Characterizing patterns in DNA sequence trace data through informatics tools

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------ Abstract

Sequence trace data files produced by the Sanger sequencing method were believed to create peak height values of random height and with no added value for base calling. Our study is the first to comprehensively prove the existence of definable peak height patterns and to develop tools that allow the characterization of the frequency of such patterns for each sequence frame.

By studying hundreds of mtDNA samples sequenced in two certified forensic laboratories, in the United States of America and in Portugal, we were able to prove that peak height patterns are predictable and the same from sample to sample if the chemistry and primer combination is kept constant within the same laboratory. Moreover, the characterization of these patterns and the ability to predict their behavior for other samples led us to develop the novel concept of Sequence Biometrics. Sequence Biometrics defines the characteristics of these peak height patterns for a certain stretch of sequenced DNA, independently of the origin and sample, which is specific to the primer/chemistry combination used within the laboratory. Therefore, Sequence Biometrics is a new quality parameter for sample processing and can be used by novel expert systems in the assessment of new data.

This work provides the basic informatics tools and workflow mechanisms to build standard Sequence Biometrics tables, of several primer/chemistry combinations and to define their characteristics and boundaries of its use.

Keywords

Sequence trace data

Peak height patterns

Sequence Biometrics

Expert Systems

Chapter 1 ———— Introduction

1.1 — DNA sequencing

DNA is composed of four different nucleotides called adenine (A), cytosine (C), guanine (G) and thymine (T) and these four bases, combined in groups of three, provide the necessary code combination for protein translation.

Though DNA structure and the way in which bases are connected has been known since the mid 1960s, it was only in 1975 that Frederick Sanger and his colleagues revolutionized the way scientists read the genetic code by inventing the Sanger method, or the chain terminator method. Sanger and Coulson's (Sanger & Coulson, 1975) original paper described the DNA sequencing method using *Escherichia coli* DNA polymerase I and DNA polymerase from bacteriophage T4 (Englund, 1971, Englund, 1972) with different limiting nucleoside triphosphates. This method allowed scientists, for the first time, to accurately read DNA sequences base by base.

Two years later, Sanger and his co-workers described a new method for sequencing oligonucleotides via enzymatic polymerization (Sanger et al, 1977). This method, known as the dideoxynucleotide method, consists of a catalyzed enzymatic reaction that polymerizes the DNA fragments complementary to the template DNA of interest, or the unknown DNA. A ³²P-labelled primer anneals to a specific known region on the template DNA, which provides a starting point for DNA synthesis. Catalytic polymerization of deoxynucleoside triphosphates (dNTPs) of the DNA takes place in the presence of DNA polymerases. The polymerization extends until the enzyme incorporates a modified nucleoside, known as terminator or dideoxynucleoside triphosphate (dNTPs), into the growing chain of the synthesized DNA.

The original Sanger method was performed in four different tubes, each containing one of the four terminators. The generated fragments have the same 5'-end whereas the residue at the 3'-end are determined by the dideoxynucleotide triphosphates, or ddNTPs, used in the reaction as chain terminators since they lack the 3'-OH group required for the formation of a phosphodiester bond between two nucleotides during strand elongation. After the reactions with the four terminators, the mixture of different-sized DNA fragments is resolved by electrophoresis on a denaturing polyacrylamide gel, usually in four lanes immediately adjacent to the other. The pattern of bands is visualized and read from the autoradiography, which corresponds to the radiolabeled terminated fragments of different lengths in the synthesized strand of DNA.

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Currently, fluorescent dye-labelled nucleotides are used instead of radiolabelled nucleotides. With dye-labelled dideoxy terminators, a single reaction tube can be used (Rosenthal & Charnock-Jones, 1992, Tracy & Mulcahy, 1991). The energy dyes are excited by a laser and read by a charged-couple device (CCD) optimal camera. Originally, Smith *et al.* (Smith et al, 1986) designed four different fluorescent dyes which when combined together could be electrophoresed in a single lane and read separately, since each of the dyes had its own spectral properties. This method used labels attached at the 5'-end of the primer which are attached to the ddNTP terminators. The fluorescent light is then separated by four different filters. The fluorescent dyes chosen for current use have their maximum emission spectra relatively even-spaced for better base calling. This data is then translated into human readable data; one color is associated with one base throughout the run in the capilary, creating a series of coloured peaks (given by the signal intensity of each dye) in a electropherogram that can be analyzed by software.

The Sanger method is not a high throughput method, just allowing the sequencing of merely about one thousand base pairs but it is a simple, reliable and confident method. Additionally, the results are not only rich in information but also easily readable and repeatable.

Because of its accuracy and reliability, the Sanger method has been used to sequence small genomes such as those of viruses or bacteria up to even huge genomes such as the human genome. In fact the Human Genome Project (Venter et al, 2001) based its sequencing on the Sanger method.

Furthermore, newer, sequencing procedures such as pyrosequencing, allow the sequencing of whole chromosomes in just a few hours. Yet, none of these new procedures is as informative about the DNA sequence as the Sanger method is.

1.2 — Mitochondrial DNA

In eukaryotic cells, not all DNA is contained inside the nucleus. Organelles such as mitochondria and chloroplasts have their own reminiscent DNA that codes important proteins for their function independently of nuclear DNA.

Mitochondria are responsible for the bulk of ATP synthesis through oxidative phosphorylation and are often referred as the energy powerhouse of the cell. They are the site of

cellular respiration and capture energy generated by the breakdown of food during the oxidation of simple organic compounds (Copeland, 2002). The small number of polypeptides encoded with the mitochondrial DNA (mtDNA) genome represents only a small fraction of the total proteins necessary for mitochondrial function. Most of these proteins are encoded in the nuclear DNA genome and are subsequently exported to the mitochondria.

Mitochondria were first visualized as discrete cytoplasmic organelles in 1840 and were isolated in 1948 using zonal centrifugation techniques. They are rod-shaped organelles that are present in all nucleated eukaryotic cells that use oxygen. Mitochondria are approximately 1 to 10 micrometer (μ m) in length and approximately 0.5 to 1.0 μ m in diameter. Many scientists, especially evolutionary biologists, attribute the mere genetics of the mitochondrion as a primitive aerobic bacterium that was once engulfed by the ancestor of present-day eukaryotic cells (Gray, 1992, Grivell, 1997). Unlike nuclear DNA where there is only one copy from the mother and one copy from the father, most cells contain hundreds to tens of thousands discrete mitochondrion (Robin & Wong, 1988). There are exceptions, however, such as some cells containing one mitochondrion to other cells containing as many as 100,000 mitochondria (Bogenhagen & Clayton, 1974).

In the 1960s it was determined that these organelles contained their own DNA. A team of scientists at the Cambridge Research Institute completely sequenced the reported 16,569 bases of the mitochondrial genome (mtGenome) (Anderson et al, 1981). In fact, this was the first component of the human genome to be completely sequenced. DNA inside the mitochondrion is circular in structure and double-stranded. Mitochondrial DNA (mtDNA) codes for 13 polypeptides required for oxidative phosphorylation and 22 transfer RNAs and 2 ribosomal RNA subunits (see Figure 1). The heavy strand is purine-rich and the light strand is pyrimidine-rich.

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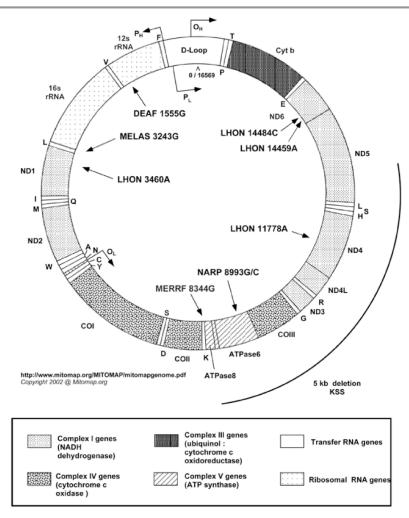


Figure 1 — The Human Mitochondrial DNA Genome. Genes encoded by the mitochondrial genome are noted. Point mutations associated with mitochondrial diseases are noted in the center of the genome. Diagram provided by MitoMap (http://www.mitomap.org/) (Ruiz-Pesini et al, 2007).

This closed double-stranded circular genome can be classified according to function: the coding region (about 15.5 kb of the genome) and the non-coding control region (about 1.1 kb of the genome). The control region has a regulatory function for the mitochondria and contains sequences to initiate both transcription and DNA replication of the heavy strand.

The mtGenome is not subjected to recombination during sexual transmission. The mtGenome is strictly maternally inherited; it is passed to the offspring from the oocyte (Giles et al, 1980). That is to say that progeny of both males and females inherit mtDNA from the mother (barring mutations), whereas only the daughter passes on the mtDNA to the next generation. Differences between two people indicate that they cannot share a common maternal line since it has been shown that mtDNA does not recombine in humans (Ingman et al, 2000).

