

On the Duplexing of DNA's Genetic and Geometric Codes

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It is well known that a sequence of DNA bases is translated into a sequence of amino acids in living cells. More recently it has been discovered that the sequence of DNA bases also influences the geometry of the molecule. This is a natural example of “duplexed codes”, sending two different coded messages with the same signal. This project (a “work in progress”) seeks to investigate the efficiency of this duplexing. Through numerical computations and graphical representations, we will compare the duplexing of these two natural codes with hypothetical (unnatural) alternatives. The goal is not only to better understand the natural duplexing, but moreover to determine whether there is evidence that this influenced the evolution of the genetic code.