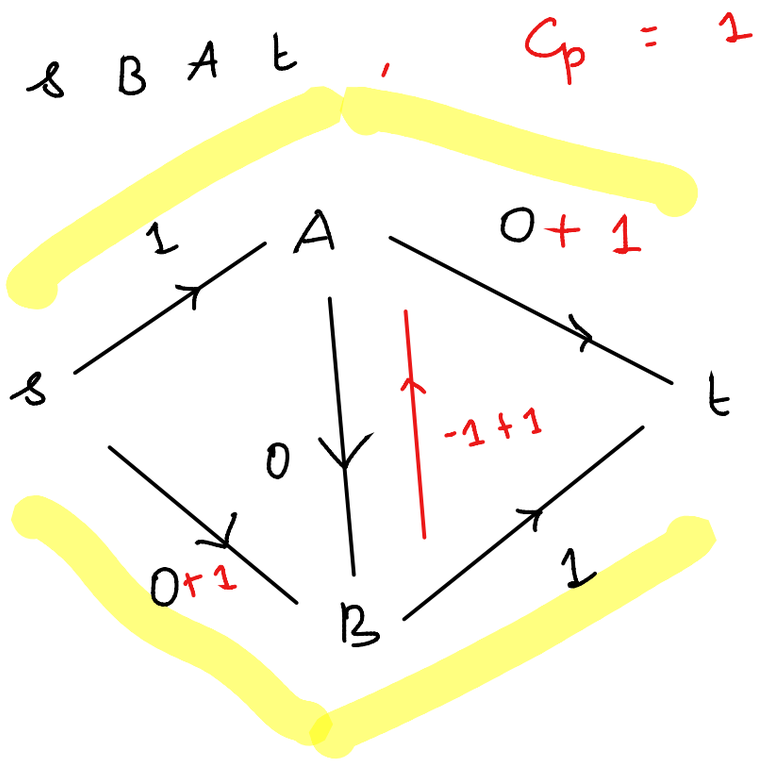


(Negative flow in opposite direction is implicit)

