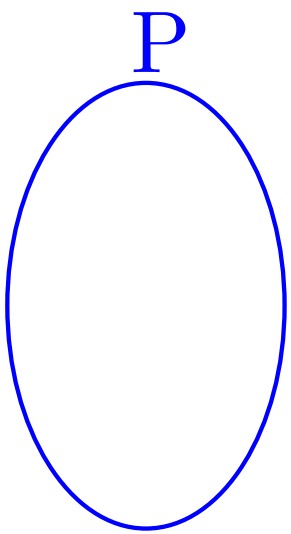
모집단의 평균과 분산과 표준편차
(Mean and Variance and Standard Deviation of Population)

Mean and Variance and Standard Deviation of Population

Start End

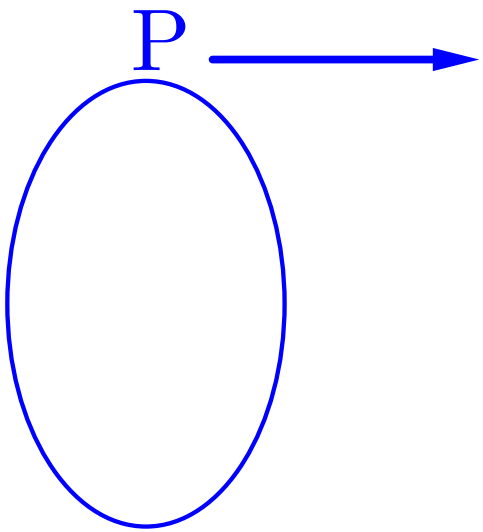
Mean and Variance and Standard Deviation of Population

