Peter Gariaev and colleagues have applied the linguistic notions of synonymy and homonymy to genetic code. Also the notion of syhomy fusing these concepts is introduced. Homonymy is visible in mRNa-tRNA pairing and induced by the 1-to-many pairing of the third mRNA nucleotide with tRNA nucleotide. The homonymy in mRNA-AA (AA for amino-acid) pairing is also present albeit rare.

The codons for the standard code can be divided to two classes. For 32 codons the first two letters fix AA completely. For the remaining 32 codons this is not the case. There is however almost unbroken symmetry in that U and C {\it resp.} A and G code for the same AA. The breaking of this symmetry is minimal appearing only for 3 4-columns of the code table and present for A-G only. The deviations from the standard code as a rule break A-G or T-C symmetry or re-establish it.

The notion of homonymy is highly interesting from TGD point of view. TGD leads to two basic proposals for non-chemical realization of genetic code predicting the numbers of DNA codons coding for given AA rather successfully. The first proposal relies on TGD based view about dark matter as $h_{eff}/h=n$ phases of ordinary matter and identifies counterparts of DNA, RNA, tNRA, and AAs as entangled dark proton triplets.

Second proposal emerged from the model of music-harmony based on fusion of icosahedral and tetrahedral geometries. Codons are represented as photon triplets (dark or ordinary) defining the allowed 3-chords of given harmony defined by Hamilton cycle at icosahedron extended to Hamilton cycle to the fusion of icosahedron with tetrahedron along common face. Photon triplets give rise to resonant coupling giving rise to physical pairing of biomolecule and its dark counterpart. Remarkably, there are 3 different realizations of tRNA in terms of 3-chords. There is large number of bio-harmonies corresponding to Hamiltonian cycles. Since music expresses and creates emotions, the proposal is that a realization of emotions at molecular level adding additional degrees of freedom not visible at the level of chemistry is in question. This might give rise to a context dependence of the code.

The proposal is that genetic code at dark level extends to a sequence DDNA $\rightarrow$ DmRNA $\rightarrow$ DtRNA $\rightarrow$ DAA of horizontal pairings analogous to projections is fundamental one. Codon-codon pairings are realized via dark photon triplet resonance and mRNA-AA pairing by resonant coupling to the sum $f_{XYZ}=f_1+f_2+f_3$ of 3-chord frequencies: the codons coding same AA would have frequencies f_{XYZ} differing only by a multiple of octave. One might perhaps say that AA sequence defines melody and mRNA sequence the accompaniment.

There is context dependence and homonymies already in DmRNA-DtRNA pairing and due the fact that DtRNA corresponds to a 2-harmony which is sub-harmony of 3-harmony and can be chosen in 3 different manners. The vertical pairings DDNA $\rightarrow$ DNA, DmRNA $

\rightarrow$ mRNA, etc. also mediated by frequency couplings induce ordinary genetic code and horizontal pairings in DNA $ \rightarrow$ mRNA $\rightarrow$ tRNA $\rightarrow$ AA. DAA $ \rightarrow$ AA pairing dictates mRNA $\rightarrow$ AA pairing and mRNA $\rightarrow$ tRNA homonymy does not matter and actually makes the translation safer by increasing the number of tRNAs performing the same task.

The rather rare homonymies in DNA-AA pairing can be understood as accidental degeneracies. AA couples resonantly to the sum $f_{XYZ} =f_1+f_2+f_2$ of frequencies associated with codon XYZ and it can occur that the sum frequencies can be identical for two codons.