The evolution of mtDNA has been studied in such detail that evolutionary biologists have determined that Mother Eve, or "mitochondrial Eve," of all surviving mtDNA profiles lived in Africa between 140,000 and 290,000 years ago (Cann et al, 1987). The low fidelity of mtDNA polymerase and the apparent lack of mtDNA repair mechanisms have led to a higher rate of mutation in the mtGenome as compared to the nuclear genome making it an excellent marker for human evolution research. Some regions of mtGenome appear to evolve five to ten times the rate of single copy nuclear genes (Brown et al, 1979, Budowle et al, 2000). Some of the unique features of mtDNA as compared to nuclear DNA are presented in Table I.

Features	Nuclear DNA	Mitochondrial DNA
Structure	Linear genome	Closed circular genome
Size	3,200,000 Kb	16.5 Kb
Copy Number	1 from mother; 1 from father	100s to 10,000s
Inherited	50% from mother; 50% from father	100% from mother
Ploidy	Diploid	Haploid
Mutation Rate	Low	Higher than nDNA
Recombination	Yes	No

Table I - Feature Comparison between Nuclear DNA and Mitochondrial DNA

1.3 — mtDNA and Forensic Sciences

As described above, mtDNA has a higher mutation rate has nDNA and proceeds from the mother bloodline. Moreover, mtDNA exhibits another major characteristic: resistance to outside factors and aggressions. Being small, circular and easily condensable. mtDNA is more protected against endonuleases than nuclear DNA. Therefore, is more resistant to degradation caused by decomposition and environmental factors.

The most interesting area of mtDNA, as far as forensic sciences are concerned, is the displacement loop, or D-loop, which is the non-coding segment of the mtGenome that maintains elements for initiation of transcription and replication but does not code for any gene products. This is the region of mtGenome that the forensic community routinely sequences for forensic casework. Since the D-loop is a non-coding segment of DNA, variability within this region is conserved which

is highly significant to the forensic scientist, since differences detected between individuals allow forensic investigators to understand that they do not belong to the same maternal line.

Many forensic laboratories have focused on sequences within the non-coding control region of the mtGenome that exhibit a higher mutation rate than the normal average rate on mtDNA, more specifically, hypervariable regions 1 and 2 (HV1 and HV2) (Figure 2). Both regions were chosen because they exhibit a large number of polymorphisms and there is a high degree of variation between individuals. These positions are ordered according to the origin of replication and numbered according to the published standard reference sequence (Anderson *et al*, 1981).

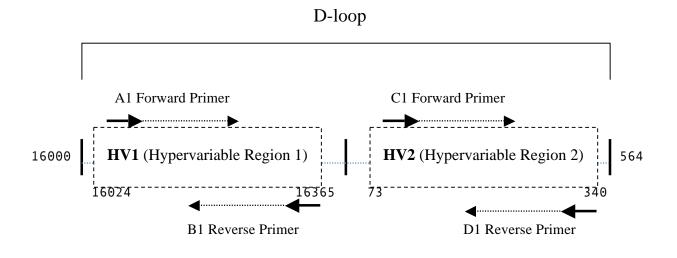


Figure 2 — Schematic of the D-loop of the mtGenome. The D-loop is an approximate 1.1 Kb fragment of the mtGenome. In this figure, HV1 and HV2 are shown within the D-loop and their common amplification primers.

In theory, HV1 covers positions 16024 to 16365 and HV2 covers positions 73 to 340 and their sequence is given by the revised Cambridge Reference Sequence (rCRS) (Andrews *et al*, 1999) (Figure 3).

Hypervariable Region 1

		-	1	U				
15971		ttaactccac	cattagcacc	caaagctaag	attctaattt	aaactattct		
16021	ctgttctttc	atggggaagc	agatttgggt	accacccaag	tattgactca	cccatcaaca		
16081	accgctatgt	atttcgtaca	ttactgccag	ccaccatgaa	tattgtacgg	taccataaat		
16141	acttgaccac	ctgtagtaca	taaaaaccca	atccacatca	aaaccccctc	cccatgctta		
16201	caagcaagta	cagcaatcaa	ccctcaacta	tcacacatca	actgcaactc	caaagccacc		
16261	cctcacccac	taggatacca	acaaacctac	ccacccttaa	cagtacatag	tacataaagc		
16321	catttaccgt	acatagcaca	ttacagtcaa	atcccttctc	gtccccatgg	atgacccccc		
16381	tcagataggg	gtcccttgac	caccatcctc	cgtgaaatca	atatcccgca	caagagtgct		
16441	actctcctcg	ctccgggccc	ataacacttg	ggggtagcta	aagtgaactg	tatccgacat		
16501	ctggttccta	cttcagggtc	ataaagccta	aatagcccac	acgttcccct	taaataagac		
16561	atcacgatg							
Hypervariable Region 2								
1 gatcacaggt ctatcaccct attaaccact cacgggagct ctccatgcat ttggtatttt								
1	gatcacaggt	ctatcaccct	attaaccact	cargggaget	ctccatocat	++~~+++++		
	0	cluicuccci	allaactact	Cacessager	ciccaigcai	liggialli		
61			gatagcattg		-			
	cgtctggggg	gtatgcacgc		cgagacgctg	gagccggagc	accctatgtc		
121	cgtctggggg gcagtatctg	gtatgcacgc tctttgattc	gatagcattg	cgagacgctg ctattattta	gagccggagc tcgcacctac	accctatgtc gttcaatatt		
121 181	cgtctggggg gcagtatctg acaggcgaac	gtatgcacgc tctttgattc atacttacta	gatagcattg ctgcctcatc	cgagacgctg ctattatta attaattaat	gagccggagc tcgcacctac gcttgtagga	accctatgtc gttcaatatt cataataata		
121 181 241	cgtctggggg gcagtatctg acaggcgaac acaattgaat	gtatgcacgc tctttgattc atacttacta gtctgcacag	gatagcattg ctgcctcatc aagtgtgtta	cgagacgctg ctattattta attaattaat cacagacatc	gagccggagc tcgcacctac gcttgtagga ataacaaaaa	accctatgtc gttcaatatt cataataata atttccacca		
121 181 241 301	cgtctggggg gcagtatctg acaggcgaac acaattgaat aacccccct	gtatgcacgc tctttgattc atacttacta gtctgcacag CCCCCgcttc	gatagcattg ctgcctcatc aagtgtgtta ccActttcca	cgagacgctg ctattatta attaattaat cacagacatc acttaaacac	gagccggagc tcgcacctac gcttgtagga ataacaaaaa atctctgcca	accctatgtc gttcaatatt cataataata atttccacca aaccccaaaa		
121 181 241 301 361	cgtctggggg gcagtatctg acaggcgaac acaattgaat aaccccccct acaaagaacc	gtatgcacgc tctttgattc atacttacta gtctgcacag CCCCCgcttc ctaacaccag	gatagcattg ctgcctcatc aagtgtgtta ccActttcca tggccacagc	cgagacgctg ctattatta attaattaat cacagacatc acttaaacac tttcaaattt	gagccggagc tcgcacctac gcttgtagga ataacaaaaa atctctgcca tatcttttgg	accctatgtc gttcaatatt cataataata atttccacca aaccccaaaa cggtatgcac		
121 181 241 301 361 421	cgtctggggg gcagtatctg acaggcgaac acaattgaat aacccccct acaaagaacc ttttaacagt	gtatgcacgc tctttgattc atacttacta gtctgcacag CCCCCgcttc ctaacaccag cacccccaa	gatagcattg ctgcctcatc aagtgtgtta ccActttcca tggccacagc cctaaccaga	cgagacgctg ctattatta attaattaat cacagacatc acttaaacac tttcaaattt attttcccct	gagccggagc tcgcacctac gcttgtagga ataacaaaaa atctctgcca tatctttgg cccactccca	accctatgtc gttcaatatt cataataata atttccacca aaccccaaaa cggtatgcac tactactaat		
121 181 241 301 361 421 481	cgtctggggg gcagtatctg acaggcgaac acaattgaat aacccccct acaaagaacc ttttaacagt ctcatcaata	gtatgcacgc tctttgattc atacttacta gtctgcacag CCCCCgcttc ctaacaccag cacccccaa caaccccgc	gatagcattg ctgcctcatc aagtgtgtta ccActttcca tggccacagc cctaaccaga ctaacacatt	cgagacgctg ctattatta attaattaat cacagacatc acttaaacac tttcaaattt attttccct cagcacacac	gagccggagc tcgcacctac gcttgtagga ataacaaaaa atctctgcca tatctttgg cccactccca	accctatgtc gttcaatatt cataataata atttccacca aaccccaaaa cggtatgcac tactactaat		

Figure 3 — The Sequence of Hypervariable Regions 1 and 2. The sequence of HV1 and HV2 and their corresponding position number (Andrews *et al*, 1999).

All of these factors make mtDNA an obvious target for forensic identification of individuals. Though not individualizing *per se*, mtDNA allows the determination of a maternal bloodline, and can be easily compared and matched to individuals of that same bloodline. Besides, some mutations in mtDNA can also identify different population groups. Over the years, these sequences have been under intense population study and most of the mutations are well described for specific groups. Besides, due to the nature of forensic investigation, standard sequencing techniques have been developed that are not only highly reliable but also reproducible. Also, due to the big demand of such studies by the forensic community, these two regions (HV1 and HV2) have been sequenced over and over, using similar primers, sequencers, chemistries and protocols. This phenomenon produced a huge database of comparable sequences.

