Intro to Probability Theory

$$P(a)$$

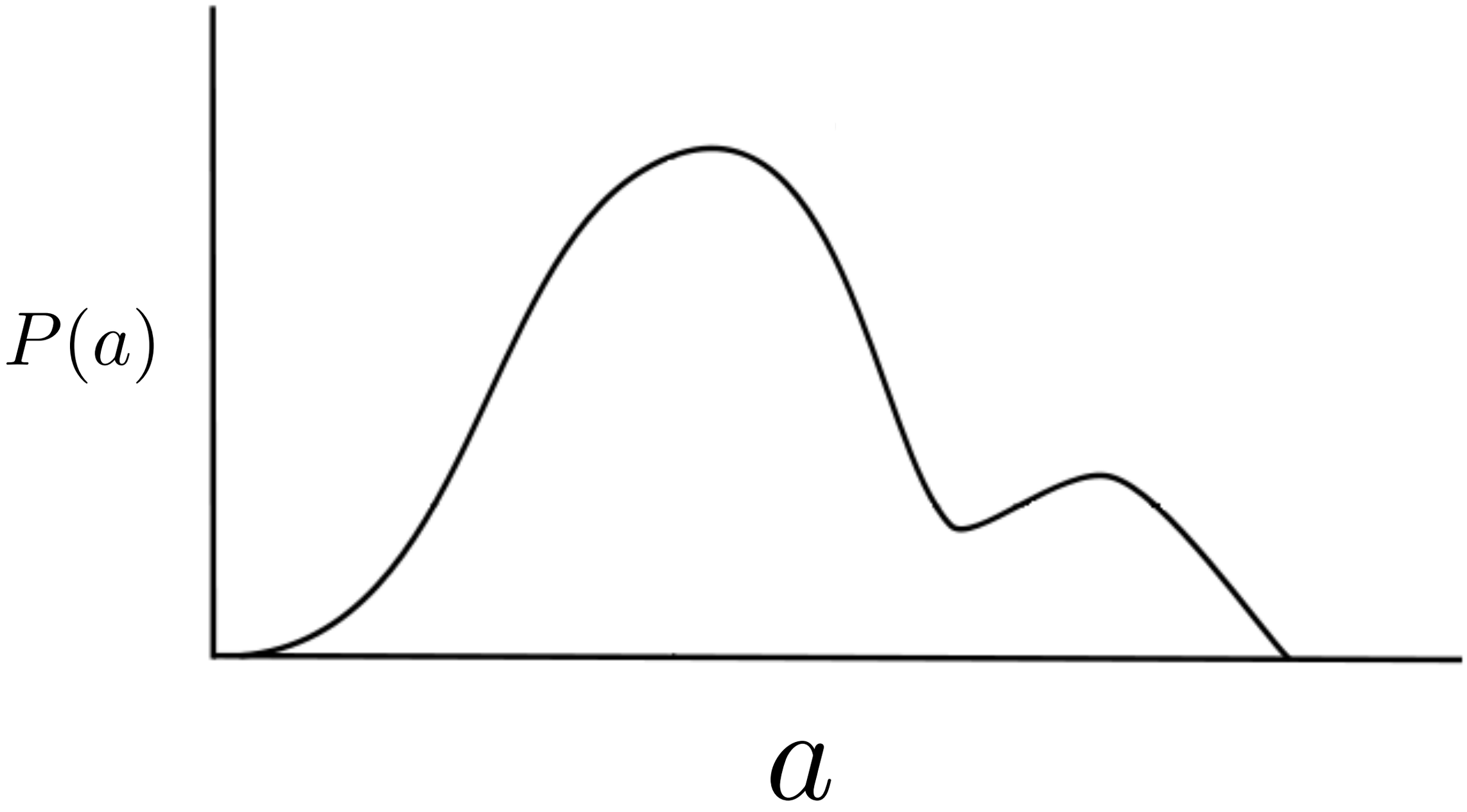
Intro to Probability Theory

$$P(a = heads)$$

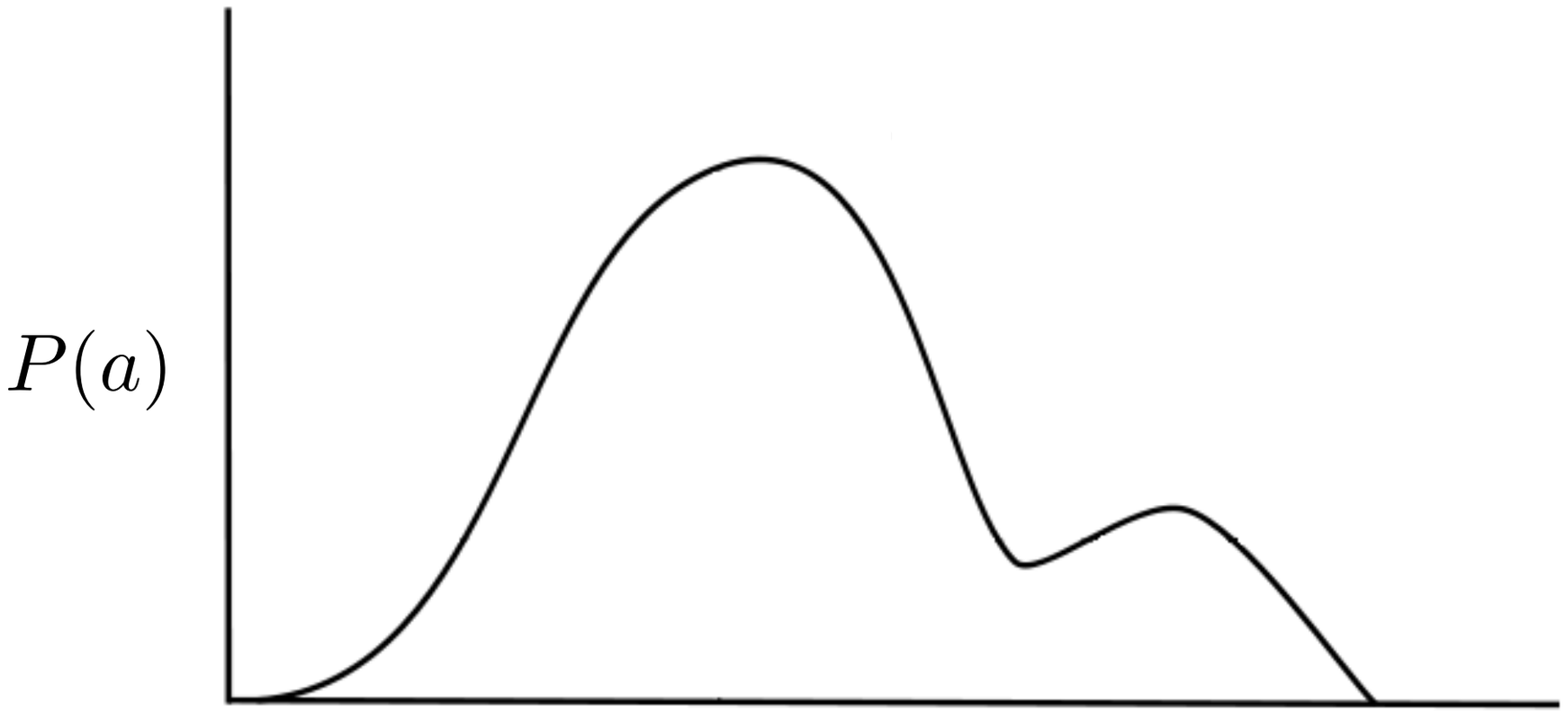
Intro to Probability Theory

$$P(a = heads) = 0.5$$

Intro to Probability Theory

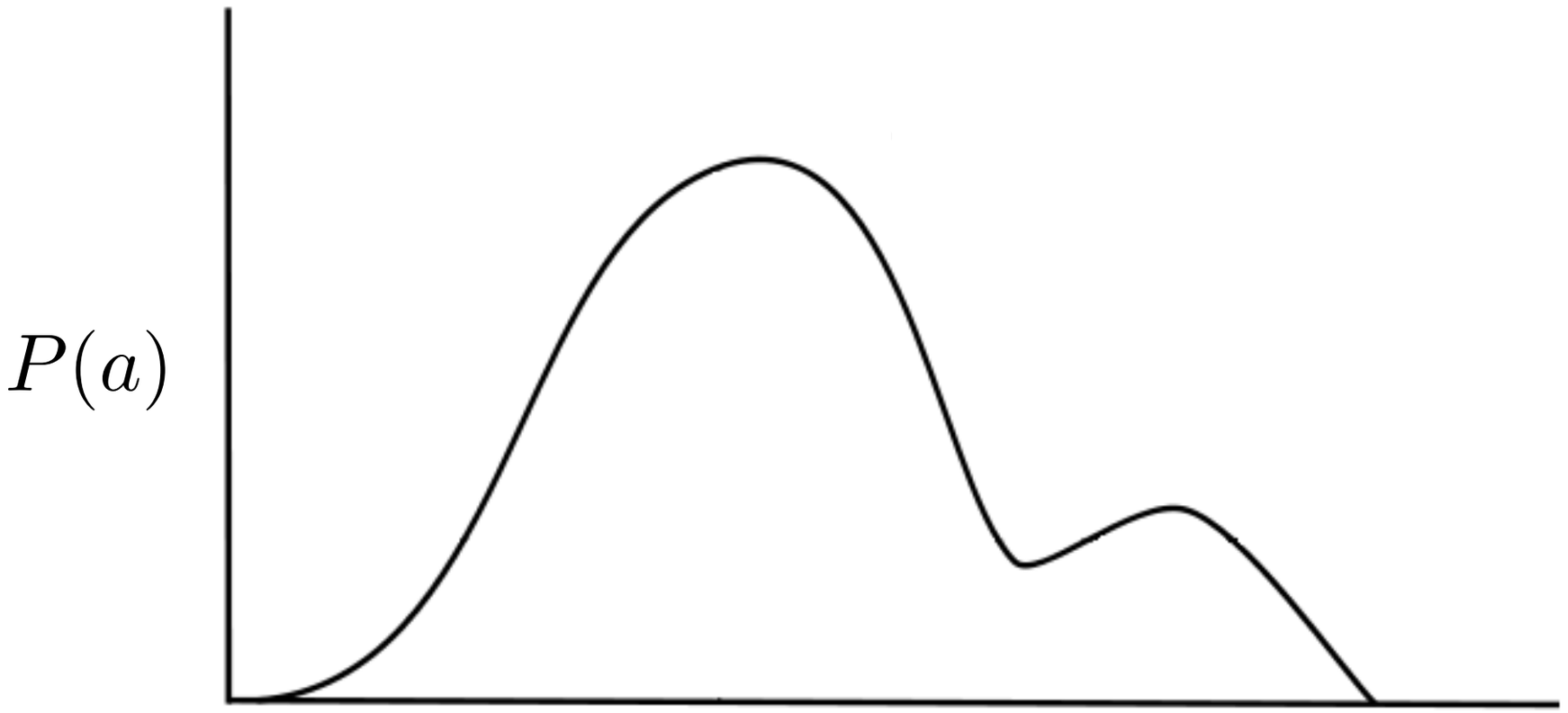


Intro to Probability Theory



$$P(a) \geq 0, \text{for all } a$$

Intro to Probability Theory



$$\int P(a)da = 1$$

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$$P(a = heads) = 0.5$$

$$P(a = tails) = 0.5$$

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$$\int P(a)da = 1$$

$P(a)$ has units of 1/a

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$$P(a|b)$$

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$$\int P(a|b)da = 1$$

Intro to Probability Theory

$$P(a) =$$

"Marginalization"

Intro to Probability Theory

$$\int P(a|b)db = 1$$

Intro to Probability Theory

$$\int P(a|b)db = 1$$

has units of b/a

Intro to Probability Theory

$$P(a, b) = P(a)P(a|b)$$

Intro to Probability Theory

$$P(a, b) = P(a)P(a|b)$$

$$P(b, a) = P(b)P(b|a)$$

Intro to Probability Theory

$$P(a, b) = P(a)P(a|b)$$

$$P(b, a) = P(b)P(b|a)$$

$$P(b, a) = P(a, b)$$

Intro to Probability Theory

$$P(a, b) = P(a)P(b|a)$$

$$P(b, a) = P(a|b)P(b)$$

$$P(b, a) = P(a, b)$$

$$\boxed{P(a|b) = \frac{P(b|a)P(a)}{P(b)}}$$

Bayes's Theorem