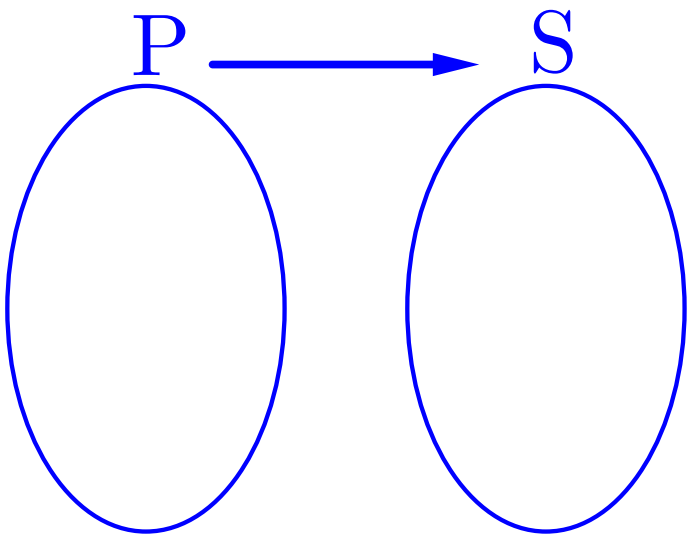
Start End



Mean and Variance and Standard Deviation of Population

Start End

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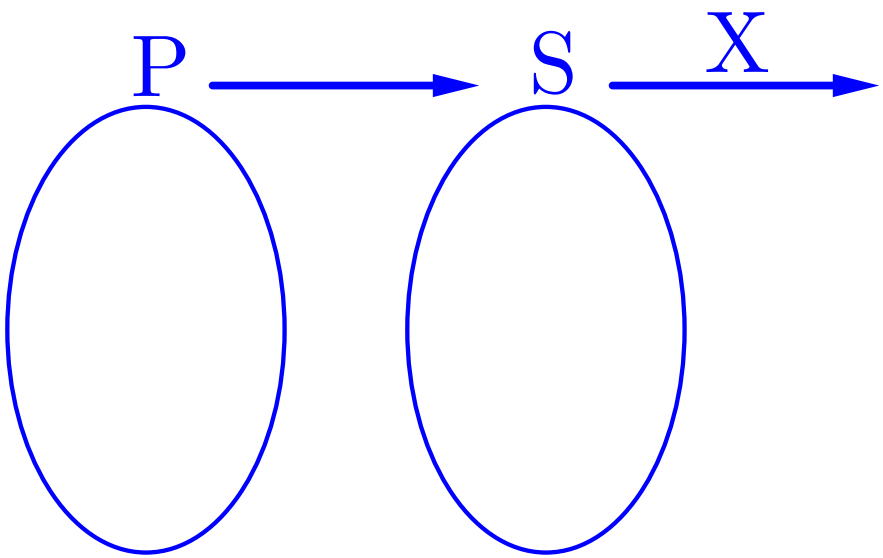
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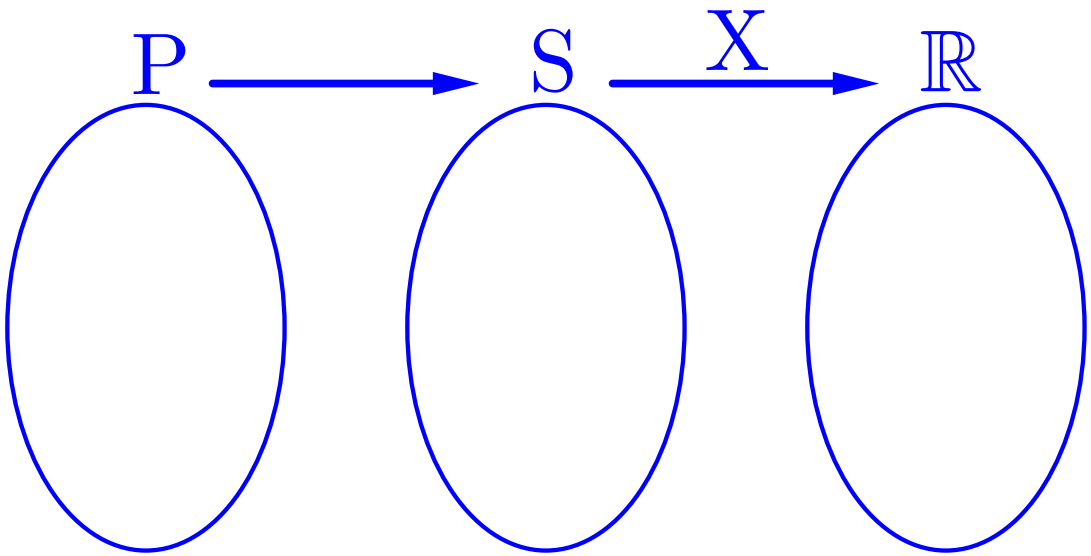
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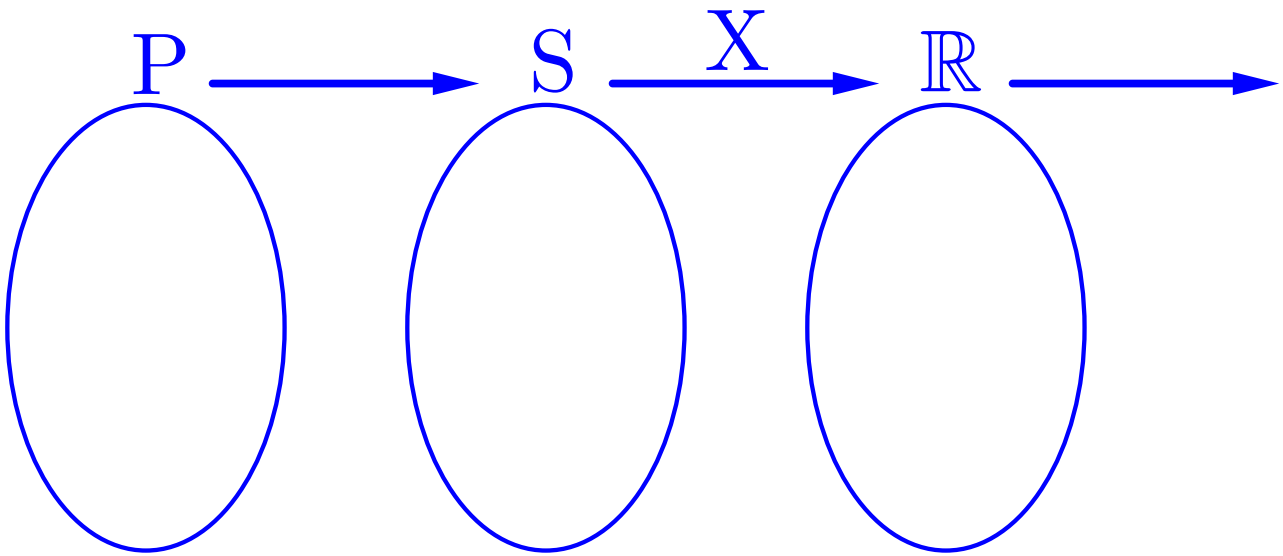