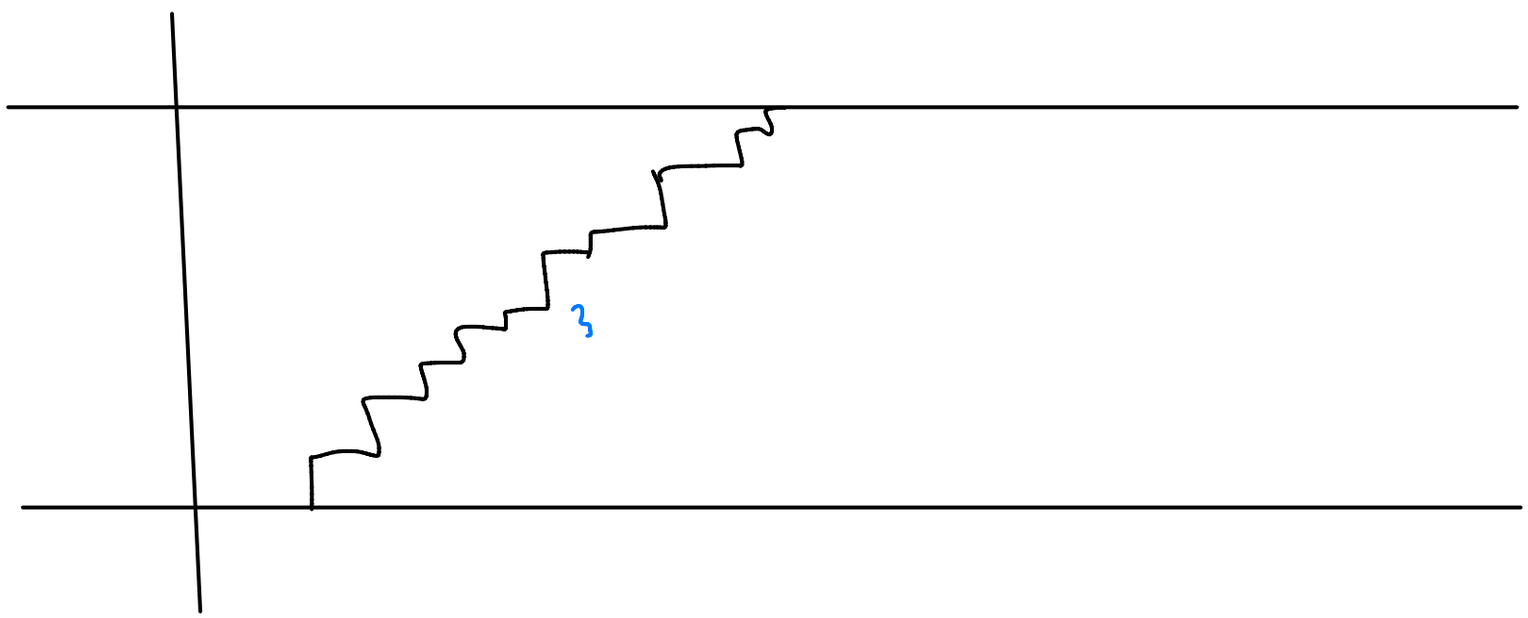
Residual



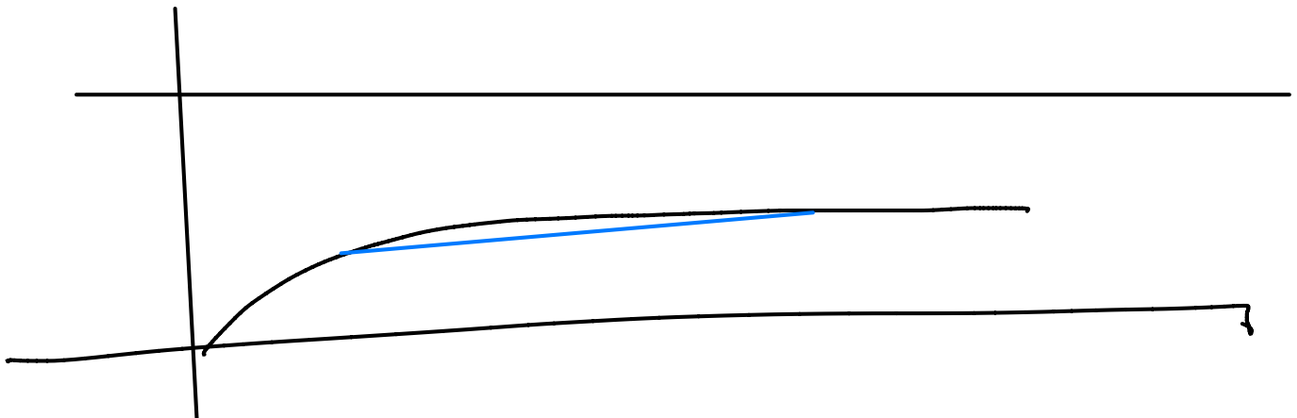
Step 2:



Flow

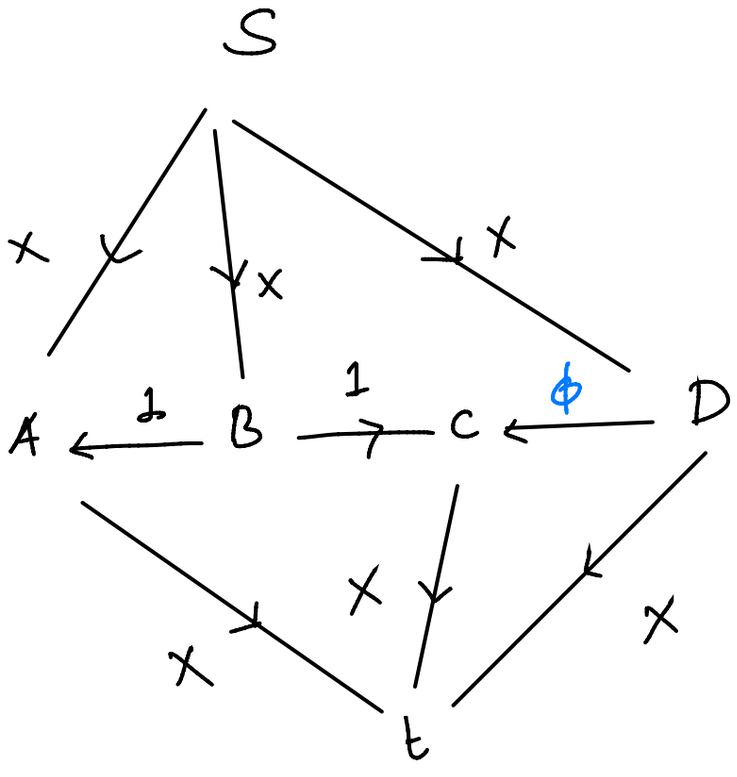


Integer capacities will always converge



Real valued capacities

Capacity



X : large say 1000, 10^6

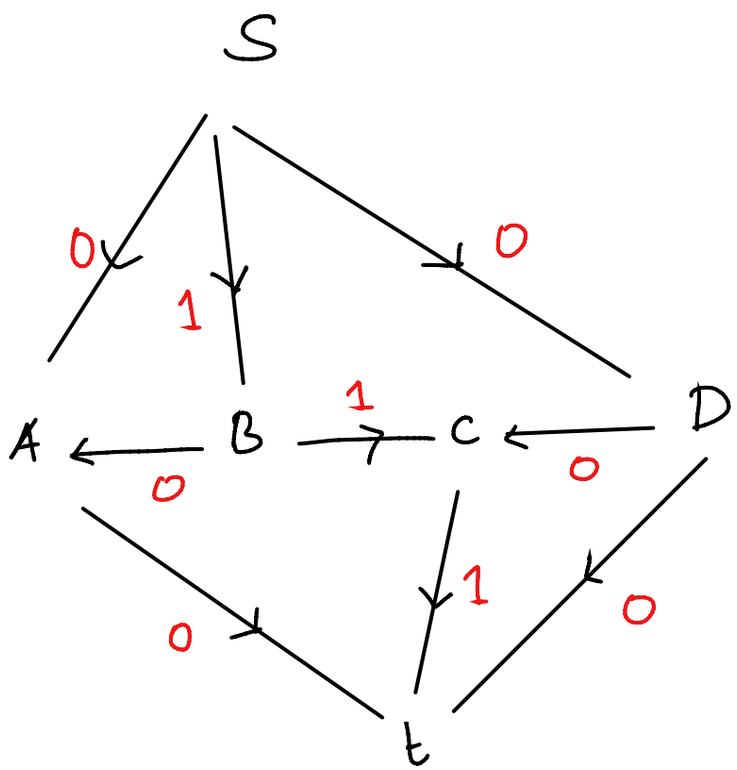
$|f| = 2X+1$

$\phi = 1-\phi^2$ $\phi < 1$

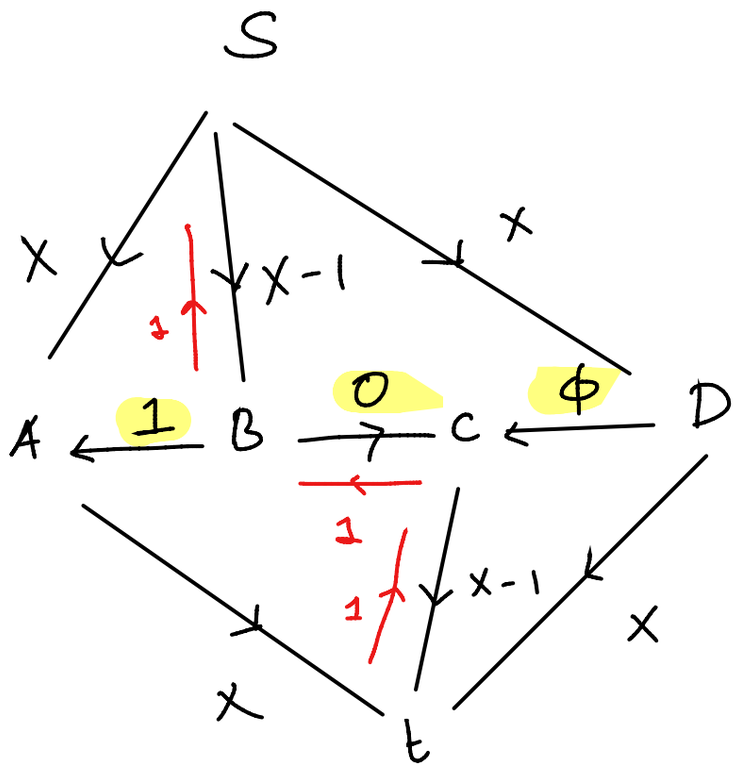
$\phi^2 = 1-\phi$ $\phi = \frac{(\sqrt{5}-1)}{2}$

