Why

[1]

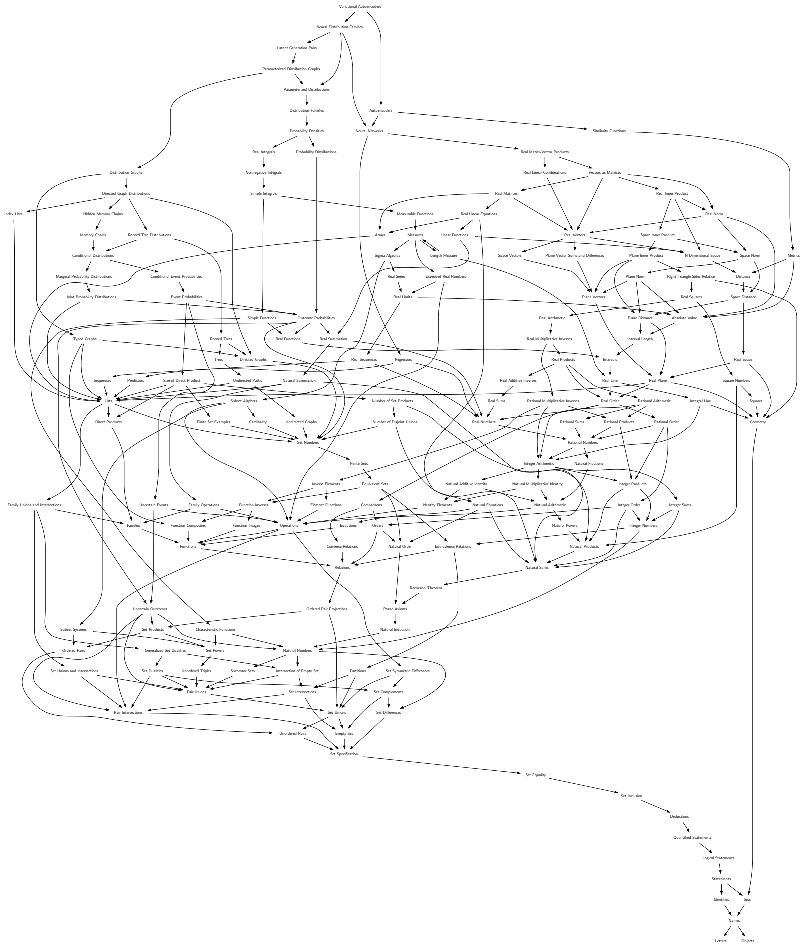
Definition

A *variational autoencoder* (*VAE*) from *latent set* Z to *observation set* X is an ordered pair $((p_z^{(\theta)}, p_{x|z}^{(\theta)}), q_{z|x}^{\phi})$ whose first coordinate is a deep latent generation pair from Z to X (with parameters θ) and whose second coordinate is deep conditional distribution from X to Z (with parameters ϕ).

A VAE inherits its *joint function* from its deep latent generation pair. $p_z^{(\theta)}$ is called the *latent distribution* (or *prior distribution*, *latent model*). $p_{x|z}^{(\theta)}$ is called the *decoder distribution*. $q_{z|x}^{(\theta)}$ is called the *encoder distribution* (or *inference distribution*, *recognition distribution*).

A *variational autoencoder family*, from Z to X, is a family of autoencoders $\{((p_z^{(\theta)}, p_{x|z}^{(\theta)}), q_{z|x}^{(\phi)}\}_{(\theta,\phi)\in\Theta\times\Phi}$.

[1] Future editions will include. Future editions may also change the name of this sheet. It is also likely that there will be added prerequisite sheets on variational inference.



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Partitions
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Set Complements
Pair Intersections
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