

NESCIENCE CHEATSHEET

version 0.1

<http://www.mathematicsunknown.com>

	<i>Concept</i>	<i>Definition</i>	<i>Properties</i>
Topics	Entities	\mathcal{E}	non-empty set
	Topics	$\mathcal{T} \subseteq \mathcal{B}^*$	
	Joint Topic	$ts \in \mathcal{T}$	free monoid
	Model	$m = \langle TM, a \rangle : TM(a) = t$	$l(m_t^*) \leq l(m_t)$
	Joint Model	$m_{ts} = \langle TM, a \rangle : TM(a) = ts$	$l(m_{ts}) \geq l(m_t), l(m_{ts}) \geq l(m_s)$ $l(m_{ts}^*) \leq l(m_t^*) + l(m_s^*)$ $l(m_{ts}^*) = l(m_{st}^*)$ $l(\hat{m}_{ts}) \leq l(\hat{m}_t) + l(\hat{m}_s)$ $l(\hat{m}_{ts}) = l(\hat{m}_{st})$
	Conditional Model	$m_t m_s = \langle TM, a \rangle : TM(\langle m_s, a \rangle) = t$	$l(m_t m_s) \leq l(m_t)$ $l(m_t^* m_s^*) \leq l(m_t^*) \leq l(m_{ts}^*)$ $l(m_{ts}^*) \leq l(m_t^* m_s^*) + l(m_s^*)$ $l(\hat{m}_t \hat{m}_s) \leq l(\hat{m}_t) \leq l(\hat{m}_{ts})$ $l(\hat{m}_{ts}) \leq l(\hat{m}_t \hat{m}_s) + l(\hat{m}_s)$
Miscoding	Miscoding	$\mu(t) = \min_{t_e \in \mathcal{T}_E} \frac{K(t_e t)}{K(t_e)}$	$0 \leq \mu(t) \leq 1$
	Joint Miscoding	$\mu(t, s) = \min_{(t_e, s_e) \in \mathcal{T}_E \times \mathcal{T}_E} \frac{K(\langle t_e, s_e \rangle \langle t, s \rangle)}{K(\langle t_e, s_e \rangle)}$	$0 \leq \mu(t, s) \leq 1$ $\mu(\hat{t}, \hat{s}) \leq \mu(\hat{t}) + \mu(\hat{s})$ $\mu(\hat{t}, \hat{s}) \geq \mu(\hat{t}), \mu(\hat{t}, \hat{s}) \geq \mu(\hat{s})$ $\mu(\hat{t}, \hat{s}) = \mu(\hat{s}, \hat{t})$
Inaccuracy	Inaccuracy	$\iota(m_t) = \frac{K(t m_t)}{K(t)}$	$0 \leq \iota(m_t) \leq 1$
	Joint Inaccuracy	$\iota(m_{ts}) = \frac{K(ts m_{ts})}{K(ts)}$	$0 \leq \iota(m_{ts}) \leq 1$ $\iota(\hat{m}_{ts}) \geq \iota(\hat{m}_t), \iota(\hat{m}_{ts}) \geq \iota(\hat{m}_s)$ $\iota(\hat{m}_{ts}) \leq \iota(\hat{m}_t) + \iota(\hat{m}_s)$ $\iota(\hat{m}_{ts}) = \iota(\hat{m}_{st})$
	Conditional Inaccuracy	$\iota(m_t m_s) = \frac{K(t \langle m_t, m_s \rangle)}{K(t)}$	$0 \leq \iota(m_t m_s) \leq 1$ $\iota(m_t m_s) \leq \iota(m_t)$ $\iota(\hat{m}_{ts}) = \iota(\hat{m}_t \hat{m}_s) + \iota(\hat{m}_s)$
Surfeit	Surfeit	$\sigma(m_t) = 1 - \frac{K(t)}{l(m_t)}$	$0 \leq \sigma(m_t) \leq 1$
	Weak Surfeit (Redundancy)	$\rho(m) = 1 - \frac{K(m)}{l(m)}$	$0 \leq \rho(m) \leq 1$ $\rho(m_t) \leq \sigma(m_t)$
	Joint Surfeit	$\sigma(m_{ts}) = 1 - \frac{K(ts)}{l(m_{ts})}$	$0 \leq \sigma(m_{ts}) \leq 1$ $\sigma(\hat{m}_{ts}) \leq \sigma(\hat{m}_t) + \sigma(\hat{m}_s)$ $\sigma(\hat{m}_{ts}) \geq \sigma(\hat{m}_t), \sigma(\hat{m}_{ts}) \geq \sigma(\hat{m}_s)$ $\sigma(\hat{m}_{ts}) = \sigma(\hat{m}_{st})$
			$0 \leq \rho(m_{ts}) \leq 1$ $\rho(\hat{m}_{ts}) \leq \rho(\hat{m}_t) + \rho(\hat{m}_s)$ $\rho(\hat{m}_{ts}) \geq \rho(\hat{m}_t), \rho(\hat{m}_{ts}) \geq \rho(\hat{m}_s)$ $\rho(\hat{m}_{ts}) = \rho(\hat{m}_{st})$ $\rho(m_{ts}) \leq \sigma(m_{ts})$
	Joint Redundancy	$\rho(m_{ts}) = 1 - \frac{K(m_{ts})}{l(m_{ts})}$	
	Conditional Surfeit	$\sigma(m_t m_s) = 1 - \frac{K(t m_s)}{l(m_t m_s)}$	$0 \leq \sigma(m_t m_s) \leq 1$ $\sigma(m_t m_s) \leq \sigma(m_t)$ $\sigma(\hat{m}_{ts}) = \sigma(\hat{m}_t \hat{m}_s) + \sigma(\hat{m}_s)$
Conditional Redundancy	$\rho(m_t m_s) = 1 - \frac{K(m_t m_s)}{l(m_t m_s)}$	$0 \leq \rho(m_t m_s) \leq 1$ $\rho(m_t m_s) \leq \rho(m_t)$ $\rho(m_t m_s) \leq \rho(m_t m_s)$ $\rho(\hat{m}_{ts}) = \rho(\hat{m}_t \hat{m}_s) + \rho(\hat{m}_s)$	