$\phi+\phi^2 = 1$

Step 1) S B C t , $C_p = 1$



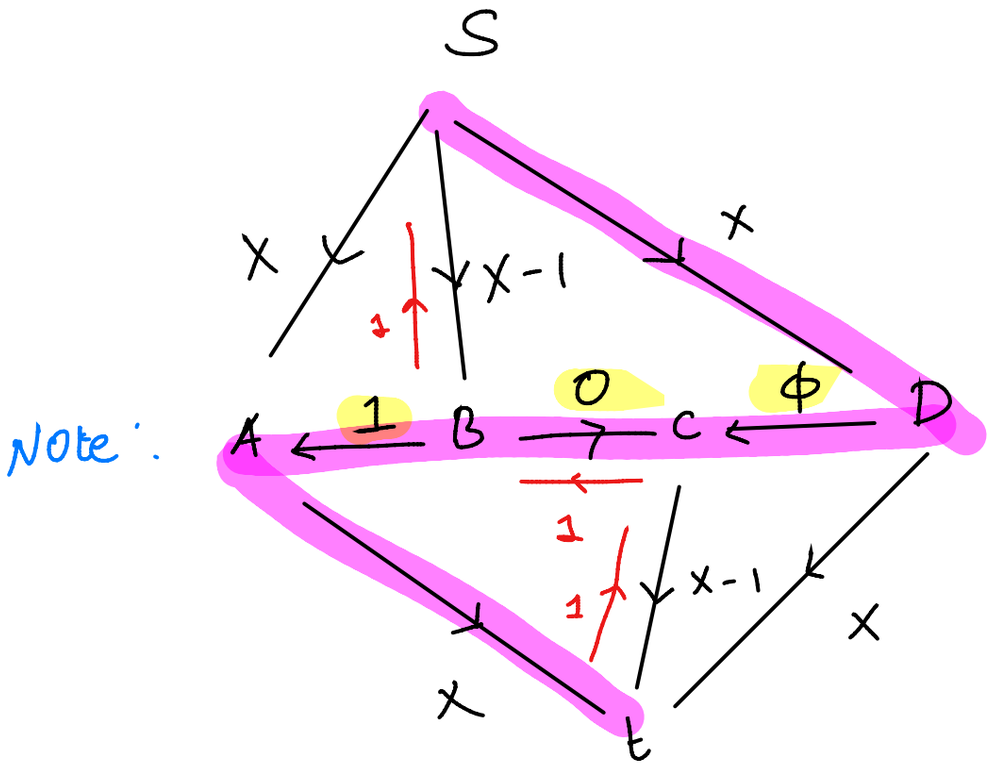
$|f| = 1$



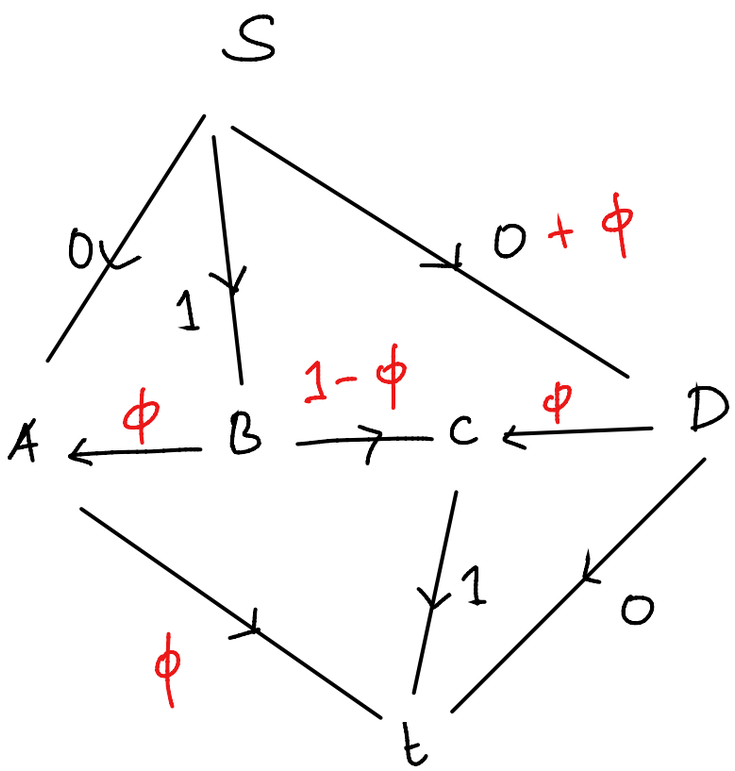
Note:

$1, 0, \phi \longmapsto \phi^2, 0, \phi^3$

Step 2) S D C B A t

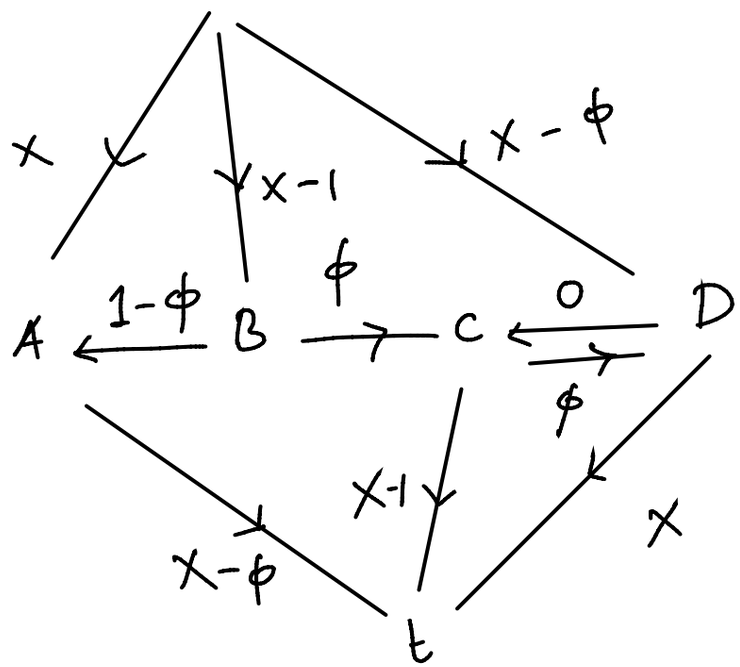


Flow

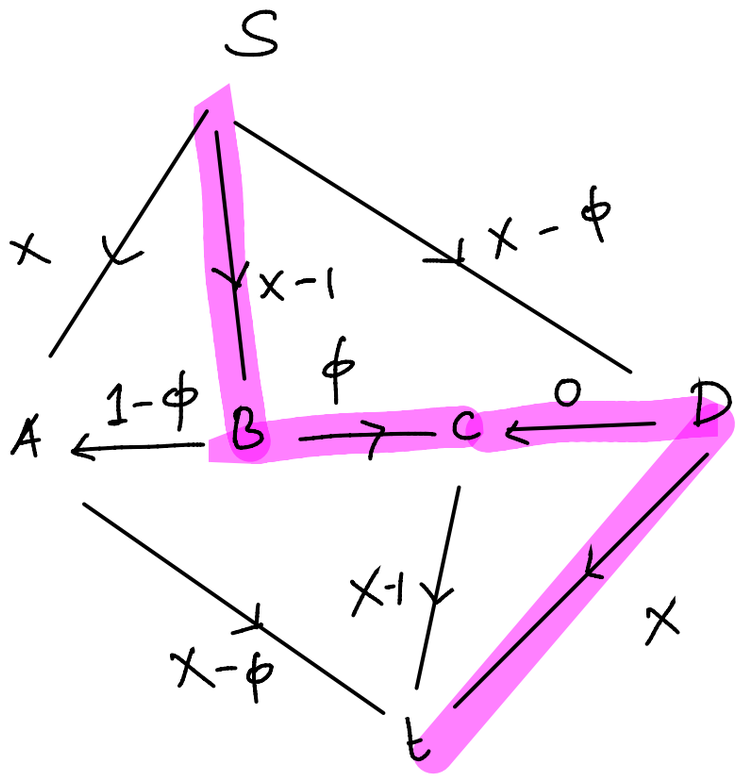


$|f| = 1 + \phi$

Residual

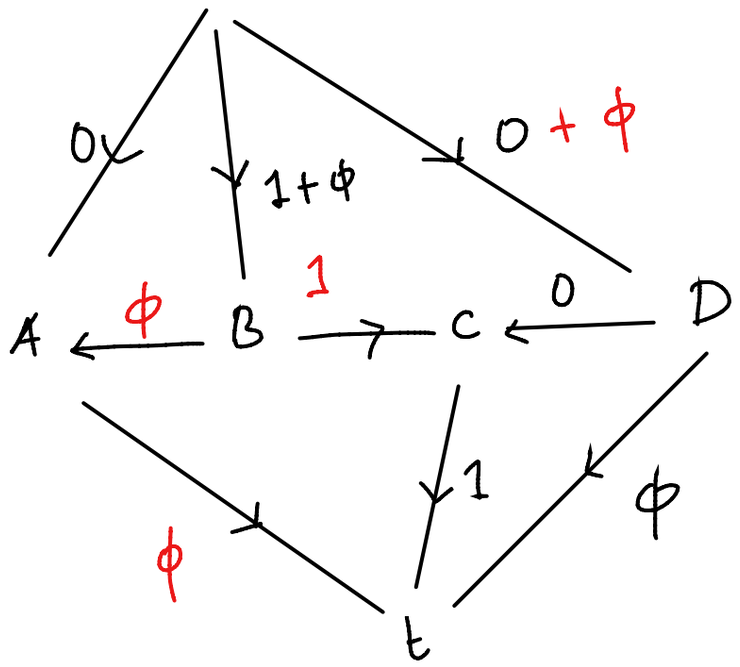


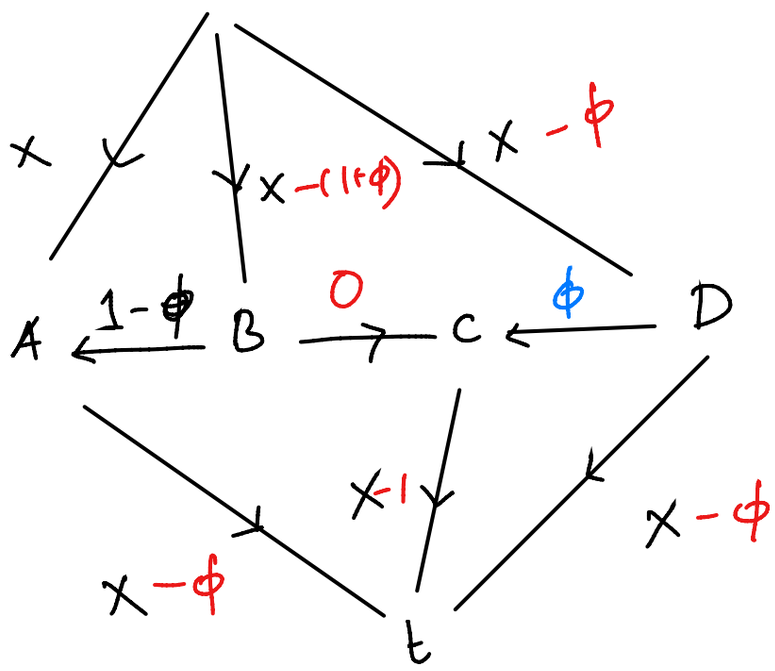
