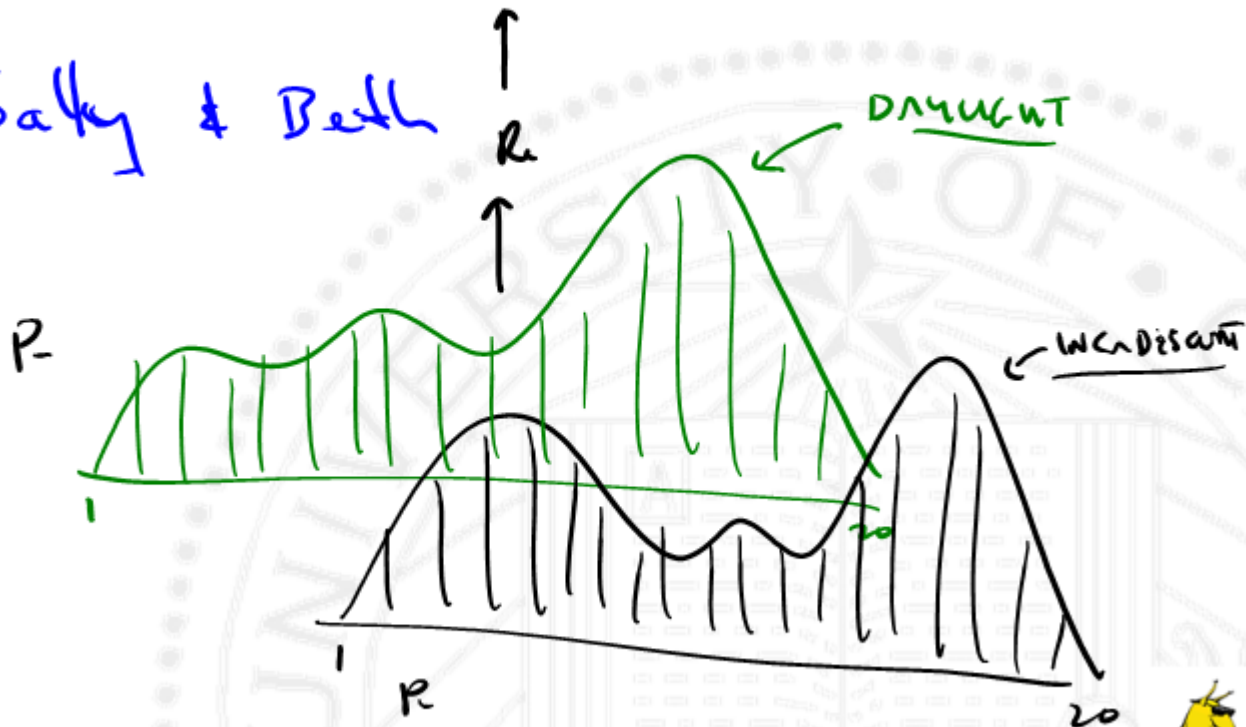


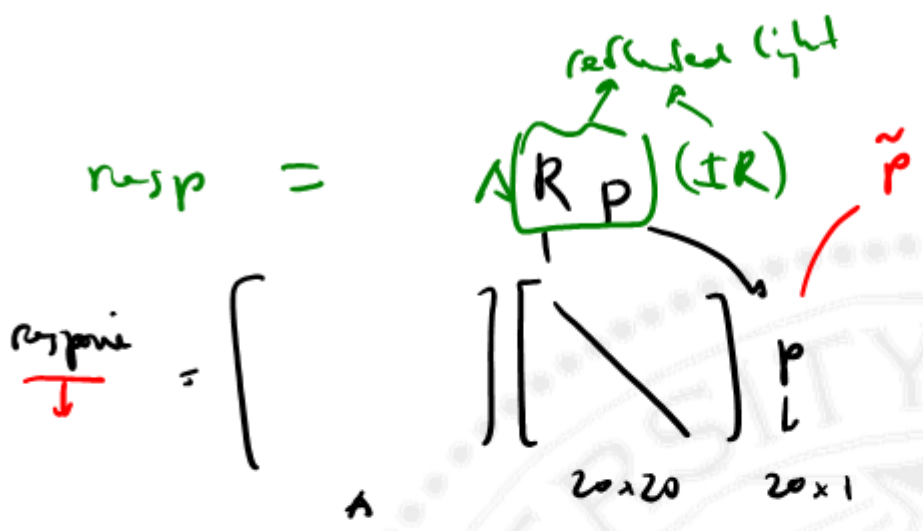
Office Hours



CMPE-240  
24 JAN/2016

Sally & Beth





$$a \geq 0 \quad c \geq 0 \quad \text{for all } \lambda \in \mathbb{R} \quad \underline{a + 2b\lambda + c\lambda^2 \geq 0}$$

$$|b| \leq \sqrt{ac}$$

$$\begin{array}{cccc}
 a & + & 2\underline{b}\lambda & + & c\lambda^2 & \geq & 0 \\
 \uparrow & & \neq & & \uparrow & & \uparrow \\
 + & & - & & + & & +
 \end{array}$$

$$v, w \in \mathbb{R}^n \quad \|(v + \lambda w)\|_2 \geq 0 \quad \forall \lambda \in \mathbb{R}$$

$$(v + \lambda w)^T (v + \lambda w) = \|(v + \lambda w)\|_2^2 \geq 0$$

$$v^T v + v^T \lambda w + \lambda w^T v + \lambda^2 w^T w$$

$$\|v\|_2^2 + 2\lambda \underline{v^T w} + \lambda^2 \|w\|_2^2 \xrightarrow{a^T b = b^T a}$$



$$a \times b = -b \times a \quad \text{— cross product}$$

$$a \cdot b = b \cdot a \quad \rightarrow \quad (a, b) = (b, a)$$

$$a^T b = \sum_{i=1}^n a_i b_i$$

$$b^T a = \sum_{i=1}^n b_i a_i \quad \{ a_i b_i \}$$

