

On Tinkering With Text: How to Refashion Prose

In this note, the authors present an outline of the double-helix tinkering process for generating intermediate or transitioning phrases and sentences, and apply it to a passage from a paper they are preparing.

From:

Section 9.5 Evaluation for the Axon Tract [“White Matter Capacity” <tractcapacityv3.pdf>]

Original:

In this subsection we will specialize to the axon tract under examination. The KL divergence evaluates to

$$D = (\frac{1}{2})x^T \text{Heff}^T \Sigma_{\text{eff}}^{-1} \text{Heff} x.$$

For the effective Gaussian Channel,

$$Y|(X = x) \sim N(\text{Heff}x, \Sigma_{\text{eff}})$$

$$Y|(X = 0) \sim N(0, \Sigma_{\text{eff}})$$

Substituting into Verdu’s formula yields

$$C_{uc} = \sup_{x \neq 0} \frac{D}{x^T Q x}$$

Reworded v1:

In this subsection we will specialize to the axon tract under examination. The KL divergence evaluates to $D = (\frac{1}{2})x^T \text{Heff}^T \Sigma_{\text{eff}}^{-1} \text{Heff} x$. This expression yields $C_{uc} = \sup_{x \neq 0} \frac{D}{x^T Q x}$ (by substitution into Verdu’s formula) when combined with $Y|(X=x) \sim N(\text{Heff}x, \Sigma_{\text{eff}})$, $Y|(X=0) \sim N(0, \Sigma_{\text{eff}})$ for the effective Gaussian channel.

Double-Helix Tinkering Procedure:

- use double-helix to generate a few intermediate words

- use the new words to generate a new transition/interleaving sentence and phrases
- use the new phrase/sentence and new/old ordering to rewrite the entire section
- See Figure 1

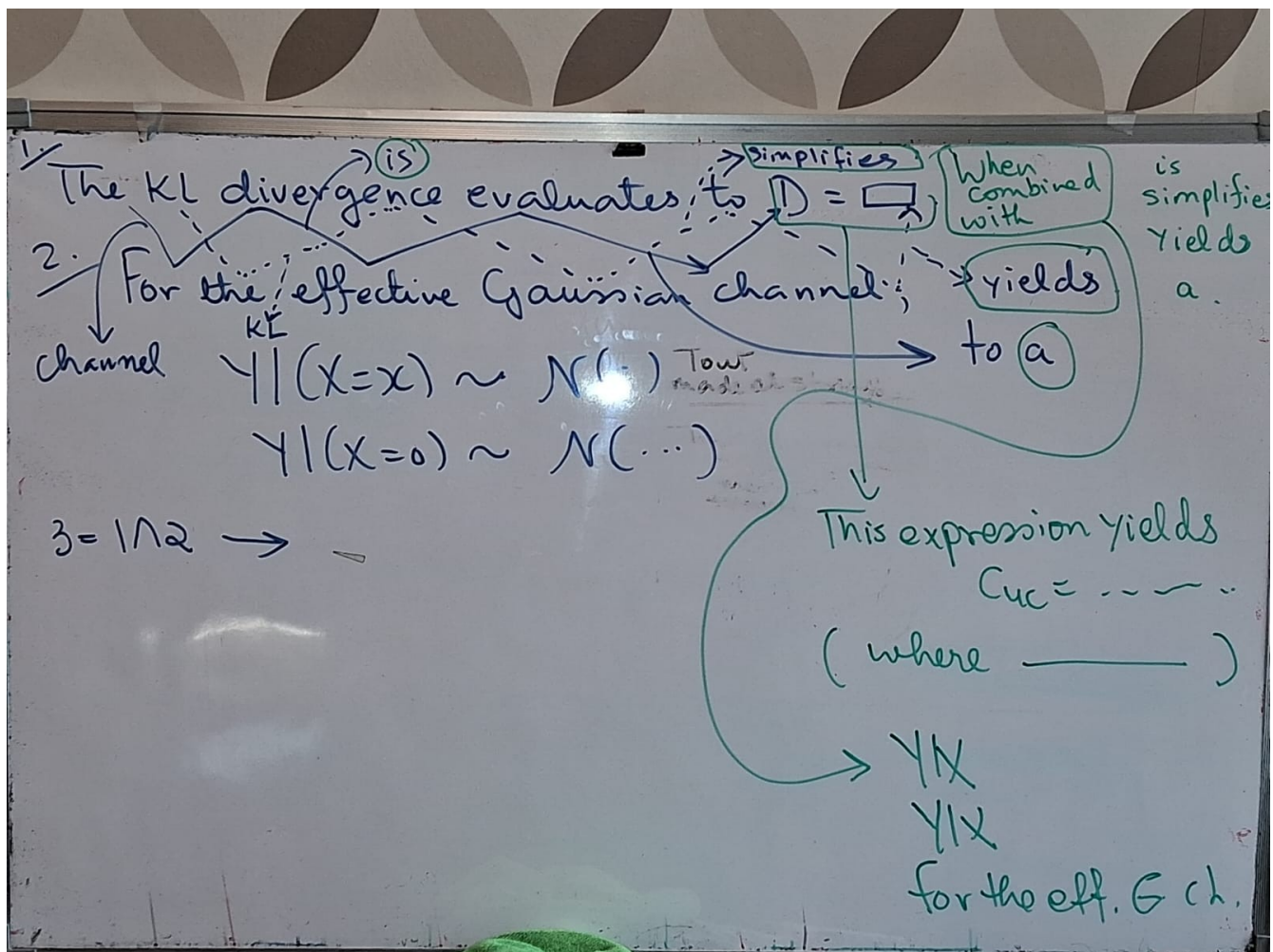


Figure 1: The "Double Helix" textual tinkering process