Step 3) SBCbt, $C_\phi = \phi$



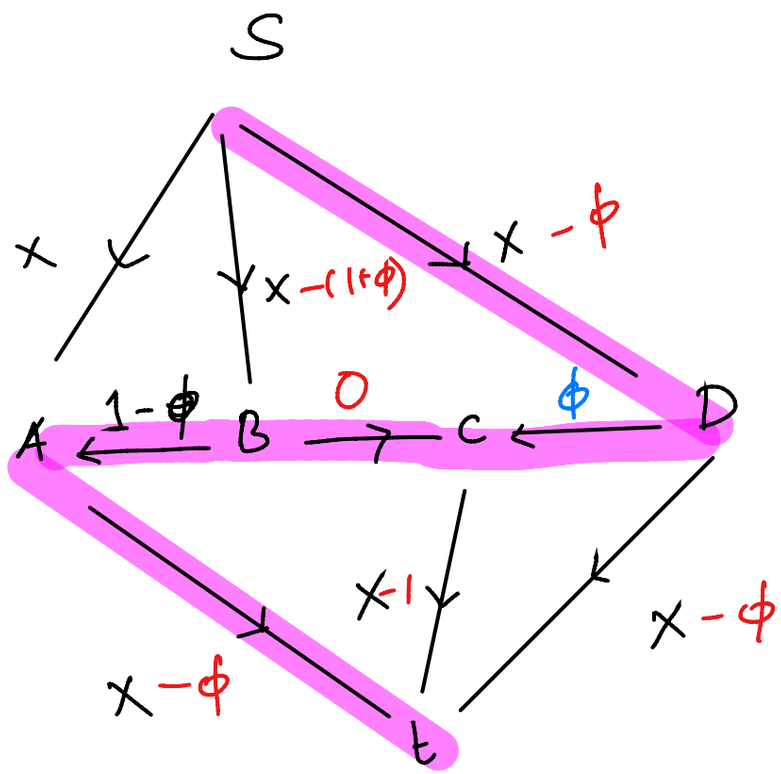
Flow

$|f| = 1 + 2\phi$



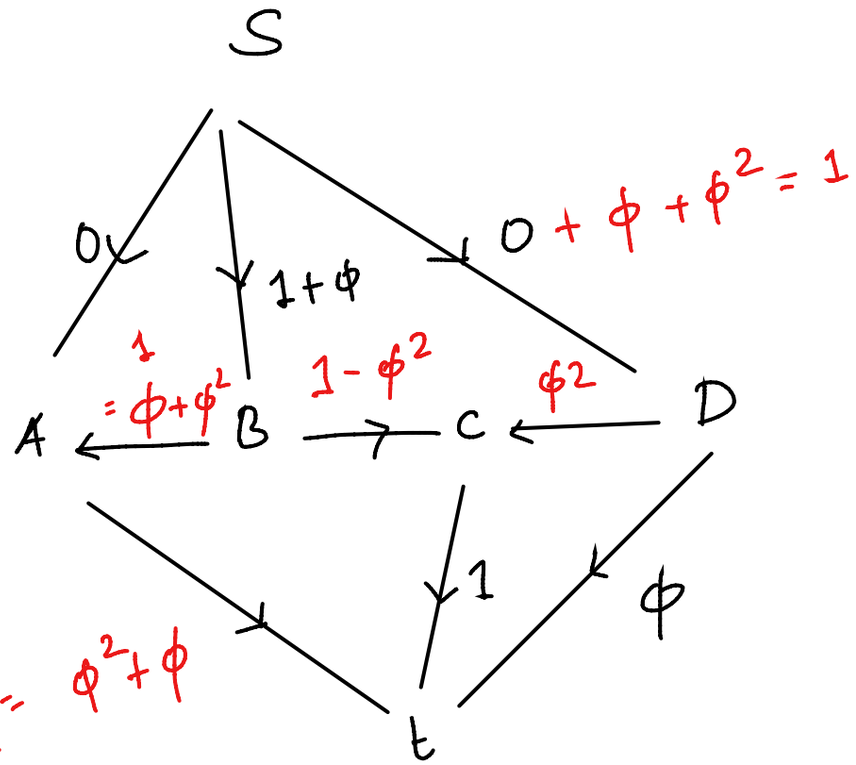


Step 4) S D C B A t , $c_f = 1 - \phi = \phi^2$



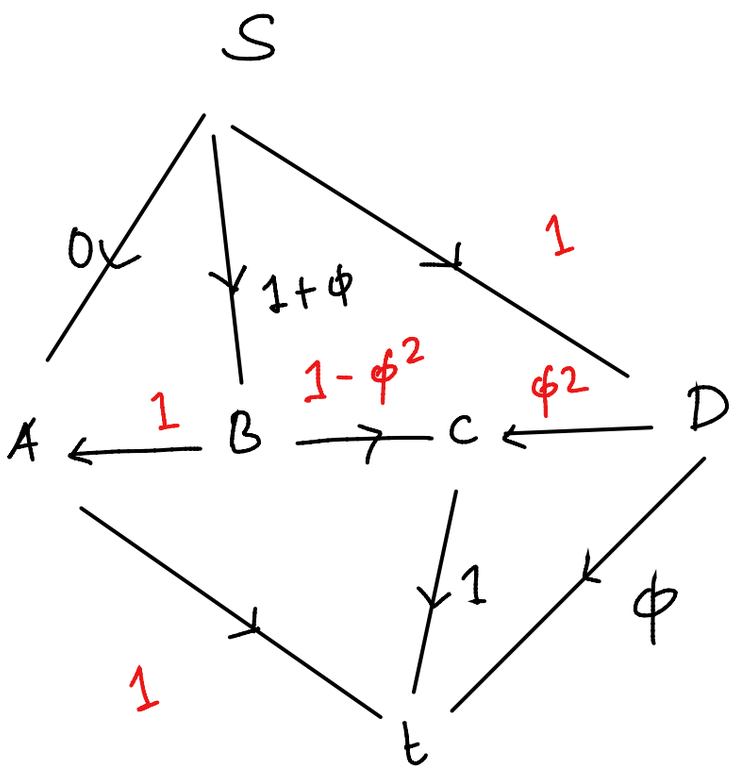
Flow

$|f| = 1 + 2\phi$