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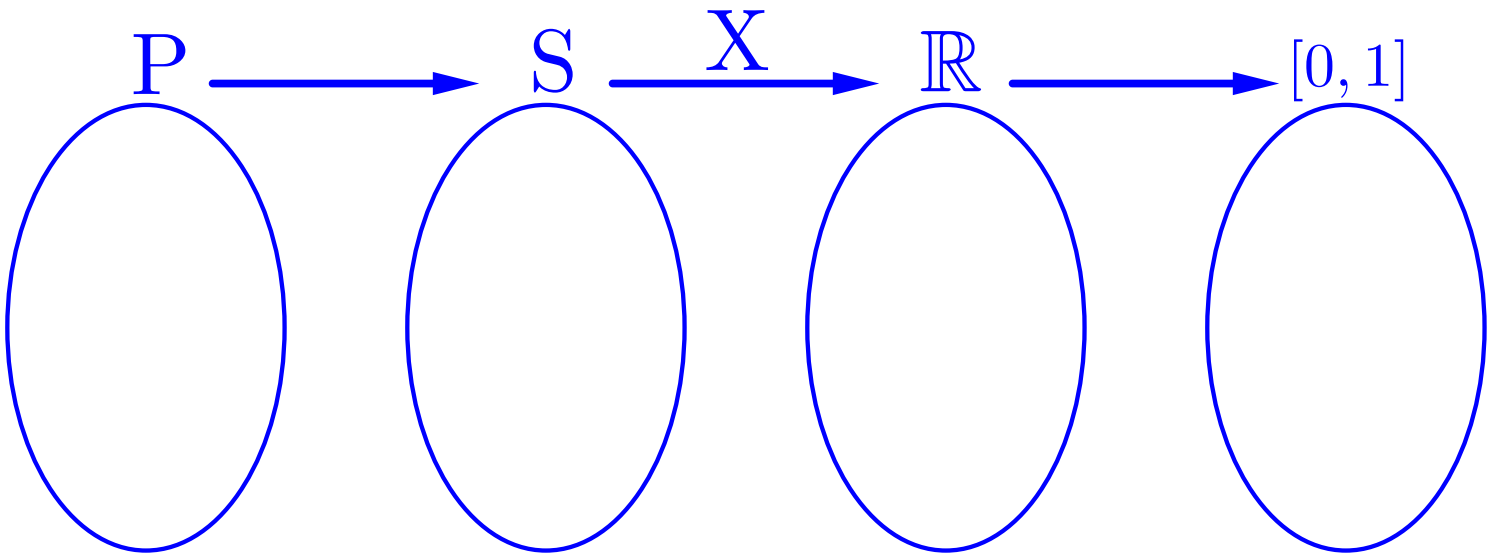
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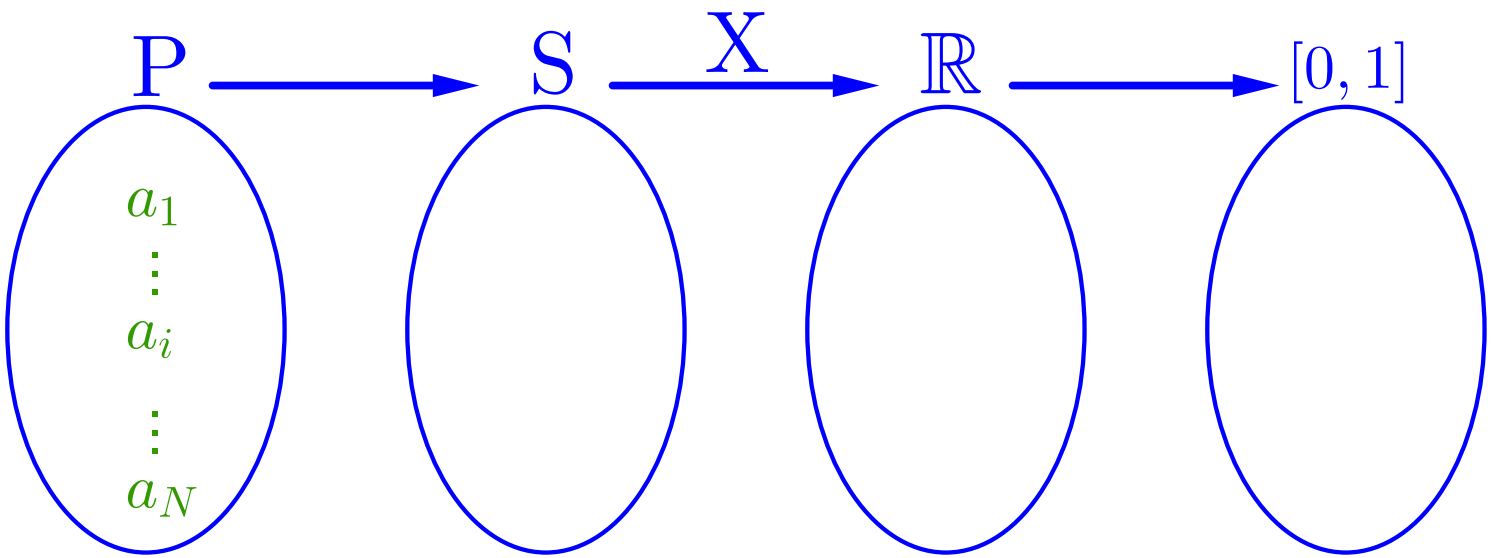
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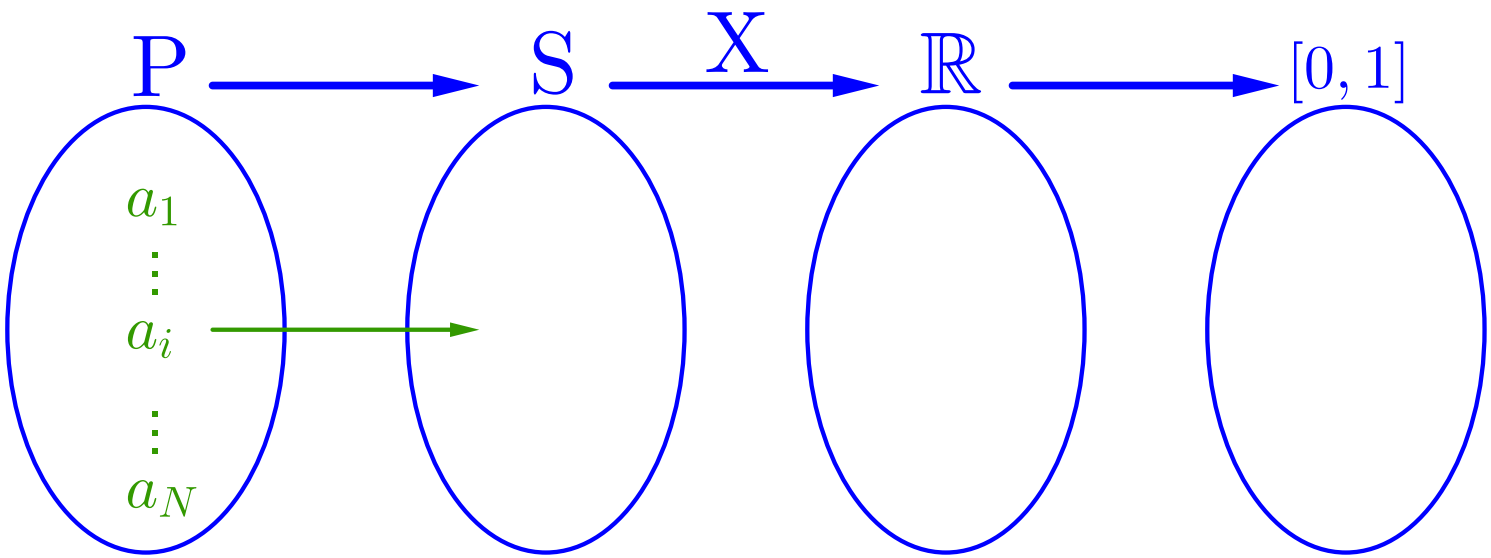
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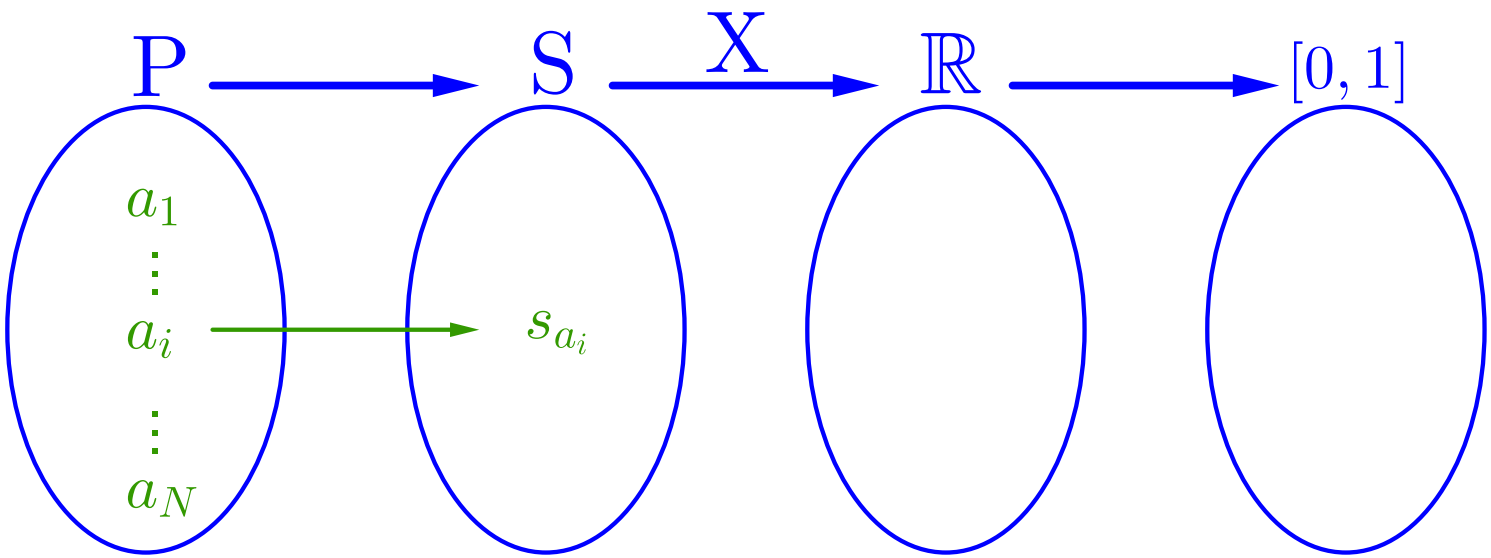
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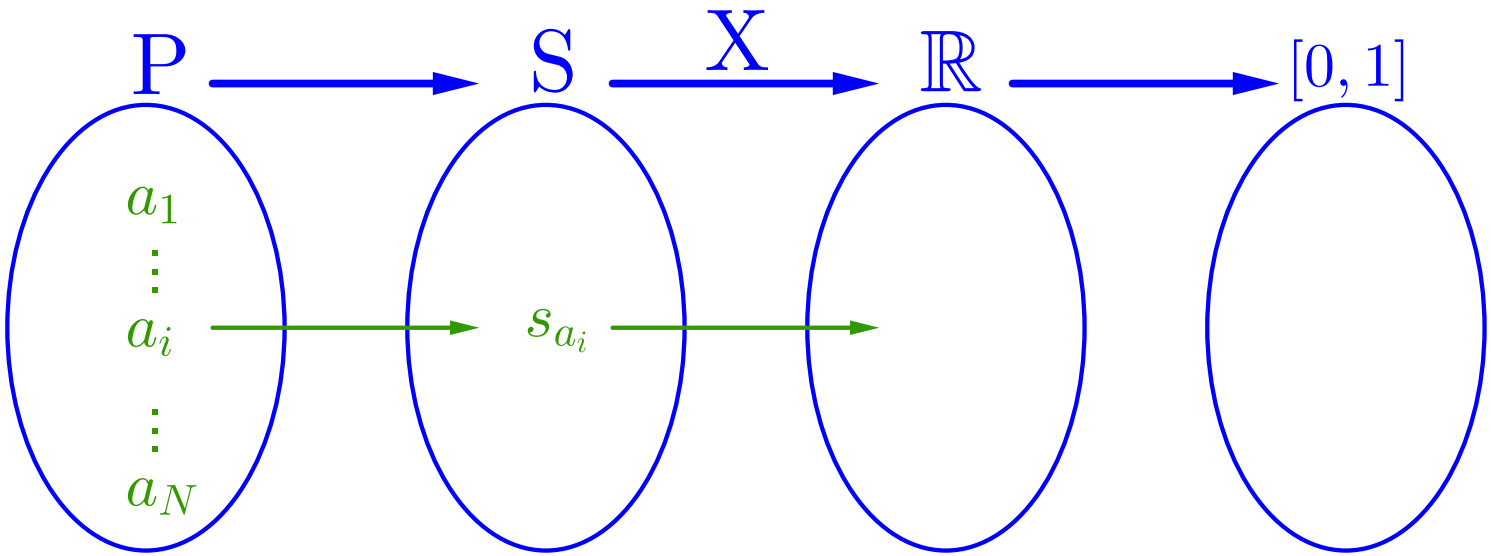
