ON THE COMPLETENESS OF GENETIC CODE: PART IV

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Abstract. In this fourth part of the work about the completeness of the genetic code, we present further connections and relations between nucleotide doublets and triplets within Genetic Code Table.

In Table 1 are designated nucleotide doublets from modified Rumer's Table (Part II): with brown color four 1st, blue color with four 2nd, dark tones with four 3rd and light tones with four 4th doublets. These four areas correspond with four classes of AAs, presented through chemically meaningful pairs (right side of Table 2).

1st	2nd letter				3rd
	U	C	A	G	
U	UUU **F** UUC UUA **L** UUG	UCU UCC UCA **S** UCG	UAU **Y** UAC UAA CT UAG	UGU **C** UGC UGA CT UGG **W**	*U* *C* *A* *G*
C	CUU CUC CUA **L** CUG	CCU CCC CCA **P** CCG	CAU **H** CAC CAA **Q** CAG	CGU CGC CGA **R** CGG	*U* *C* *A* *G*
A	AUU AUC **I** AUA **M** AUG	ACU ACC ACA **T** ACG	AAU **N** AAC AAA **K** AAG	AGU **S** AGC AGA **R** AGG	*U* *C* *A* *G*
G	GUU GUC GUA **V** GUG	GCU GCC GCA **A** GCG	GAU **D** GAC GAA **E** GAG	GGU GGC GGA **G** GGG	*U* *C* *A* *G*

Table 1. Distributions of AAs within four times four codon quadruplets of GCT in connection with nucleotide doublets, presented in Table 2 in Part II (Rakočevič, 2015).

At left side of Table 2 has presented the splitting into four classes of AAs: one-codon, two-codon, three-codon and four-codon amino acids (AAs), respectively; at right side, as in Table 1.

1	2	3	4		Small		Large	
M W	F L S Y H Q N K D E R C	I	L V S P T A G R		F C G	20	41	W L V
					P H N	27	34	T K Q
					A ct S	09	45	L Y R
					M S D	23	40	I R E
29	131	13	66					
160		**79**			**79**		**160**	

Table 2. Distributions of AAs; on the left: after the number of coding codons; on the right: after the splitting into four times four nucleotide doublets (Table 1).

As it is self-evident from Table 2 two splittings are followed by a specific balance (near to be 2:1) in both cases: [2 x (80±0)] : [1 x (80-1)]. In addition there are other partial balances, such as these: (20+41+27+34 = 122 and (09+45+23+40 = 117) versus (20+27+45+40 = 122+10 and (41+34+09+23 = 117-10). ... All these balances and relations go in favor of our hypothesis that the genetic code still in prebiotic conditions was complete.

REFERENCE

Rakočević, M. M. (2015) On the Completeness of Genetic Code: Part II, viXra:1501.0117.