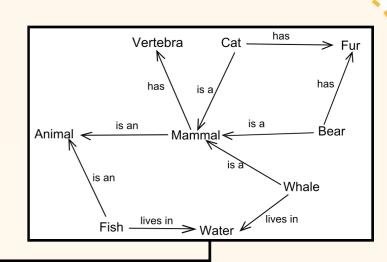
## A Generative Model of Words and Relationships from Multiple Sources

$$\mathcal{E}(S, R, T | \Theta) = -\frac{\mathbf{v}_T \cdot G_R \mathbf{c}_S}{\|\mathbf{v}_T\| \|G_R \mathbf{c}_S\|}$$

$$P(S, R, T|\Theta) = \frac{1}{Z(\Theta)} e^{-\mathcal{E}(S, R, T|\Theta)}$$

$$P(R|s,t;\Theta) = \frac{e^{-\mathcal{E}(s,R,t|\Theta)}}{\sum_{r'} e^{-\mathcal{E}(s,r',t|\Theta)}}$$

nt coastline dates back to about of "a clockwork orange", itse erimental mix of hip hop, liturge three other smaller financial namsterdam. the ice hockey the of transport, but he was st



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