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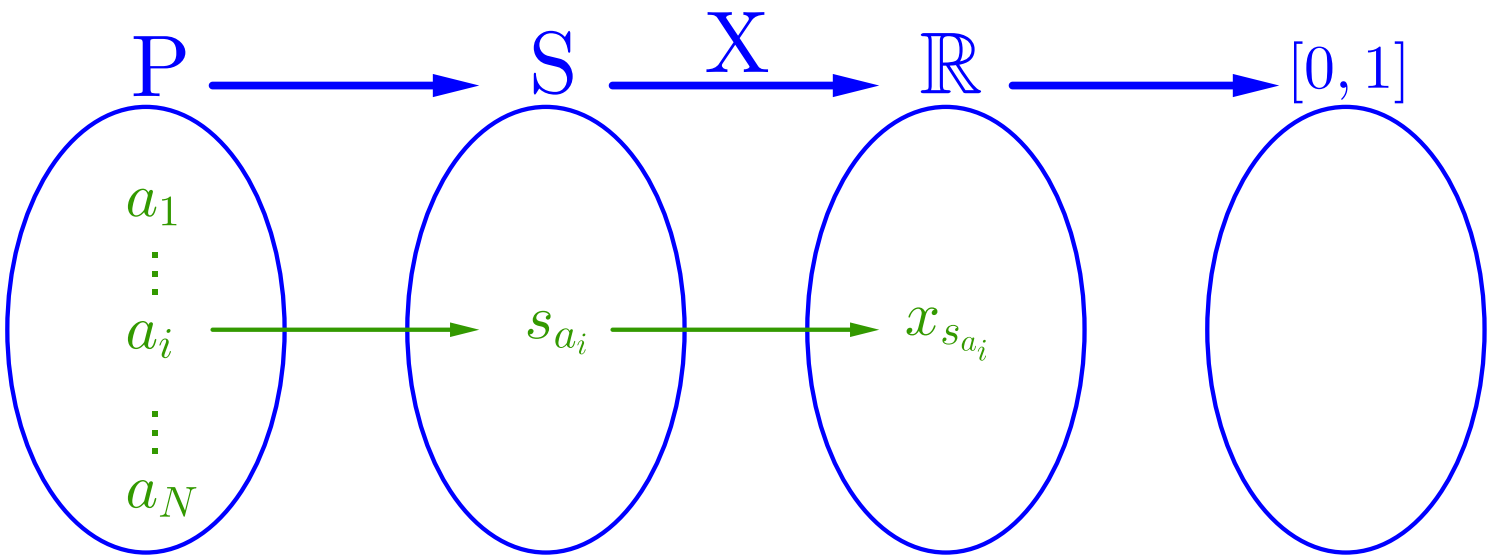
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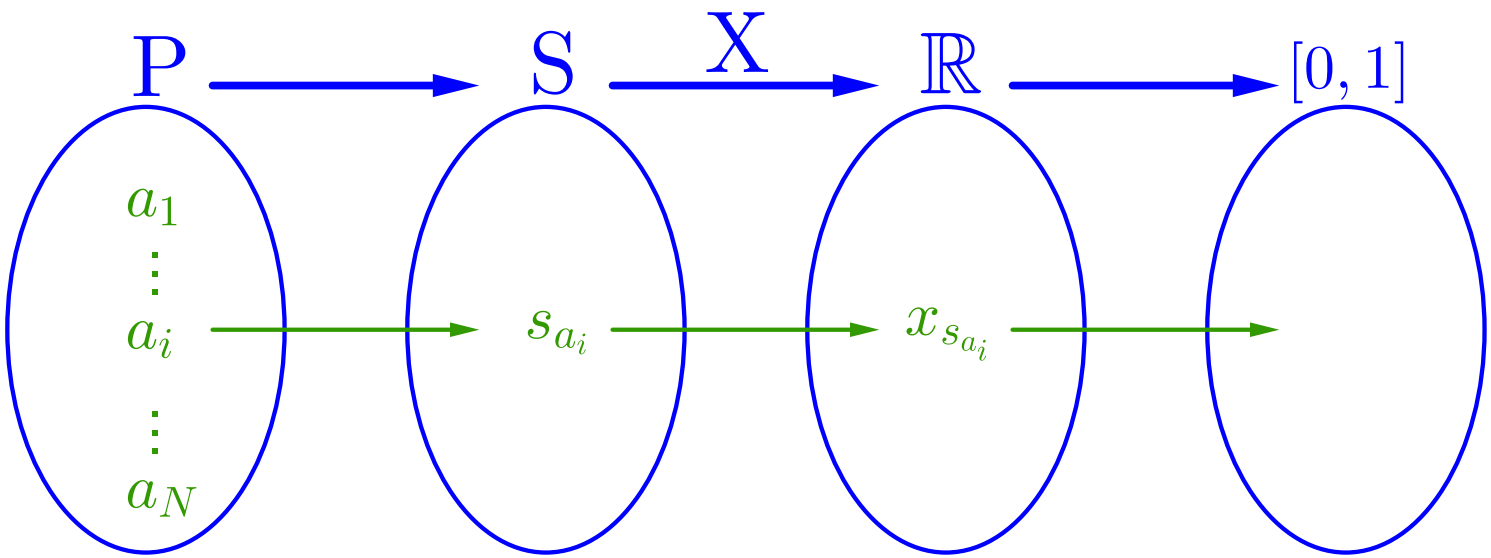
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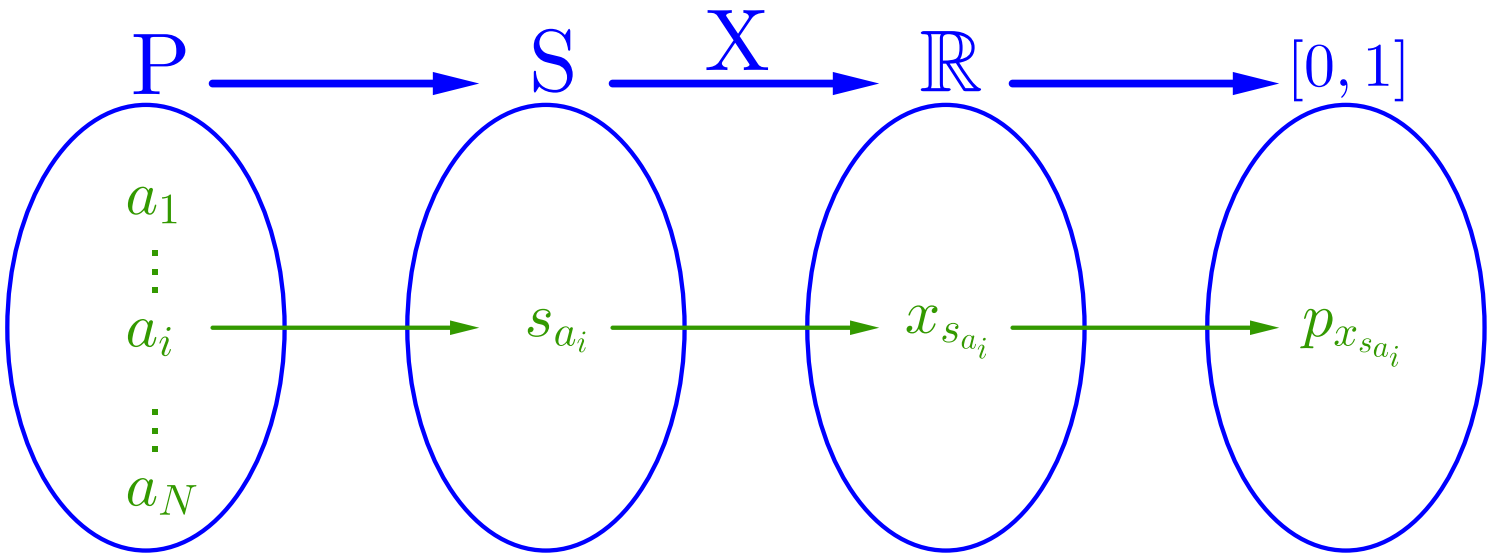
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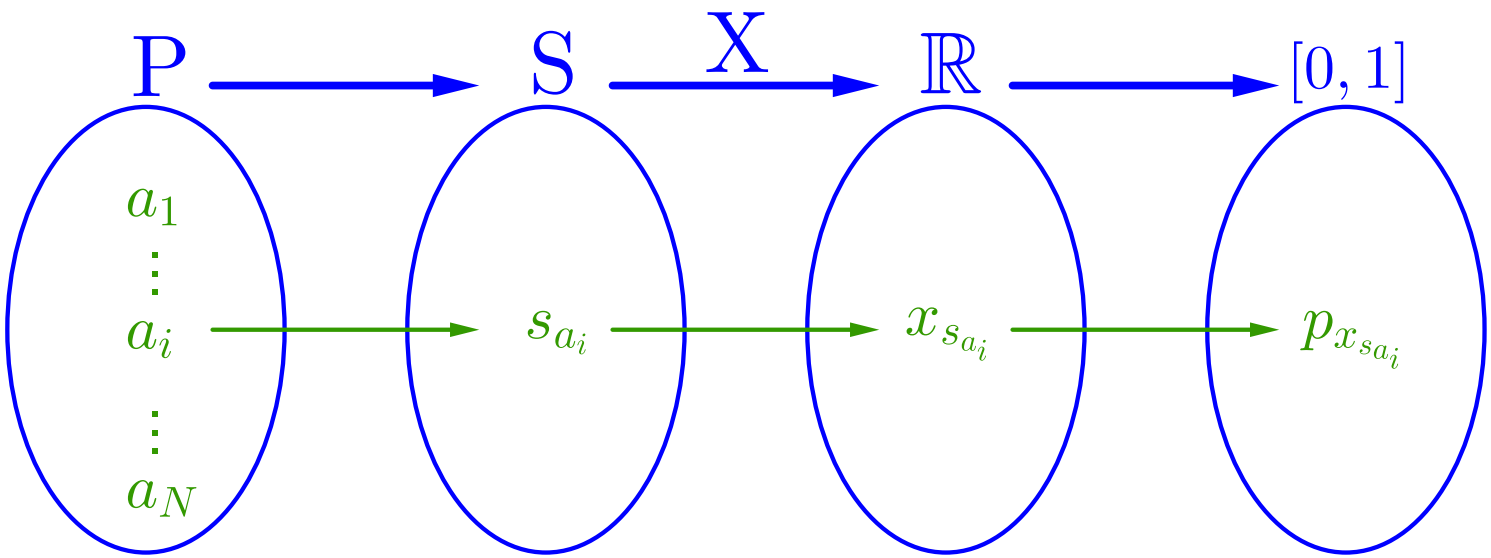
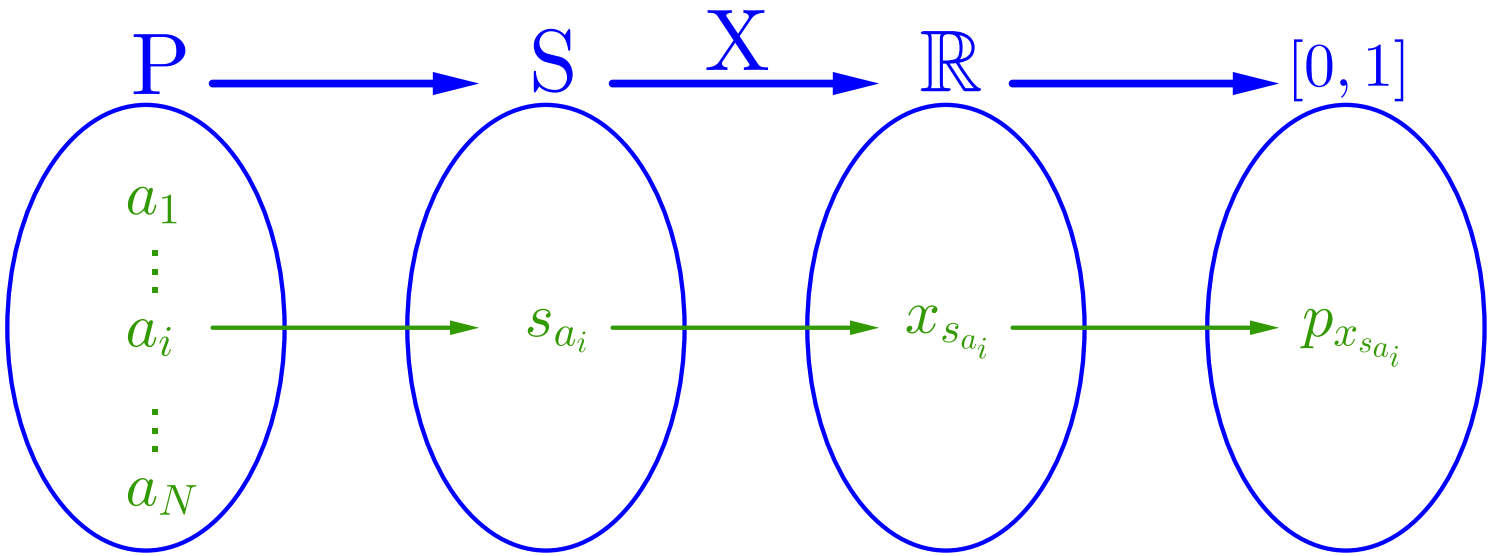
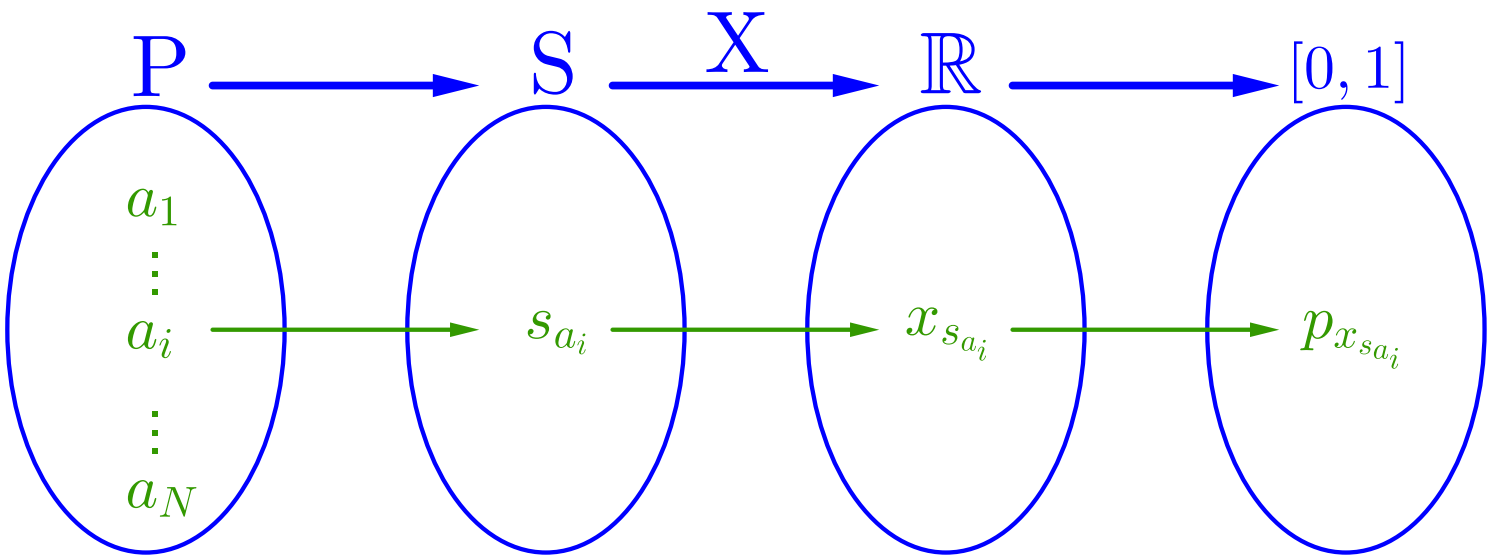


