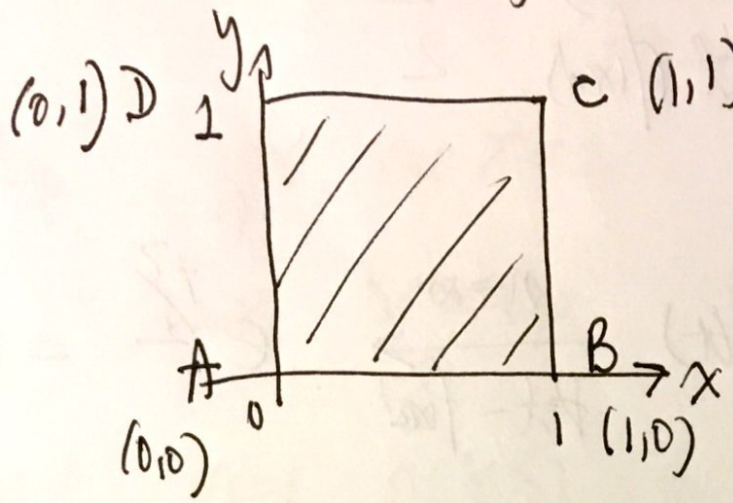
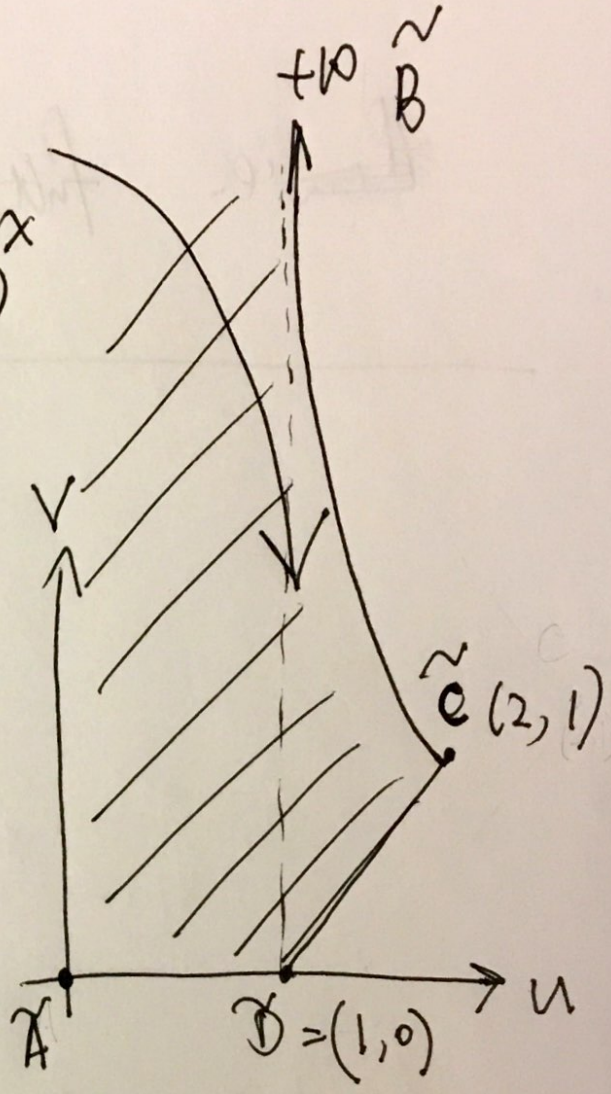
#6.56 X, Y – ind, unif r.v. on $[0,1]$





(a) $U = X+Y, \quad V = \frac{X}{Y}$

AB: $y=0, \quad 0 \le x \le 1$

$U = x, \quad V = +\infty$

BC: $x=1, \quad 0 \le y \le 1$

$U = 1+y \quad V = \frac{1}{y}$

CD: $y=1, \quad 0 \le x \le 1$

$U = x+1, \quad V = x$

DA: $x=0, \quad 0 \le y \le 1$

$U = y, \quad V = 0$

(b) $U = X,\ V = \frac{X}{Y}$

AB $y = 0,\ 0 \le x \le 1$

$U = x,\ V = +\infty$

BC $x = 1,\ 0 \le y \le 1$

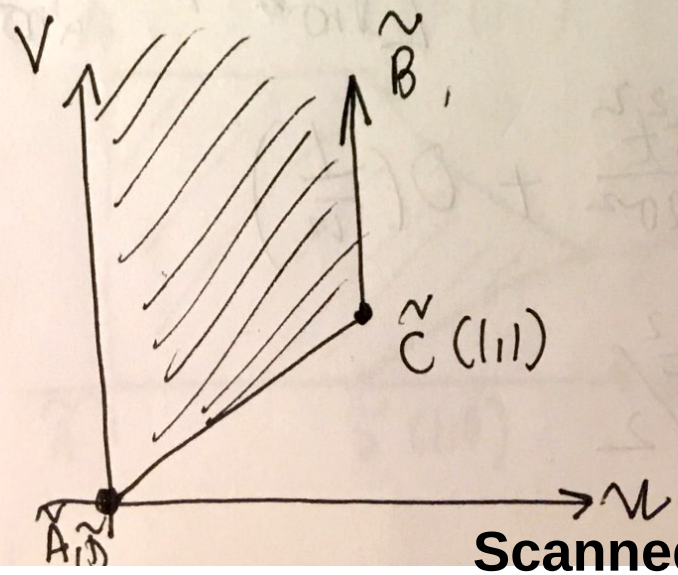
$U = 1,\ V = \frac{1}{y}$

CD $0 \le x \le 1,\ y = 1$

$U = x,\ y = x$

DA $x = 0,\ 0 \le y \le 1$

$U = 0,\ V = 0$



(c) $U = X+Y, \quad V = \frac{X}{X+Y}$

AB: $0 \le X \le 1, \quad y = 0$

$U = X, \quad V = 1$

BC $\quad X = 1, \quad 0 \le y \le 1$

$U = 1+y, \quad V = \frac{1}{1+y}$.

CD: $0 \le X \le 1, \quad y = 1$

$U = X+1, \quad V = \frac{X}{X+1}$

DA: $\quad X = 0, \quad 0 \le y \le 1$

$U = y, \quad V = 0$