1.4— Interpreting trace sequence data

In order to study differences and mutations in mtDNA, the forensic scientist must be able to read and find differences in trace sequence files.

The usual procedure of analysis for DNA sequence traces involves converting the raw data to an analyzed .AB1 file by pressing a button in the software application that came with the sequencer and then usually printing the resulting electropherogram for further analysis.

Even with the advent of computers, most forensic scientists still rely on their experience and know-how to study sequences, going through each and every base of the DNA sequence trace.

When doubts appear, scientists will go back to the sequence file to dig further into the electropherogram to clarify the sequence.

This is obviously an expensive, laborious and time consuming task that requires scientists to go back and forth in the sequence, spending a lot of time and money just to be able to study the sequence. Some software companies have been working hard to provide scientists with advanced systems: programs that can analyze trace sequence data, flag changes and orient the scientist work in a more focused and productive way.

Yet, to date, no program has been developed that is simple, reliable and a serious alternative to pen and paper for forensic analysis. This is not just a problem of software design but also mainly a problem of what quality parameters the software looks at and the response it can give to the scientist once it analyzes sequences. To date, most software packages are based on a quality assessment called Phred, which is an application capable of base calling and provide computed quality scores to those base calls defining peak signal-to-noise ratio and overall quality of for the given peak. These quality values are called Phred scores (Ewing *et al*, 1998). Though very important and informative, Phred scores alone cannot distinguish a glitch on the sequence from an interesting feature such a mutation or mixture. Also, though the overall sequence trace quality can be given, these scores say little about what interesting features that might exist.

It is then of the utmost importance for the development of better software that new quality parameters are characterized so that software can analyze sequences in a comprehensive and integrated way and also judge sequences based on a new parameter: context.

1.5— Early pattern findings

Ten years ago, a revolutionary work established the first real importance of patterns in DNA sequences and suggested a new way to produce quality assessments from sequence data: by looking at the peak heights (Zakeri *et al.*, 1998).

Peak heights values, by themselves, mean very little. They are dependable on concentration and the signal produced by the dyes when passing the CCD. They vary constantly and can be different even if the same sample is run on the sequencer again. Though their absolute value is meaningless, Zakeri *et al.* were the first to propose that the way they relate to each other does, indeed, have a meaning.

This group was the first to look at a frame of three bases and describe how to measure the peak by defining the height at the higher inflexion point of the peak or the highest point of the peak. By knowing peak heights they devised a simple qualitative way of, using a relative height system, study the behavior of each frame and predict the height, within the frame, of the other two bases when given the base and height of just one of the bases in the frame.

At the time their results were promising yet mostly inconclusive. Having only studied part of the problem and very few sequences, they were not able to prove any solid relation between the height of the last peak and the rest of the peaks and the relations between chemistries.

Yet, they were the first to address the issue and, though their approach to the problem was superficial and misrouted, they did excel at defining patterns and were the first to suggest the idea of using peak height pattern information in integrated software tools to gather additional quality information on the sequenced DNA. Unfortunately their work had very little impact at the time and was cast to oblivion until recently, when new evidence suggested other ways of looking at the problem and technology evolved so that today we can output and manipulate peak height information in a much faster automated way.

1.6— New pattern findings

In 2006, Rhonda K. Roby from the University of North Texas started a new approach and looked at peak height information in a novel way. If Zakeri *et al.* had just looked at the last height, Roby started looking at the entire frame and comparing the heights of all three peaks. Moreover, being a forensic geneticist, she was able to look at a bigger batch of similar, but different sample,

sequences. Though she used a very rough, by hand, study technique (much as Zakeri *et al.* work), this time, her preliminary results were not inconclusive at all. The distribution of some patterns did, in fact, appear and have statistical significance on some types of base combinations. Hence, it started to make sense that peak height patterns were not random and perhaps could be a good quality assessment tool for sequence analysis.

1.7 — Objectives

This work focuses on the construction of computer tools that allow the analysis of a much bigger volume of trace data and hence, a more comprehensive and exhaustive characterization of peak height patterns in trace sequence frames. The goal of this work is to define procedures and methods to look at the peak heights of DNA sequence trace data and be able to translate sequences into frames and their respective patterns. Moreover, we also want to be able to predict patterns for each frame, define what is affecting pattern formation and provide the bases for the development of improved DNA sequence analysis tools: the expert systems. The characterization of peak height pattern distributions could lead to a new important quality assessment parameter for DNA sequence trace data and for the first time be able to provide contextualized quality scores for data. Chapter 2 _____ Materials and Methods

2.1 — Reading and exporting trace sequence data

Every company that makes sequencers also produces the software tools to read and export the data produced during the sequencing procedure. In addition, every major sequencing company produces its own type of files. Mostly, they are closed source code, that is, proprietary and can only be read using the company software. Yet, companies usually distribute free software that can read their own files.

Applied Biosystems is, perhaps, the major company in the sequencing business. All of the data, taken from the sequencer is stored in a proprietary .AB1 file. This file includes the actual data taken from the run and also appends metadata to it such as run procedures, dates, settings, etc. Since these file types have become so popular, a great effort has been made, throughout the years, to reverse engineer the files and obtain the actual data taken from the instrument. Nowadays, many open source tools that have been developed and are able to read and export data out of .AB1 files. Recently, Applied Biosystems noticed this phenomenon and decided to share the information concerning .AB1 file format and opened it to everyone. Currently, writing and reading .AB1 files is simple and can be done reliably with most sequence analysis tools.

Some of these tools include Sequence Scanner Software, by Applied Biosystems themselves, Mutation Surveyor[®] by SoftGenetics LLC, 4Peaks by A. Griekspoor and Tom Groothuis (mekentosj.com) and FinchTV by Geospiza INC.

All of these tools can read .AB1 files and some can even write new information into the files. Mutation Surveyor[®] packs an exclusive feature built first for this study but now available to everyone: it can output the data taken from the sequencer into a simple tab-delimited text file. The file produced can then be processed using the methods described later. This unique feature is of major importance because it allows the manipulation of trace sequence data in a way that was not possible before. It is, surely, of crucial importance for this investigation.

2.2 — Defining patterns

As described earlier in the introduction, the existence of patterns in the heights of DNA sequence trace data is not something unknown, but it was not well described.

Yet, in order to describe patterns, one must firstly define what patterns are.

For each point where a base call is done, a single dye will be predominant within the four dyes. And the intensity signal at that point, for that dye, will be the height of the peak for that base.

For simplicity sake, frames of triplets were chosen, as they are the ideal candidates for this kind of study. Including three height values allows a descriptive, but not over descriptive analysis of the data. These three peak heights are described in Table II:

Table II – Height definition for Peaks

Minimum	Medium	Maximum
1	2	3

So, it can be assumed the existence of three different heights for each base call that can be combined in six different ways, named A, B, C, D, E and F as explained in Table III:

Α	В	С	D	Е	F
123	132	213	231	312	321

 Table III – Pattern definitions from heights

2.3 — Patterns in sequences

Now that patterns are defined, it is necessary to look at the sequences and understand how patterns are found throughout the sequence trace (Figure 4).

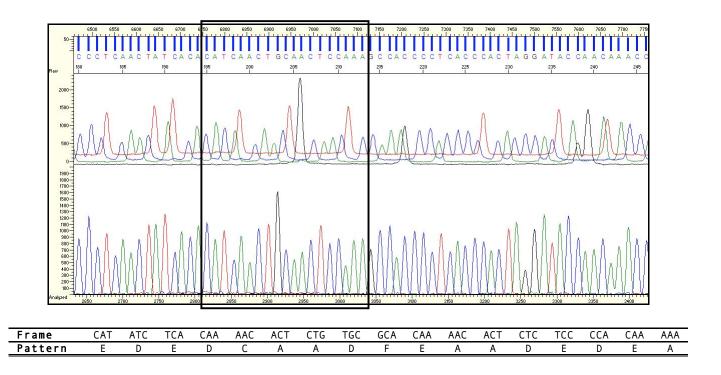
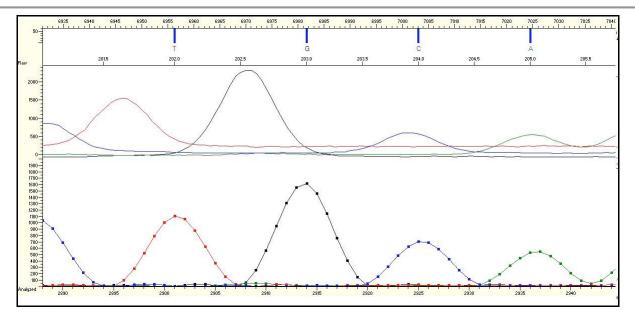


Figure 4 — Patterns in sequences: above, an example sequence is shown with base calling, raw data and analyzed sequence trace data depicted. The box highlights one area where patterns were characterized for each frame, as it is seen in the Table of frame and patterns.