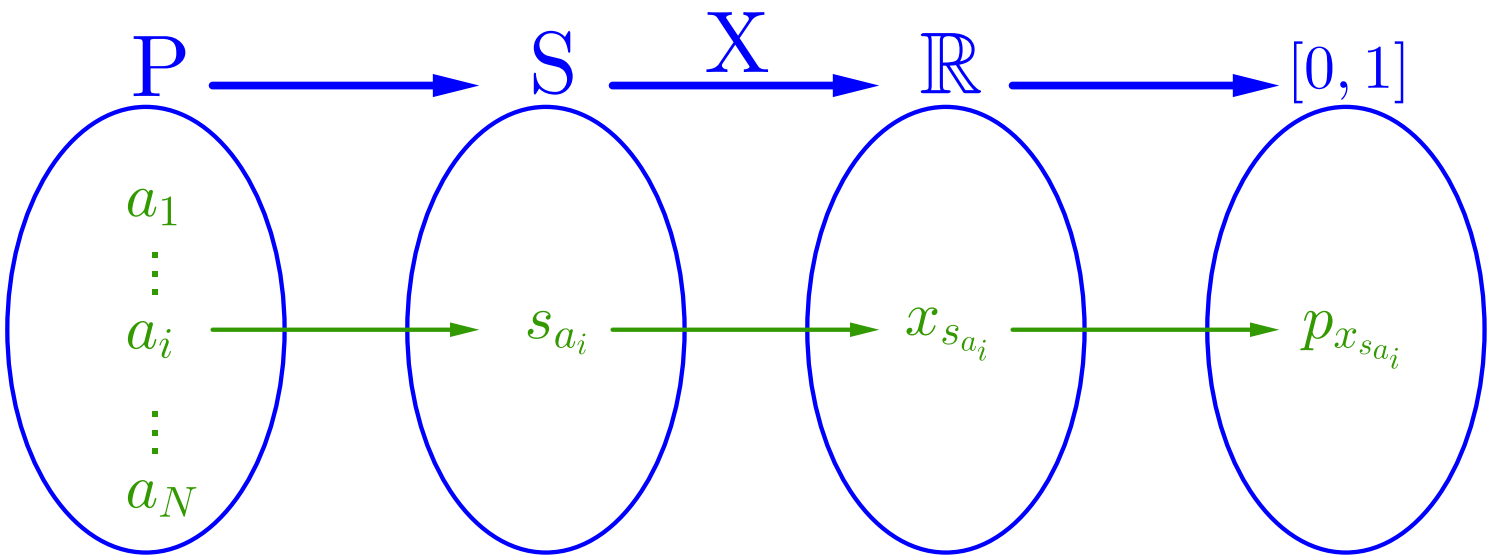
E(X)