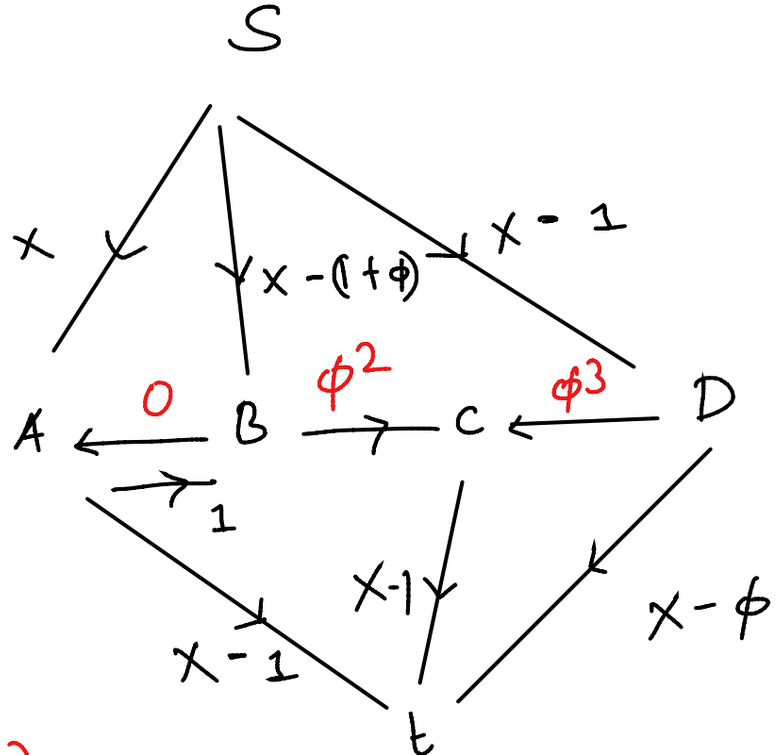


Flow

$|f| = 1 + 2\phi + \phi^2$



Residue



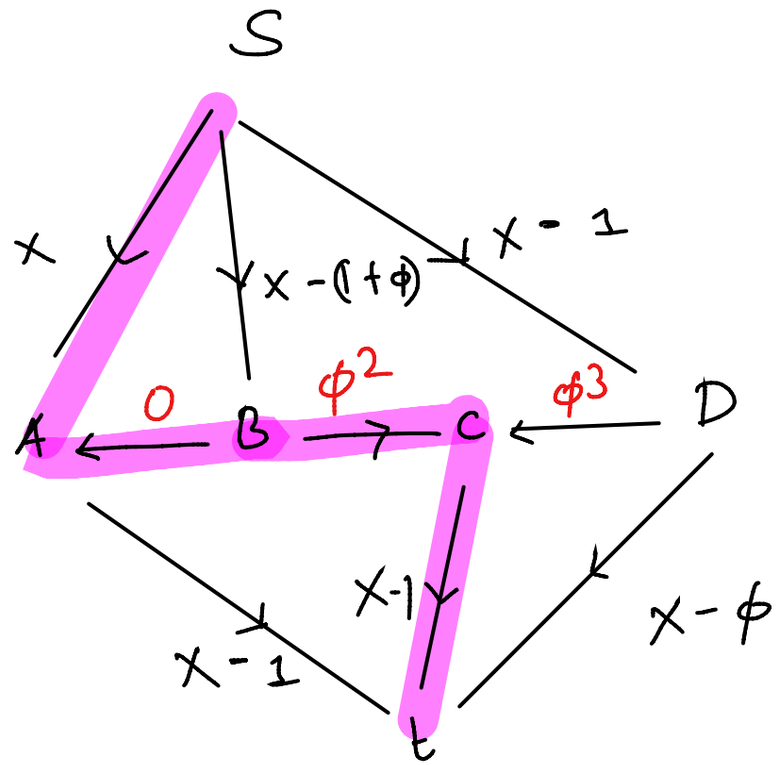
$\phi - \phi^2 = \phi(1-\phi)$

$= \phi \cdot \phi^2$

$= \phi^3$

Step 5) S A B C t . $c_p = \phi^2$

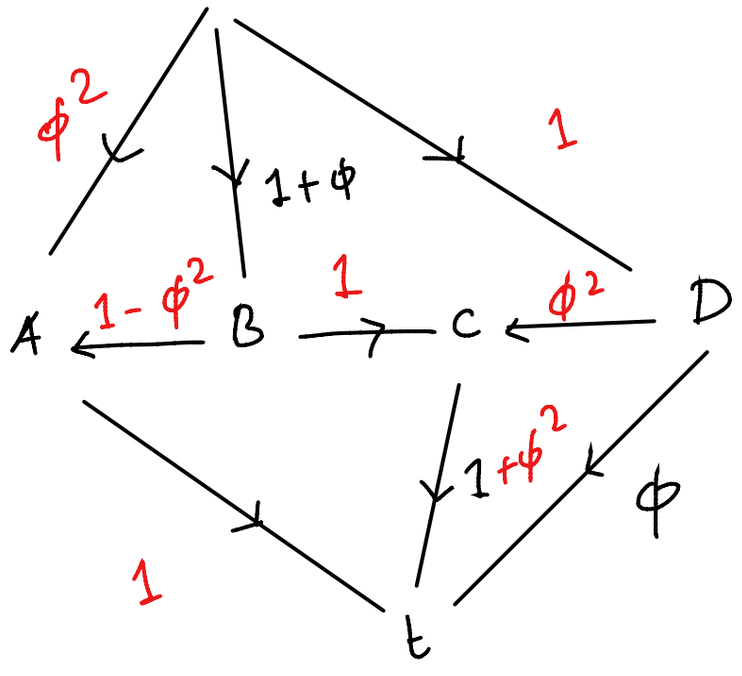
Residue