Each frame is characterized advancing a single base on the sequence at a time and describing the three peak heights for that frame in a qualitative way. It is, therefore, simple to go from the trace sequence file and find patterns for each frame. This process can be done by hand but can also be automated because traces are formed by specific data points connected with a line. These data points can be exported and, for each frame, different dye fluorescent values can be described (Figure 5)

Characterizing patterns in DNA sequence trace data through informatics tools



Relative position	Green	Blue	Yellow	Red	Base Call	Phred Score	Base Position
2004	7	1030	19	12	С	59	200
2005	6	899	19	19			
2006	6	631	17	29			
2007	6	344	13	26			
2008	5	125	12	8			
2009	3	13	13	Θ			
2010	Θ	Θ	17	3			
2011	Θ	9	18	129			
2012	Ō	32	13	367			
2013	1	34	3	672			
2014	1	21	Ō	950			
2015	ē	4	5	1097	т	59	201
2016	õ	0	23	1035	•	55	201
2017	õ	õ	35	800			
2017	7	2	23	493			
2019	20	6	3	220			
2020	34	8	õ	45			
2021	45	7	74	0			
2022	48	2	334	3			
2022	40	õ	735	18			
2024	30	0	1178	25			
2025	17	1	1515	14			
2025	7	10	1610	0	G	53	202
2027	4	15	1394	0	G		202
2027	6	7	991	2			
2029	11	Θ	549	12			
2029	14	0	200				
2030	14 14			19 22			
2031		45	12	22			
	8	178	0				
2033	2	368	8	18			
2034	2	560	29	18			
2035	6	685	27	19	~		202
2036	11	693	8	21	С	53	203
2037	11	569	0	23			
2038	3	375	õ	22			
2039	Θ	186	5	19			
2040	15	54	19	16			
2041	80	3 0	27	15			
2042	202	0	26	16			
2043	355	7	22	17			
2044	484	14	19	19			
2045	538	9	17	21	Α	59	204
2048	183	Θ	13	20			
2049	72	4	10	20			
2050	72	5	7	21			

Figure 5 (previous page)— Data workflow: From points to peak height values. The image displays the data points for the relative positions 2004 to 2050 as seen in Sequence Scanner Software. The same points are shown in the table obtained from Mutation Surveyor[®]. This table contains all the height values for the analyzed points in this region, the base call for any dye, position, and quality scores for each of those base calls.

As stated before, peaks are the result of height points for each dye that are joined by a line. This study uses the data contained in each base call; yet, much more data is included in each peak. These data could be used, but decisions were made to rely on the basecaller and just analyze the height values of each dye for the points where base calls were made.

Raw data contains much more information than processed sequence data. This happens because raw data is analyzed by the basecaller which finds peaks, baselines heights, assigns bases and smoothes the peaks. This is clear in Figure 6:

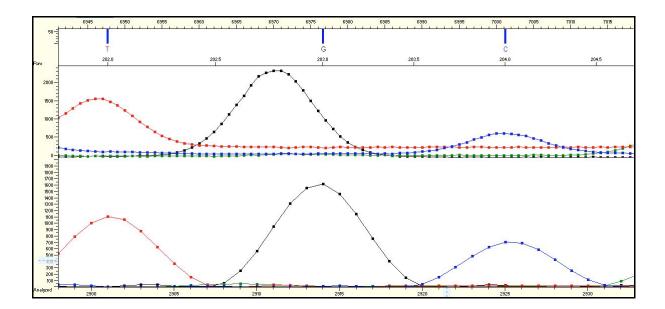


Figure 6 — Comparison of the number of points from raw to analyzed sequence trace data

All in all, the process of describing frames and calculating patterns is simple and can be easily automated. By knowing the fluorescent values of each dye at the base call it is possible to calculate the relative heights for each peak on the frame and then advance a base to find a new frame and repeat the process over and over until the end of the sequence. This is the basic procedure for finding patterns for each frame and describing frame patterns in each sequence trace file.

2.4 — Advanced patterns

Sometimes, because of the resolution of the sequencer, peak heights on more than one base call, within the same frame, can be identical or very similar. In these cases, new patterns, called groups, must be defined (Table IV).

Table IV - Group definitions from heights

Alfa (α)	Beta (β)	Gamma (y)	Phi (ø)	Chi (χ)	Psi (ψ)	Null
3 1.5 1.5	1.5 3 1.5	1.5 1.5 3	1 2.5 2.5	2.5 1 2.5	2.5 2.5 1	222

In this study, groups are only defined if the peak height values for two bases are identical. It could be defined a threshold of the sequencer error where patterns could be similar. Yet, for simplicity, this latter option was discarded.

The existence of these groups makes possible that, what was one type of pattern can become one type of group if the sequencer sensitivity is not enough. These combinations are explicit on Table V:

Table V – Possible group combinations by pattern if there are two equal minimum peaks or two equal maximum peaks

	А	В	С	D	Ε	F
2 Min	γ	β	γ	β	α	α
2 Max	φ	φ	χ	ψ	x	ψ

But there is still another observation with the sensitivity of the sequencer: Flip-Flopping.

If two of the peak heights are equal or very similar, the same sequence run twice in the sequencer could show different values for each of those heights due to the sensitivity of the device. If this happens, then it is possible for the two peak heights to exchange places. If one was higher

than the other by just a little, it can become lower and hence, produce a different pattern. These are called Minor changes, or flip-flops, if, and only if, thresholds are not considered. Flip-flops are quite frequent in trace sequence data. Following this reasoning, Major differences occur when more than two heights in the frame change or changes are above defined thresholds. Major differences are much more significant, as they are much less possibly caused by resolution problems as Minor ones. If thresholds were considered, a minor flip-flop that would change peak heights over the defined threshold would no longer be considered a minor change but a major change. For simplicity sake, no thresholds have been considered throughout this study. Hence, group formation will only be shown when two peak height values are identical. Therefore minor and major differences will occur as described in Table VI, according to each pattern:

Table VI — Major/minor changes

	A (123)	B (132)	C (213)	D (231)	E (312)	F (321)
A (123)	-	Minor	Minor	Major	Major	Major
B (132)	Minor	-	Major	Minor	Major	Major
C (213)	Minor	Major	-	Major	Minor	Major
D (231)	Major	Minor	Major	-	Major	Minor
E (312)	Major	Major	Minor	Major	-	Minor
F (321)	Major	Major	Major	Minor	Minor	-

Groups, combinations and flip-flops are relevant when analyzing data for important features and its characterization also provides flexibility to the system of patterns that was described previously.

2.5 — Python^{TM} and the scripts to evaluate patterns in sequence trace data

Python is a very popular dynamic object-oriented programming language, based in a simple syntax and therefore very easy to learn. Python is also open source and platform independent, which makes this particular language widely available from desktops to mobile devices and web servers. Moreover, given its outstanding capabilities in handling text strings, Python has become a very

popular language for bioinformatics. All in all, Python is a great programming language for building applications capable of processing the text data used in this work.

Three scripts were written to process data out of Mutation Surveyor[®]:

"**Sanger**" – The pattern finder script. It recalculates base calling, builds frames and finds the patterns in each of those frames. This is the core tool. Since it is programmed in Python, its easily modifiable according to specific data changes.

"Cleaner" – An optional script that goes through the "Sanger" output file and finds repeating mononucleotide frames, choosing only the first. This cleaning process is important because it allows for the elimination of non-independent observations.

"**Reporter**" – This is a counting and organizing script. Reporter counts each occurrence of frames and patterns by scanning and counting the files produced by either "Cleaner" or "Sanger". Also, "Reporter" writes its counts to a text file that can be easily imported into MicrosoftTM Excel[®] for further processing.

Special nomenclature – Some scripts have several versions and therefore may be named differently. "Cleaner_NI" finds only non-independent mononucleotide repeats. "Reporter_CD" is a version of "Reporter" capable of counting the number of cleaned frames after the "Cleaner" processing.

All of these scripts are run in a Terminal window by calling on the Python Interpreter. Moreover, they allow the user to specify the file to process or ask the script to process all the text files in a folder and also allow the user to choose the location and name of the output file.

Other scripts were built to help formatting the results. They are either called the comparison scripts that can compare between two sequences, frame by frame, pattern by pattern or the formatter scripts that take data from the comparison and format it so that is easily readable.

2.6 — MicrosoftTM Excel[®] as a tool to analyze the statistical significance of patterns

In order to analyze the statistical significance of patterns, special Excel[®] spreadsheets were developed.

Microsoft[™] Excel[®] is a simple, widespread spreadsheet environment and, even though it is not an application built to deal with sophisticated statistical analysis, it manages a simple Chi Square Goodness of Fit test well. Moreover spreadsheets in Excel[®] are easy to program, format and deliver or export to other applications.

Two types of spreadsheets were built to study the significance of peak height patterns.

The "1x6" spreadsheet, which performs a Chi Square Goodness of Fit test for a single data sample for each frame and analyzes the distribution of patterns, deeming them as random or not, and the "2x6" spreadsheet, which also performs a Chi Square Goodness of Fit test for a pair of samples for each frame, calculating the significance of pattern distribution of each frame, comparing both distributions for each frame and deeming them as uniform or not.