$$\mathrm{E(X)} = \sum_{x \in \bigcup_{i=1}^{N} \{x_{s_{a_i}}\}} x p_x$$



$$\mathrm{E(X)} = \sum_{x \in \bigcup_{i=1}^{N} \{x_{s_{a_i}}\}} x p_x = \sum_{i=1}^{N} \left(x_{s_{a_i}} \times \frac{1}{N} \right)$$



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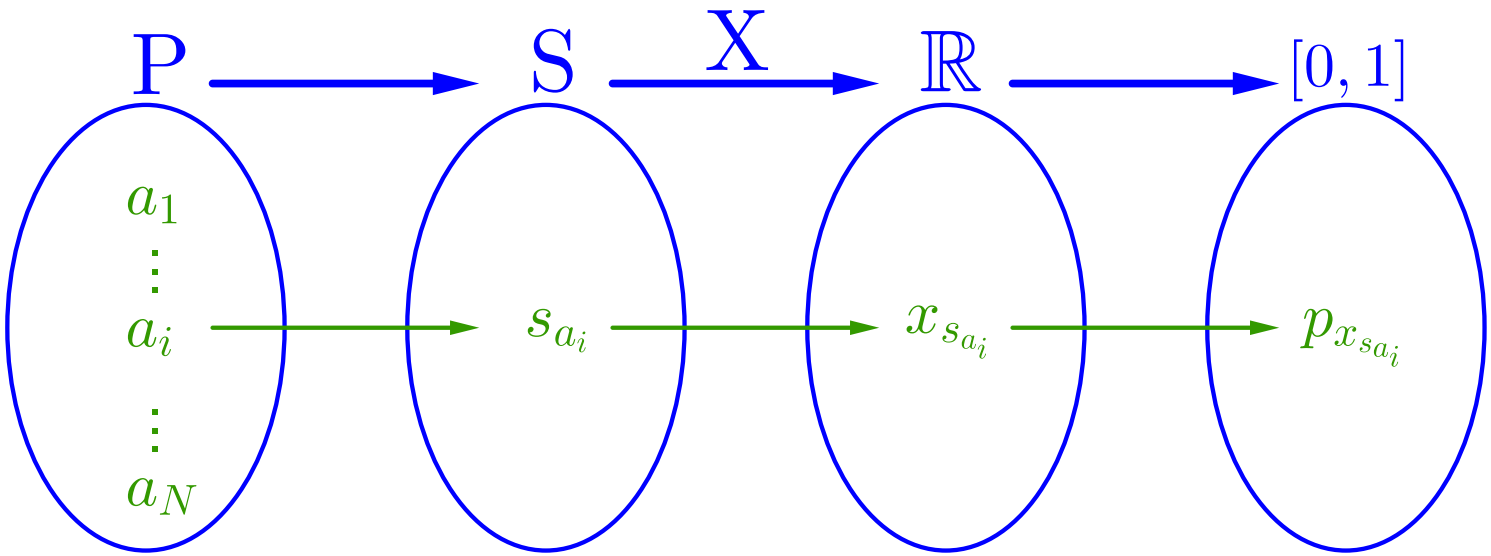
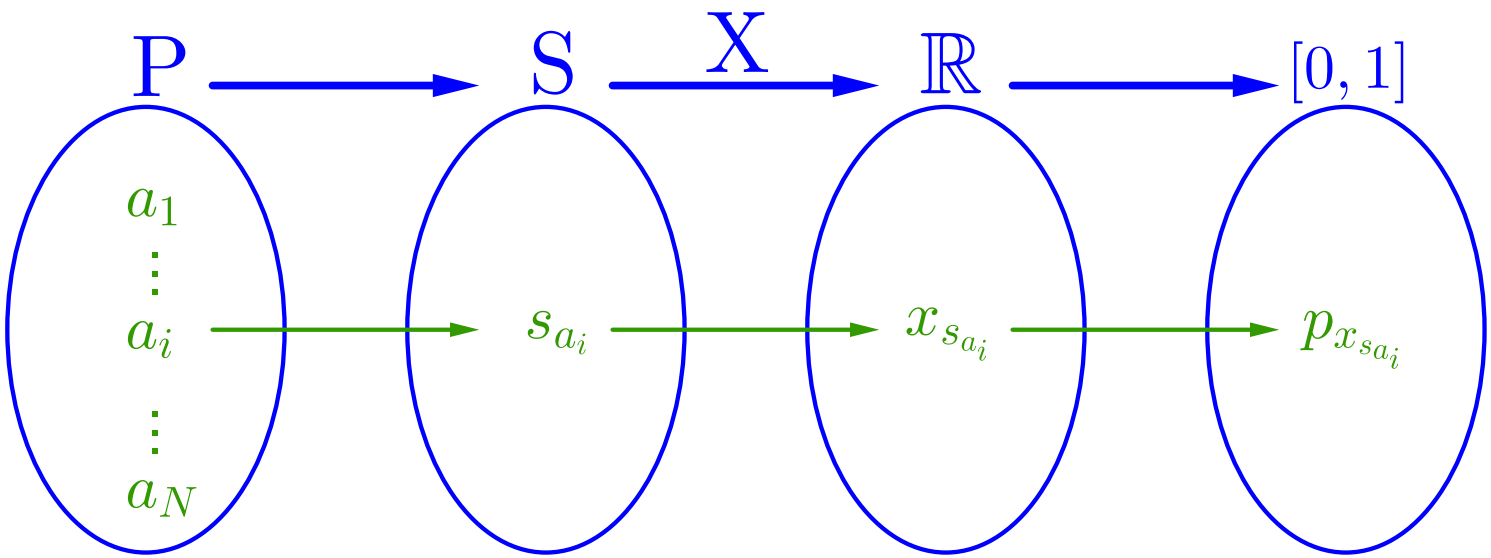
$\mathrm{E(X^2)}$



