Abstract: Much of the recent empirical success in natural language processing has relied on the use of neural networks to compute expressive, global representations of sentences and documents. However, incorporating such representations into systems that produce outputs with combinatorial structure, such as text, may require rethinking both our models and how we train them. In terms of training, I will argue for training text generation models to search for optimal outputs, which will address some of the shortcomings of standard maximum likelihood-based training. In terms of modeling, I will argue that standard text generation models are difficult to interpret and to control, and I will suggest a model that automatically induces discrete template-like objects, which can be used for controlling and interpreting generation.