These spreadsheets are able to process and format data in a way that the results from the scripts are understandable. Also, these spreadsheets are able to calculate the statistical significance of each count for each frame, automatically, and produce results. Yet, this automated process is not error-free and all datasets have been reviewed upon import into Excel[®].

After reviewing, when necessary, further statistical testing was performed to the data using the Kolmogorov-Smirnov goodness of fit test.

The Kolmogorov-Smirnov test is a nonparametric test of equality of one-dimensional probability distributions that is used to compare a sample with a reference probability distribution (one-sample K-S test), or to compare two samples (two-sample K-S test). The Kolmogorov–Smirnov test statistic quantifies a distance between the empirical distribution function of the sample and the cumulative distribution function of the reference, or between the empirical distribution function functions of two samples. This test allows comparing our distribution of patterns with an empirical expected distribution (random in our case) and is mostly useful when there are few observations. Alas, it is not a very powerful test but it allows for the validation of the Chi Square test results

calculated with too few observations (especially in cases of distributions that show few observations all gathered around 2-3 pattern types).

The biggest drawback of the Kolmogorov–Smirnov test is that is not viable to program it into a simple Excel[®] spreadsheet. Yet, the Excel[®] spreadsheets are capable of handling all the statistic calculations that were done, since the Kolmogorov–Smirnov tests are only used on specific occasions to validate the Chi Square Goodness of Fit tests.

2.7 — Workflow - From the .AB1 trace data file to Excel[®]

Now that every step of the procedure was described by itself, from the definition of patterns or how frames are built to the statistical analysis of the results, the workflow used for processing the data will be described. The workflow used throughout this study for each batch of data is as follows (Figure 7):

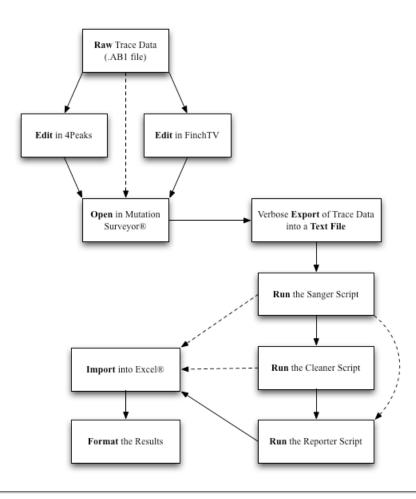


Figure 7 (previous page)— Data workflow: from the AB1 Trace File to Excel[®]. Files are opened in either 4Peaks or FinchTV for editing; if not, they are opened directly in Mutation Surveyor[®]. Then, data are exported into a text file to be processed in the Sanger Script either individually or as a batch. Data are then processed all the way into the Reporter Script and then imported into Excel[®]. Dashed arrows indicate possible, yet not very common variations of the workflow.

2.8 — Workflow – Usual sequence analysis

Most researchers follow a simple procedure to analyze DNA sequence traces. This procedure is depicted in Figure 8:

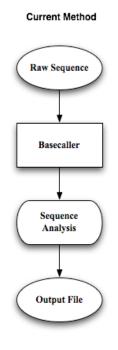
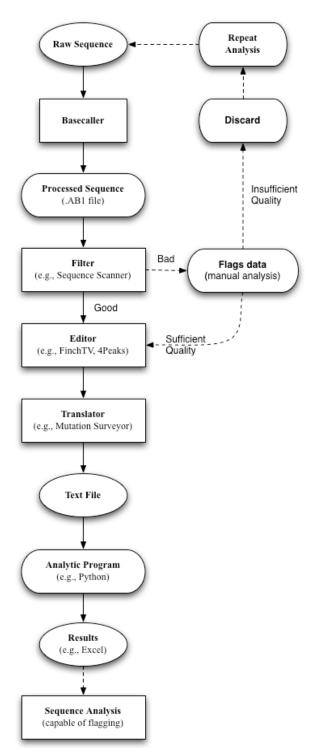


Figure 8 — Typical workflow: the raw sequence is processed within a software package and sequence analysis is exported to the output file, which is usually printed. Users don't intervene during the process.

The methodology followed, throughout this study is quite different as it was described before. This study proposes a better solution for the workflow. The workflow used is based on the best features of some software tools combined together to empower the analysis of trace sequence data in a more comprehensive way (Figure 9).



More Automated Method

Figure 9 — Our workflow is based on a more complex analysis of sequence trace data. Data is processed, filtered, translated and analyzed using different software tools; however, we must intervene on every step of the process.

Looking at the earlier procedure and the way we were able to take existing tools and use bits and parts of them in order to provide a better sequence analysis, we can now propose a new way to look at and analyze sequence data: an expert system. The backbone of such system is shown in Figure 10.

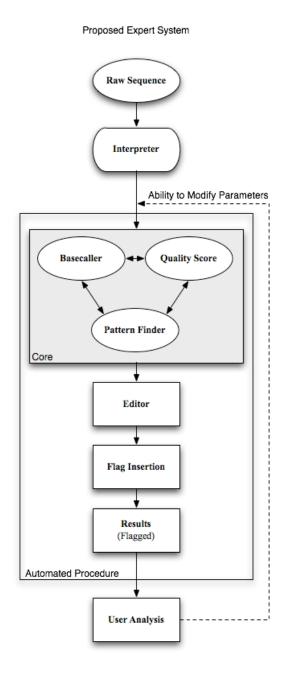


Figure 10—Proposed expert system. An expert system is an automated software tool that can look at sequence data and, without user intervention, flag problems in the sequence. Data is fed to the system, processed and the output is ready, with all quality parameters assured, for interpretation by the analyst.

This expert system should be able to read sequence data, call bases, provide quality scores for those bases and find patterns within frames. Then, gathering these three bits of information, patterns, base call and quality, it would be able to edit and trim bad areas and/or flag bad bases, error points or mismatches. All in all, it would offer the user a digested view of the sequence rather than the simple, unprocessed results currently scientists are forced to analyze. An expert system such as this would, therefore, allow a much quicker analysis of large sequence datasets and also a more reliable and consistent way of gathering quality information from the data.

2.9 — Data sources

Throughout our study we used data from routine mtDNA samples that had been processed for forensic purposes only, using similar methodologies and processing protocols: either BigDye[®] Terminator v.1.1 Cycle Sequencing Kits (Applied Biosystems, Foster City, CA, USA) or dRhodamine Terminator Cycle Sequencing Kits (Applied Biosystems). The sequences were read in similar ABI PRISM[®] 3100 and 3130*xl* Genetic Analyzers in certified high quality facilities. The data used comes from two different laboratories, the University of North Texas Health Science Center (Laboratory 1 or A) and the Serviço de Genética Forense from the Instituto Nacional de Medicina Legal (INML), Delegação Centro (Laboratory 2 or B). All of the data used is of classified nature, and stripped down of any information that is not relevant for this investigation.

Also, there was the opportunity to work with data from the sequencing facility at BioCant. Yet, for technical reasons that will be explained later, this data was not analyzed. Chapter 3 _____

– Results

Preliminary note about the results:

In this study, results are always shown as a summary of the processed data. For each section, examples of the data used can be found on the indicated annex. This option has been determined due to the unusual length of the data itself, which would force a trimming of most of its contents if it were to be shown, or else a very long document. Yet, every example, though lengthy, has been chosen carefully to provide you, the reader, with a clear view of every step taken in the elaboration of the results. The data used throughout the study is available electronically on the CD that you can find on the back of this book, organized in folders by sections. Information about system requirements and copyright notice is also printed on the back of this book.

3.1 — The same sample run on the same instrument with all chemistry parameters held constant produces similar sequence patterns

In order to prove the existence and meaning of patterns, the first question that must be answered is whether peak height patterns within each frame are kept constant if the same sequence is run several times in the same instrument. If so, this will mean that patterns are not a totally random event.

To do so, a sample of one individual was taken and distributed into two wells on the same plate and then the sequencing procedure was run using the usual laboratory routine. Figure 11 shows the two electropherograms of the same sample run twice on the same instrument:

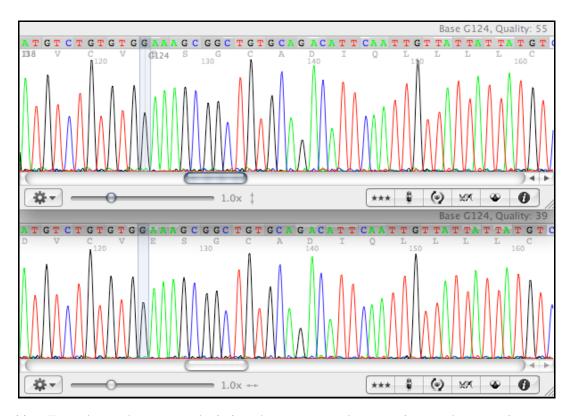


Figure 11 – Two electropherograms depicting the same sample run twice on the same instrument using BigDye 1.1 chemistry and POP-6. The sample is of mitochondrial origin and was sequenced using a D1 primer.