$$\mathrm{E(X)} = \sum_{x \in \bigcup_{i=1}^{N} \{x_{s_{a_i}}\}} x p_x = \sum_{i=1}^{N} \left(x_{s_{a_i}} \times \frac{1}{N} \right)$$

$$\mathrm{E(X^2)} = \sum_{x \in \bigcup_{i=1}^{N} \{x_{s_{a_i}}\}} x^2 p_x$$

Mean and Variance and Standard Deviation of Population



$$\mathrm{E(X)} = \sum_{x \in \bigcup_{i=1}^{N} \{x_{s_{a_i}}\}} x p_x = \sum_{i=1}^{N} \left(x_{s_{a_i}} \times \frac{1}{N} \right)$$

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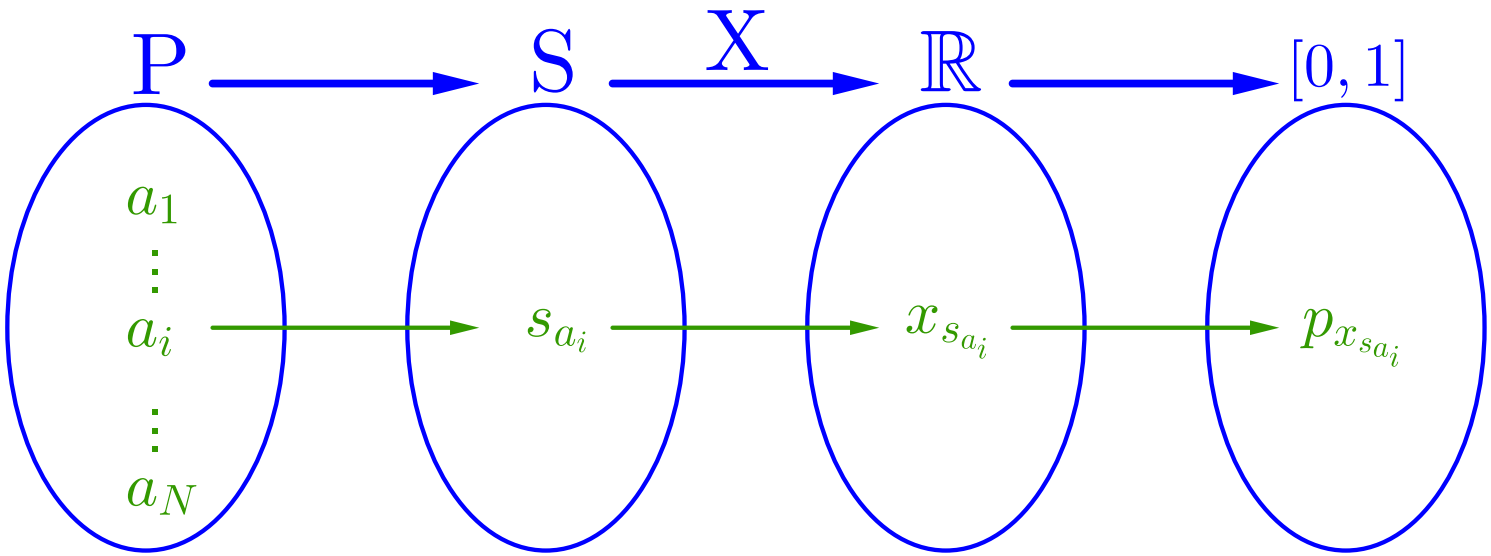
Mean and Variance and Standard Deviation of Population

Start End



$$\mathrm{E(X)} = \sum_{x \in \bigcup_{i=1}^{N} \{x_{s_{a_i}}\}} x p_x = \sum_{i=1}^{N} \left(x_{s_{a_i}} \times \frac{1}{N} \right)$$

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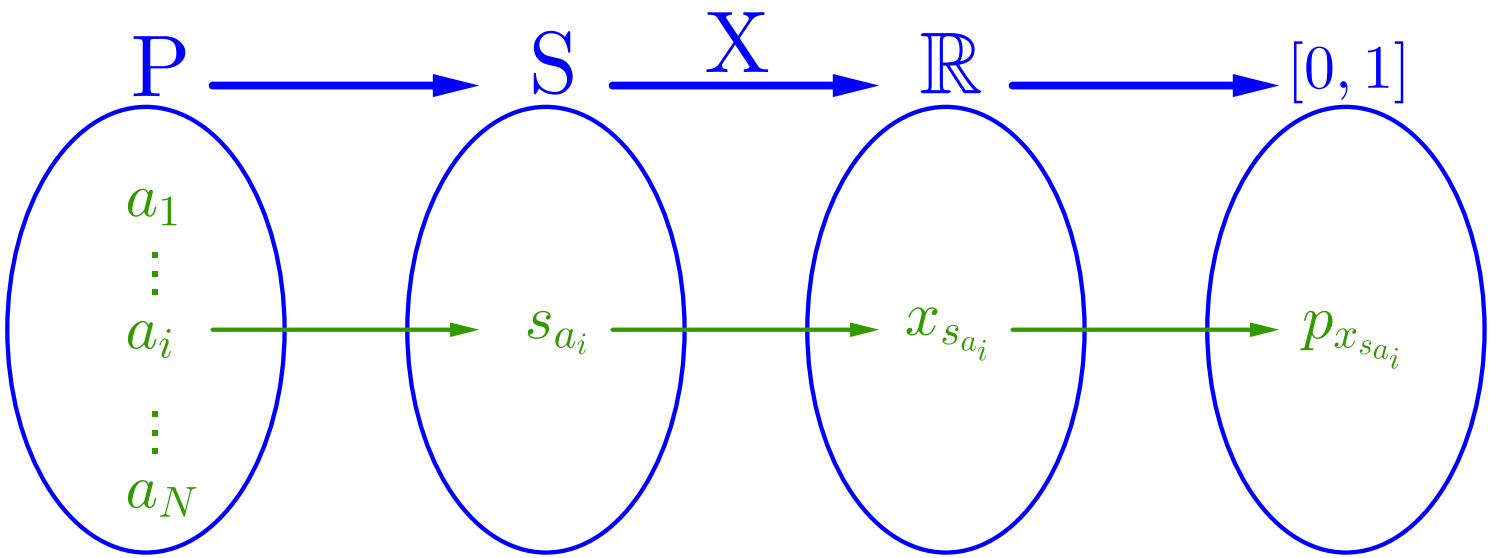
$$\mathrm{V(X)}$$

