

$$x_1: 2x = x^2 - 6x + 11$$

$$x^2 - 8x + 11 = 0$$

$$x = \frac{8 \pm \sqrt{8^2 - 4 \times 1 \times 11}}{2} = 4 \pm \sqrt{5}$$

$$x_2: x = x^2 - 6x + 11$$

$$x^2 - 7x + 11 = 0$$

$$x = \frac{7 \pm \sqrt{7^2 - 4 \times 1 \times 11}}{2} = \frac{7 \pm \sqrt{5}}{2}$$

$$x_2 - x_1 = \left(\frac{7 - \sqrt{5}}{2} \right) - \left(\frac{7 + \sqrt{5}}{2} \right) = \frac{-1 - \sqrt{5}}{2}$$

$$x_4 - x_3 = (4 + \sqrt{5}) - \left(\frac{7 + \sqrt{5}}{2} \right) = \frac{2}{1 + \sqrt{5}}$$

$$D = |S_L - S_R| = 1$$

2) ~~you~~ interaction with $2x$

$$ax^2 + b(b-2) + c = 0$$

$$x = \frac{-(b-2) \pm \sqrt{(b-2)^2 - 4ac}}{2a}$$

$$x_2 - x_3 = \frac{-(b-1) \pm \sqrt{(b-1)^2 - 4ac}}{2a}$$

$$S_L = x_2 - x_1 = \frac{1 + \sqrt{(b-2)^2 - 4ac}}{2a} - \frac{1 + \sqrt{(b-2)^2 - 4ac}}{2a}$$

$$S_D = x_4 - x_3 = -1 + \sqrt{(b-2)^2 - 4ac} - \frac{1 + \sqrt{(b-2)^2 - 4ac}}{2a}$$