Figure 12 shows six electropherograms of the same sample run constantly over and over on the same instrument:

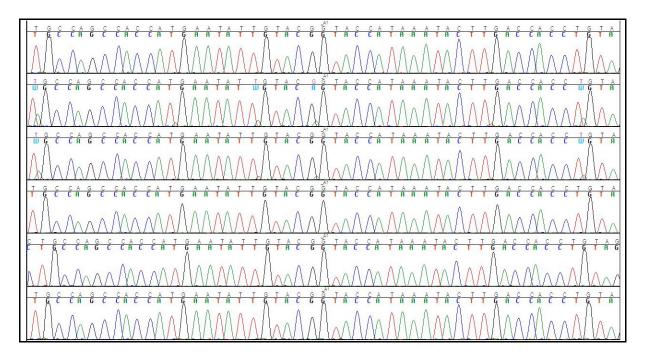


Figure 12 – Six electropherograms depicting the same sample run on the same instrument using BigDye 1.1 chemistry and POP-6. The sample is of mitochondrial origin and was sequenced using an A1 primer.

As seen in both Figures 11 and 12, it is clear that peak height patterns are kept constant on multiple runs for the same sample.

In order to mathematically analyze this observation, the same sample was run twice in the same instrument (divided into two wells) and then the two sequences were, aligned, run through processing scripts and compared. Then the same was done for other primer combinations. Please refer to Table A in Appendix I for an example of the results. Table VII summarizes the results of all these comparisons.

Comparison	Total Frames	Diff. Frames	Dif. Patterns	Same Frame, Dif. Pattern	Major differences
A1	380	3	34	31	0
B1	250	0	14	14	0
C1	357	0	12	10	0
D1	362	0	15	13	0

Table VII – Difference comparison between the same samples run twice on the same instrument.

Notice that the first ten frames of each sequence were discarded because of noise and trimming artifacts and that major differences are counted if, and only if, a minor one does not

precede them because otherwise it would not be an independent event. Of relevance, notice the small number of pattern differences (<10%) and the almost absent number of different frames.

3.2 — Different samples run on the same instrument with all chemistry parameters held constant produce similar sequence patterns

The last section showed that patterns are kept constant when the same sample is run, using the same parameters, more than once on the same instrument.

Now, the second question to answer is whether peak height patterns are kept constant if samples are different but the parameters are kept the same. Hence, to know if two different samples behave in a similar way and show similar patterns if the parameters are kept constant and, if that is true, know if those results can be pooled together.

To do so, two different mtDNA samples belonging to two different individuals were taken and, keeping all the primer and chemistry parameters constant, the sequencing procedure was run on the same instrument. Figure 13 shows two of those samples run in the same instrument.

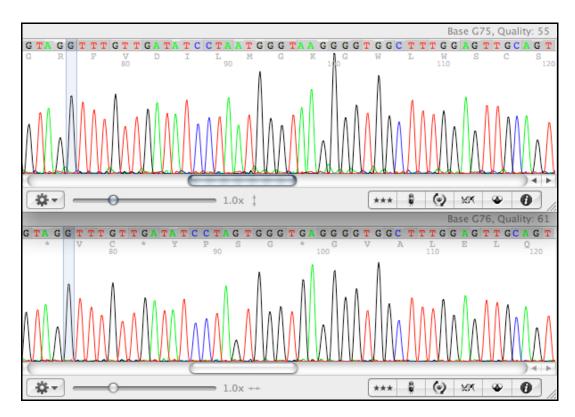


Figure 13 (previous page)– Two electropherograms depicting two different samples on the same instrument using BigDye 1.1 chemistry and POP-6. The samples are of mitochondrial origin and were sequenced using a B1 primer.

As seen in Figure 13, is clear that peak height patterns are kept mostly constant from sample to sample. Bases may change, peak heights may also change as so do patterns, but the same frame will show very similar pattern behavior from sequence trace to sequence trace.

In order to mathematically analyze this, sequence traces from each of two different samples were aligned, run through-processing scripts and compared. Then, the same process was performed for other primer combinations. Refer to Table B in Appendix I for an example of the results. Table VIII summarizes the results of these comparisons.

 Table VIII – Difference comparison between two different samples run on the same instrument.

Comparison	Total Frames	Diff. Frames	Dif. Patterns	Same Frame, Dif. Pattern	Major differences
A1	148	8	35	27	1
A2	81	8	26	14	2
B1	220	18	66	47	1
C1	194*	9	47	34	1
C2	122*	3	36	29	1

* Usable number of frames (before or after sequence mismatch). All values are calculated over this number.

Again, notice that the first ten frames of each sequence were discarded because of noise and trimming artifacts and that major differences are counted if, and only if, a minor one does not precede them because otherwise it would not be an independent event.

It is clear that, though differences do occur, most patterns are kept constant from one sample to the other. Moreover, very few major differences occur (no more than two significant differences in any comparison).

This indicates that, though samples are different, similar sequences will produce similar patterns. Moreover it indicates that, because they are similar, different traces from different samples analyzed will show enough similarities so that they can be pooled together and provide the same results. This will be demonstrated later on.

3.3 — The same sample run on different instruments within the same laboratory with all chemistry parameters held constant produces similar patterns

Another preliminary question to answer is whether pattern behavior within frames is dependent on the chemistry and parameters used or the instrument itself.

In order to answer that, the same sample was taken and, keeping all the chemistry parameters constant, run through the sequencing procedure on two different instruments, but within the same laboratory.

These two sequence traces were, aligned, run through the processing scripts and compared. Please refer to Table C in Appendix I for an example of the results. Table IX summarizes the results of these comparisons.

Comparison	Total	Diff. Frames (minus	Dif.	Same Frames, Dif.	Major
	Frames	cleaned)	Patterns	Pattern	differences
A1	369*	0	25	25	0
B1	332*	0	33	33	0
C1	89*	0	20	20	0
C2	94*	0	8	8	0
D1	327*	0	26	24	1
D2	145*	0	14	14	0

Table IX – Difference comparison between the same sample run on two different instruments.

* Usable number of frames (before or after sequence mismatch). All values are calculated over this number.

As usual, notice that the first ten frames of each sequence were discarded because of noise and trimming artifacts and that major differences are counted if, and only if, a minor one does not precede them because otherwise it would not be an independent event.

These results are very similar to those in section 3.1. Hence, the same sample run in two different instruments produces patterns in a similar way as if that sample were to be run twice in just one instrument. All in all, just one case of a significant major difference was found in one of the comparisons.

3.4 — Similar samples from the same laboratory can be pooled together

The results form the last sections suggest that patterns are kept constant within each frame, in the same laboratory, independently from the sample used if the chemistry and primer used are kept constant.

In order to prove that mathematically, batches of A1, B1, C1 and D1 sequences, using BigDye 1.1 chemistry, were pooled together and analyzed statistically for two different laboratories.

Since the process involves pooling together several sequences, comparisons had to be performed by using a simple Chi Square Goodness of Fit test. Refer to Table A and B in Appendix II for an example of the results. Table X summarizes these results.

Lab/Primer	Predictable Frames	Too little information	More than 4 blank patterns	Low Chi Square	Random patterns
Lab A A1	55	2	5	2	0
Lab B A1	52	5	6	1	0
Lab A B1	54	3	5	2	0
Lab B B1	54	4	5	1	0
Lab A C1	63	0	1	0	0
Lab B C1	56	0	7	1	0
Lab A D1	54	0	9	1	0
Lab B D1	60	0	3	0	1

Table X – Analysis of the predictability of patterns within frames.

Predictable frames are all the frames for witch the p-value of the distribution is higher than 0,00078125 and the Chi Square value is higher than 15,085, for a confidence of 95%. Values are only discarded for frames with less than 12 observations or low Chi Square value.

Notice that only one case, with 23 observations, produced a result that can be considered as a random distribution of patterns. There are 448 total predictable frames (87.5%) and 41 (8%) of all frame pattern observations were grouped in less than two types of patterns. Only about 5% of the frames had too little information, a low Chi Square value or showed a random distribution of patterns. It is then safe to assume that, given these results, peak height patterns within the same laboratory, for the same chemistry and primer are kept constant.

This is an important milestone. Not only peak height patterns are not random but also they can be grouped according to the primer and chemistry used for the same laboratory because they are the same. These results are consistent and corroborate the results found in earlier sections.

3.5 — Samples from different laboratories with all chemistry and primer parameters held constant produce comparable, but not identical, sequence patterns

In section 3.1 and 3.3 it was already addressed that the same sample run in different instruments will produce similar patterns. It is also known, from section 3.2 and 3.4, that sequences from different samples can be pooled together into batches if, and only if, they are produced in the same laboratory using the same chemistry and keeping all the parameters constant. All in all, the distribution of patters is kept constant within a laboratory in these conditions.

Now, the question is whether similar sequences will produce similar results in two different laboratories or not. It is important to know if sequence peak height patterns can be exported from one laboratory to the other if the parameters are kept constant or if these patterns are a characteristic of the laboratory that produced them.

To answer this question a batch of A1, B1, C1 and D1 sequences were pooled together from two different laboratories and compared. Refer in Appendix III to Table A and B for an example of the results. Table XI summarizes the comparisons.

Table XI – Comparison of frame patterns for the same chemistry in two different laboratories.	