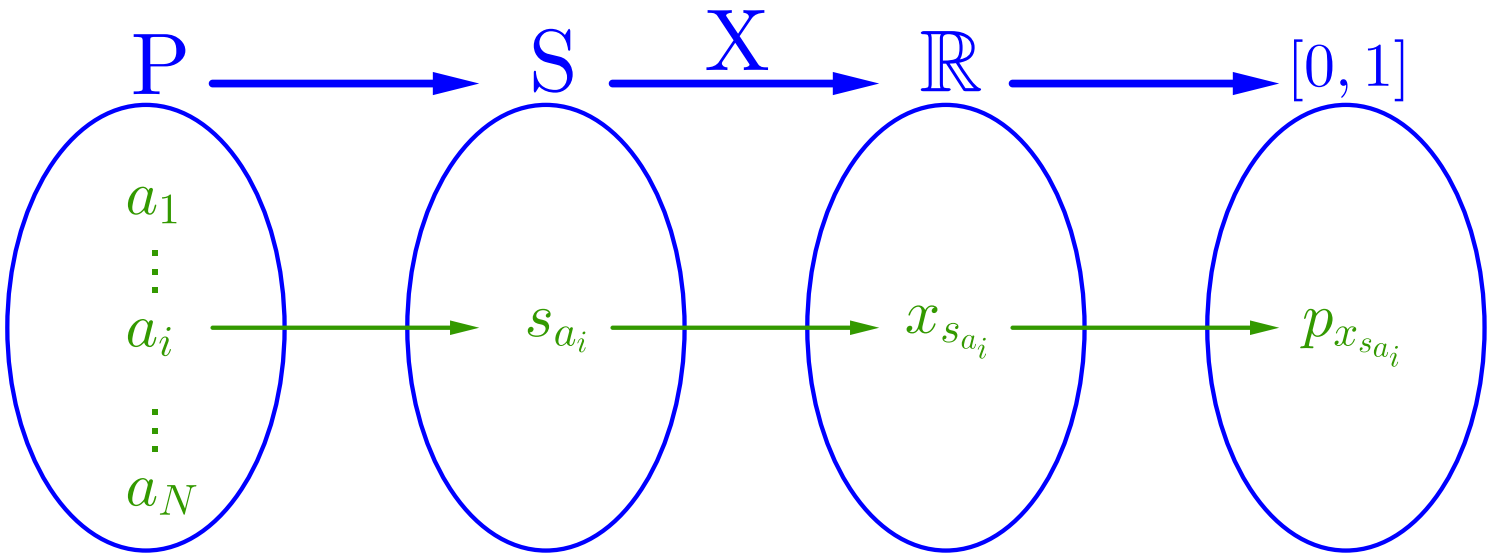
Mean and Variance and Standard Deviation of Population



$$\mathrm{E(X)} = \sum_{x \in \bigcup_{i=1}^{N}\{x_{s_{a_i}}\}} x p_x = \sum_{i=1}^{N}\left(x_{s_{a_i}} \times \frac{1}{N}\right)$$

$$\mathrm{E(X^2)} = \sum_{x \in \bigcup_{i=1}^{N}\{x_{s_{a_i}}\}} x^2 p_x = \sum_{i=1}^{N}\left(x_{s_{a_i}}^2 \times \frac{1}{N}\right)$$

$$\mathrm{V(X)} = \mathrm{E(X^2)} - \{\mathrm{E(X)}\}^2$$

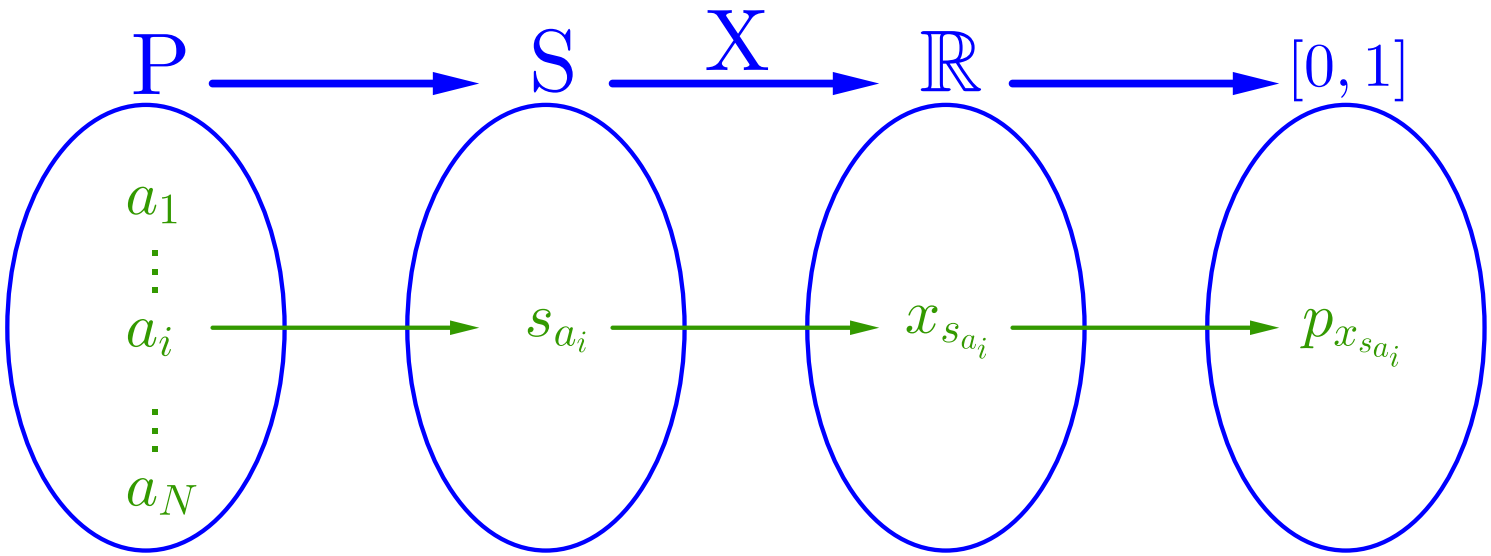


$$\mathrm{E(X)} = \sum_{x \in \bigcup_{i=1}^{N}\{x_{s_{a_i}}\}} x p_x = \sum_{i=1}^{N}\left(x_{s_{a_i}} \times \frac{1}{N}\right)$$

$$\mathrm{E(X^2)} = \sum_{x \in \bigcup_{i=1}^{N}\{x_{s_{a_i}}\}} x^2 p_x = \sum_{i=1}^{N}\left(x_{s_{a_i}}^2 \times \frac{1}{N}\right)$$

$$\mathrm{V(X)} = \mathrm{E(X^2)} - \{\mathrm{E(X)}\}^2$$

$$\sigma(\mathrm{X})$$



$$\mathrm{E(X)} = \sum_{x \in \bigcup_{i=1}^{N} \{x_{s_{a_i}}\}} x p_x = \sum_{i=1}^{N} \left(x_{s_{a_i}} \times \frac{1}{N} \right)$$

$$\mathrm{E(X^2)} = \sum_{x \in \bigcup_{i=1}^{N} \{x_{s_{a_i}}\}} x^2 p_x = \sum_{i=1}^{N} \left(x_{s_{a_i}}^2 \times \frac{1}{N} \right)$$

$$\mathrm{V(X)} = \mathrm{E(X^2)} - \{\mathrm{E(X)}\}^2$$

$$\sigma(\mathrm{X}) = \sqrt{\mathrm{V(X)}}$$

Github:
https://min7014.github.io/math20230620002.html

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and you can see a picture moving.