$\phi - \phi^2$
$= \phi(1-\phi)$
$= \phi^3$

S

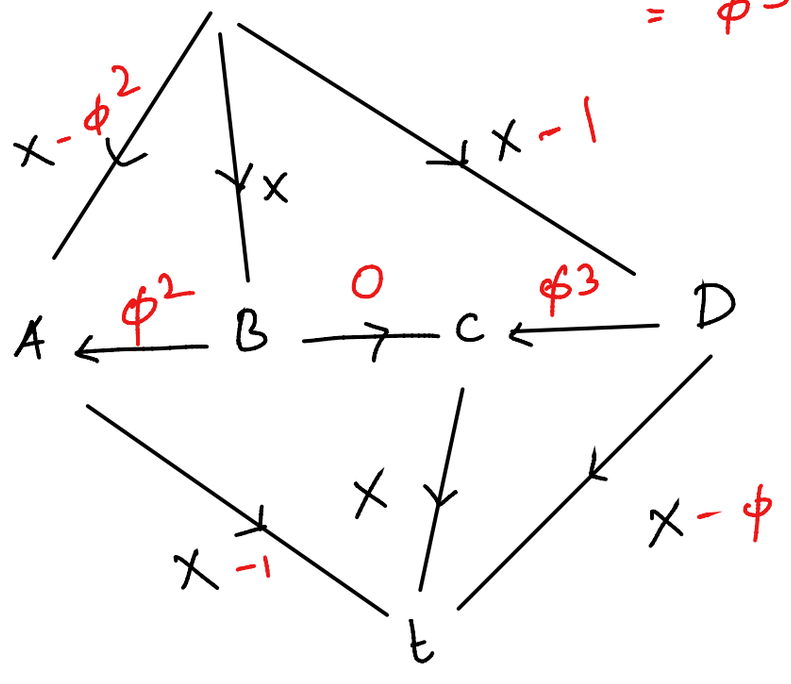
Flow



$|f| = 1 + 2\phi + 2\phi^2$

S

Residue



keep looping steps 2, 3, 4 and 5

$$|f| = 1 + 2\left(\phi + \phi^2 + \cdots\right)$$

$$= 1 + 2\,\frac{\phi}{1-\phi} \neq 1 + 2X$$