Primer	er Comparable Not compa		Too little information	More than 6 blank cells
A1	30	19	2	13
B1	38	13	4	9
C1	32	28	0	4
D1	35	16	0	13

These results show that pattern formation from Laboratory A to B for any given primer is not as highly similar as it is from sample to sample within the laboratory or from instrument to instrument within the laboratory as it was previously shown. About a third of the time, the two laboratories exhibit frame patterns that are significantly different. Yet, the frame patterns formed in Laboratory A and Laboratory B are globally uniform and these results could be merged. Of notice, unmatched frames do not exhibit, sometimes, the same types of patterns. Sometimes, though pattern distribution for the frame is different, one of the pattern types is always missing, which might be a symptom of flip-flopping.

3.6 — Two different samples with different primers (hence different DNA sequences analyzed) but same instrument and chemistry do not exhibit the same patterns

To this point it has been made clear that, using the same chemistry and primers, the same region of the DNA, when sequenced, will produce similar patterns independently from the instrument used, but patterns may change from laboratory to laboratory. The next step is to understand if different regions of DNA will produce similar patterns within the same laboratory, that is, if patterns are determined only by the frame chosen or, if not, dependent also on the entire DNA sequence that is being sequenced.

To do so, one could take individual samples and compare them, but it is cleverer to look at batches of A1 sequences and compare them to B1, C1 and D1 sequences. Refer in Appendix IV to Table A and B for an example of the results. Table XII summarizes the results of these comparisons.

Table XII – Comparison	of frame patterns for the	e same chemistry but tw	vo different primers.

Primers	Primers Comparable		Too little information	More than 6 blank cells	
A1 – C1	2	52	0	10	
B1 – D1	4	51	0	9	
A1 – B1	3	52	0	9	

Since A1 sequences produce different types of patterns, for each frame than B1, C1 or D1 sequences, it becomes clear that different primers will produce different types of patterns for each frame, even within the same laboratory. Hence, peak height patterns in sequence data, though predictable, are also dependent on the DNA sequence.

3.7 — Same primers, similar samples but different chemistry produce different patterns

At this point it is known that the distribution of patterns are reporducible within frames if the laboratory, chemistry and primers are the same. Now, the remaining question is whether different chemistries produce different patterns or not.

To answer this question a batch of similar samples, processed in the same laboratory using different dye chemistries (dRhodamine or BigBye[®]) was taken for A1, B1, C1 and D1 primers.

These results were then compared for significance.

Refer in Appendix V to Table A and B for the results. Table XIII summarizes the results of these comparisons.

Primer	Comparable	Not comparable	Too little information	More than 6 blank cells
A1	5	54	0	5
B1	3	57	0	4
C1	1	63	0	0
D1	5	59	0	0

Table XIII – Comparison of frame patterns for the same primer but different chemistries.

* Usable number of frames (before or after sequence mismatch). All values are calculated over this number.

The results show that the chemistry used is also a major player in the formation of patterns for each frame. Different dye chemistries radically alter the distribution of patterns within each frame. Hence, the DNA area sequenced will influence the distribution of patterns, but also the dye chemistry used to obtain such sequences will alter the distribution of patterns for each frame. This means that even though if samples are sequenced using the same primer, changing only the chemistry within the same DNA sequence area will change the distribution of patterns.

3.8 — Explanation of the advanced statistical analysis

3.8.1 — Level of statistical significance for multiple comparisons

For section 3.4 to 3.7 (Appendices II through V), 64 frames were evaluated for statistical significance. At a significance level of 5% for a single test, the Type I Error is $\alpha = 0.05$. As an example a significance level of 5% for each of 20 different independent tests, the Type I Error is very high. The probability of at least one error is 1 minus the probability of making no Type I Errors, or 1 - P [no Type I Errors], and can be found using the binomial distribution when each test is independent of all other tests. The binomial distribution where n equals the number of tests (*e.g.*, n = 20) and p equals the probability of a Type I Error (*e.g.*, p = 0.05) is defined as:

$$P(X = x) = {n \choose x} p^{X} (1-p)^{n-X} \text{ where the mean} = \mu = np \text{ and the variance} = \sigma^{2} = np(1-p)$$

$$P(X = 0) = {20 \choose 0} (.05)^{0} (1-.05)^{20} = (.95)^{20} = 0.358$$
So, $P(X > 0) = 1 - P(X = 0) = 1 - 0.358 = 0.642$ for 20 independent tests.

And the expected number of Type I Errors = np = 20(0.05) = 1.0 for 20 independent tests. The probability of making no Type I Errors in 20 independent tests is 0.358; therefore, the probability of making at least one Type I Error is 1 - 0.358 = 0.642, or 64.2%. For 40 independent tests, the probability of at least one Type I Error is $P(X > 0) = 1-.95^{40} = 1 - 0.129 = 0.871$ and the expected number of Type I Errors is 2.0.

Therefore, for 64 independent tests, *i.e.*, 64 sequence frames, the probability of at least one Type I Error is $P(X > 0) = 1-.95^{64} = 1 - 0.0375 = 0.962$ and the expected number of Type I Errors is 3.2. At a significance level of 5%, it would not be surprising to find one or more significant tests by chance alone. In other words, the Type I Error associated with all 64 comparisons is no longer 5% but a higher value, namely 96.2%. The more tests that are performed the more likely it is that "significant results" will be found by chance when, in fact, no significant difference exists.

When there are "multiple comparisons," an adjustment should be made to keep the overall Type I Error to a minimum. One way to do this is to divide the α level by the number of independent tests (*i.e.*, 64 sequence frames; therefore, $\alpha/64 = .05/64 = 0.00078$). This yields a Type I Error of P(X > 0) =1-(1-.00078)^{64}=1 - (0.9992)^{64} = 1-0.951= 0.049. This adjustment keeps the overall level of significance at approximately 0.05 for 64 independent tests. However, there is a corresponding loss of power, $1 - \beta$, which occurs whenever the critical point is changed in a direction away from the null hypothesis, H₀. The adjusted critical point is determined by α/n making the rejection region smaller.

3.8.2 — Statistical significance of pattern distribution within the same laboratory

In section 3.4 it was studied data from two laboratories that were independently compiled and processed with our tools to establish if patterns were distributed uniformly within each frame.

Each of the four primers, A1, B1, C1, and D1, were evaluated to characterize the different patterns for each frame for the two different laboratories. The results from each laboratory were obtained using the same sequencing procedures. The null hypothesis is that each of the six patterns is equally likely. The p-value is the probability of observing a Chi Square greater than or equal to that observed under the null hypothesis of a uniform distribution with each cell having a relative frequency of 1/6 with 5 degrees of freedom. There are two tables in Appendix II. For Appendix II, Table A is the automated program previously described showing the Chi Square results and corresponding p-values for Primer A1 only. Table B presents the p-values for all of the primers for Laboratory B. The question being asked is:

"Within a frame, are the frequencies of the patterns distributed uniformly?" "Are the patterns equally distributed?" "Are the patterns equally likely?"

In symbols, that is:

H₀: P(A) = P(B) = P(C) = P(D) = P(E) = P(F)

Or,

"The patterns are equally likely."

Since there are 6 patterns:

P(A) = P(B) = P(C) = P(D) = P(E) = P(F) = 1/6H₁: H₀ is false

Some patterns are more likely than others within a given frame.

The test statistic used is the Chi Square Goodness of Fit Test. The Chi Square Goodness of Fit Test is used to test how well the data fit the null hypothesis that P(A) = P(B) = P(C) = P(D) = P(E) = P(F) = 1/6.

$$X^{2} = \sum_{i=1}^{n} \frac{(O_{i} - E_{i})^{2}}{E_{i}} = \sum_{i=1}^{6} \frac{\left(O_{i} - \frac{N}{6}\right)^{2}}{\frac{N}{6}} \text{ where } E_{i} = \frac{N}{6} \text{ for all expecteds}$$

The degrees of freedom, df, used in this test are determined by:

df = (number of cells) - (number of independent parameters estimated) – (number of restrictions) df = 6 - 0 - 1 = 5

The level of significance at a = 0.05 overall with 64 independent tests is 0.05/64 = 0.00078125 and the critical point with 5 df for Chi Square is 21.8322. H₀ is rejected if the calculated Chi Square with 5 degrees of freedom gives $X^2 > 21.8322$ with p < 0.00078125. Table XIV is an example of a Chi Square Goodness of Fit statistic test, which rejects the null hypothesis for frame AAA; the distribution of patterns is not equally likely. In summary, the null hypothesis for both Laboratory A and Laboratory B combined is rejected for 488 of 495 frames.

Table XIV — An example of a 1 x 6 Chi Square Goodness of Fit test rejected. The frame, AAA, yields very different frequencies between several patterns. Patterns A, C, and E are similar; however, B and F are much lower and D has no observations. The H₀ is rejected because $X^2 = 28.28$ which is greater than 21.8322 with p = 0.000032 which is less than 0.00078125. Hence, patterns are not distributed uniformly within a frame of AAA.

Pattern	A	В	С	D	E	F	TOTALS	
AAA	20	9	20	0	19	7	75	
Exp.	12.50	12.50	12.50	12.50	12.50	12.50		p-Value:
X^2	4.50	0.98	4.50	12.50	3.38	2.42	28.28	3.2086E-05

Table XV is an example of a Chi Square Goodness of Fit statistic test, which does not reject the null hypothesis for frame GCA; the distribution of patterns may be equally likely. In summary, the null hypothesis for both Laboratory A and Laboratory B combined is not rejected for seven of the 495 frames. For both laboratories, a total of nine frames are not applicable (N/A) since none or too few observations were seen for those frames. **Table XV** — An example of a 1 x 6 Chi Square Goodness of Fit test not rejected. The frame, GCA, yields different frequencies between the patterns but they do not differ much from the expected distribution of: N/6 = 50/6=8.33 under H₀. The H₀ is not rejected since X² = 8.08 which is less than 21.8322 with p = 0.15188 which is greater than 0.00078125. Hence, patterns may be distributed uniformly within a frame of GCA.

Pattern	Α	В	С	D	E	F	TOTALS	
GCA	9	13	2	9	7	10	50	
Exp.	8.33	8.33	8.33	8.33	8.33	8.33		p-Value:
X^2	0.05	2.61	4.81	0.05	0.21	0.33	8.08	0.15188144

For those frames with expected values less than that required in more than 25% of the cells, a One Sample Kolmogorov test was performed. The tables are not presented here; the p-values calculated with the One Sample Kolmogorov test statistic were generally consistent with those of the Chi Square Goodness of Fit test. A total of 19 of the 493 frames were calculated with the One Sample Kolmogorov test. Table XVI represents an example of the test performed to an ACC frame.

Table XVI — Example of One Sample Kolmogorov test. When there are 30 or fewer total observations, which would yield an expectation less than 5.00 (30/6 = 5.00), the One Sample Kolmogorov Test is performed. Although this test statistic is less powerful than the Chi Square, the results were generally consistent with the Chi Square Goodness of Fit test. CRF is the cumulative relative frequency; EXP CRF is the expected CRF which is always: 1/6, 2/6, 3/6, 4/6, 5/6, and 6/6 based on the H₀: Patterns are equally likely, P=1/6. |DIFF| is the absolute difference between CRF and EXP CRF. The H₀ is rejected because One Sample Kolmogorov = 0.611 which is greater than 0.371 with p <<0.01 and is consistent with rejecting H₀. Hence, the distribution of patterns is not uniform within frame ACC.

Pattern	Α	В	С	D	Е	F	TOTAL	
ACC	0.00	17.00	0.00	0.00	0.00	1.00	18.00	Compared to
CRF	0.000	0.944	0.944	0.944	0.944	1.000		X^2 p-value
EXP CRF	0.167	0.333	0.500	0.667	0.833	1.000		1.59481E-15
DIFF	0.167	0.611	0.444	0.278	0.111	0.000		
Critical po	oint at O	.01 with	n = 18 i					
(limit of t	able)			KOLM=	0.611	p <<0.01		

3.8.3 — Statistical significance of pattern distribution between two laboratories

The data from the two laboratories compiled and processed using our tools in Appendix II were subjected to another test for Appendix III. A $2 \ge 6$ Chi Square analysis was performed to compare the results from Laboratory A to Laboratory B with the four primers. The null hypothesis is that the distribution of patterns for the two laboratories is the same. The distribution of patterns within each of the 64 possible frames for Laboratory A was compared to Laboratory B.

There are two tables in Appendix III. Table A is the output of the automated program previously described showing the Chi Square results and corresponding p-values for the two laboratories for Primer A1 only. Table B presents the summary of the p-values for all of the primers and frames comparing distribution for Laboratory A to Laboratory B.

The question being asked is:

"Within a frame, do the two laboratories produce the same distribution of patterns?" "Are the probabilities of the patterns the same for the two laboratories?" "Is the distribution of patterns independent of the laboratory?

In symbols, that is:

 $\begin{array}{l} H_0: \ P(A \mid Lab \ 1) = P(A \mid Lab \ 2) = P(A) \ \text{ and } \ P(B \mid Lab \ 1) = P(B \mid Lab \ 2) = P(B) \ \text{and } P(C \mid Lab \ 1) = P(C \mid Lab \ 2) = P(C) \ \text{and } P(C \mid Lab \ 1) = P(D \mid Lab \ 2) = P(D) \ \text{ and } P(E \mid Lab \ 1) = P(E \mid Lab \ 2) = P(E) \ \text{and } P(F \mid Lab \ 1) = P(F \mid Lab \ 2) = P(F) \end{array}$

That is, for H_{1} ,

H₁: H₀ is false"At least one of the patterns is different between the two laboratories.""The distribution of the patterns is not independent of laboratory."

Table XVII is an example of a 2 x 6 Chi Square Goodness of Fit statistic test, which rejects the null hypothesis for frame ACC; the two laboratories do not produce the same distribution of patterns for Frame ACC using Primer C1.

Table XVII — An example of a 2 x 6 Chi Square Goodness of Fit test for independence rejected (Appendix III, C1, same chemistry). The frame ACC yields very different relative frequencies within several patterns as can be seen by comparing the observed to the expected and Chi Square contributions between the two laboratories. Patterns A and F are similar while C, D, and E are different and make major contributions to the overall Chi Square. The H₀ is rejected because the calculated $X^2 = 56.87$ which is much greater than 21.8322 with p = 5.38378E-11 which is much less than 0.00078125. Hence, the distribution of patterns is not independent between the two laboratories.

Pattern	Α	В	C	D	E	F	TOTALS	
ACC	242.00	89.00	144.00	35.00	98.00	105.00	713.00	
ACC	77.00	41.00	13.00	28.00	8.00	34.00	201.00	
TOTAL	319.00	130.00	157.00	63.00	106.00	139.00	914.00	
Exp.	248.85	101.41	122.47	49.15	82.69	108.43		X^2 p- value
Exp.	70.15	28.59	34.53	13.85	23.31	30.57		5.38378E- 11
X^2	0.19	1.52	3.78	4.07	2.83	0.11	12.51	
X^2	0.67	5.39	13.42	14.44	10.06	0.39	44.36	
						TOTAL	56.87	

Table XVIII is an example of a 2×6 Chi Square Goodness of Fit statistic test which does not reject the null hypothesis for frame ACT; the two laboratories may produce the same distribution of patterns for Frame ACT using Primer C1.

Table XVIII — An example of a 2 x 6 Chi Square Goodness of Fit test for independence not rejected (Appendix III, C1, same chemistry). The frame ACT yields similar relative frequencies within the patterns as can be seen by comparing the observed to the expected and Chi Square contributions between the two laboratories. The H_0 is not rejected because the calculated $X^2 = 5.58$ which is less than 21.8322 with p = 0.349 which is greater than 0.00078125. Hence, the distribution of patterns may be assumed to be independent between the two laboratories. Also note that there are three expected observations (i.e., 3/12 or 25% of the observations) less than 5.0 and their contribution is minimal; therefore, it is legitimate to use the Chi Square Goodness of Fit test.

Pattern	Α	В	С	D	E	F	TOTALS	
ACT	26.00	63.00	77.00	163.00	2.00	8.00	339.00	
ACT	13.00	14.00	18.00	49.00	0.00	4.00	98.00	
TOTAL	39.00	77.00	95.00	212.00	2.00	12.00	437.00	
Exp.	30.25	59.73	73.70	164.46	1.55	9.31		X^2 p-value
Exp.	8.75	17.27	21.30	47.54	0.45	2.69		0.349082834
X^2	0.60	0.18	0.15	0.01	0.13	0.18	1.25	
X^2	2.07	0.62	0.51	0.04	0.45	0.64	4.33	
						TOTAL	5.58	

For those frames with expected values less than that required in more than 25% of the cells, a Kolmogorov-Smirnov test was performed. The tables are not presented here but an example is given in Table XIX; the p-values calculated with the Kolmogorov-Smirnov test statistic were generally consistent with those of the Chi Square Goodness of Fit test. A total of 154 of the 246 frames were subjected to the Kolmogorov-Smirnov test.

Table XIX — Example of Kolmogorov-Smirnov Test (Appendix III, C1, same chemistry). When more than 25% of the cells had expectations less than five or when less than 25% of the cells were less than five and contributed significantly to the calculated Chi Square, the Kolmogorov-Smirnov Test, for Two Samples of size n and m, was used. Although Kolmogorov-Smirnov Test is less powerful, the results were generally consistent with the Chi Square Goodness of Fit test. CRF is the cumulative relative frequency.

Pattern	Α	В	С	D	E	F	TOTAL	Compared to
GGG	1.00	11.00	0.00	1.00	0.00	73.00	86.00	X^2 p-value
GGG	1.00	1.00	0.00	0.00	0.00	18.00	20.00	0.816549782
TOTAL	2.00	12.00	0.00	1.00	0.00	91.00	106.00	
CRF	0.012	0.140	0.140	0.151	0.151	1.00		<pre>Sqrt((m+n)/mn)=</pre>
CRF	0.050	0.100	0.100	0.100	0.100	1.00	KS	0.248
DIFF	0.038	0.040	0.040	0.051	0.051	0.000	0.266	
KS = Maxim	num Diffe	erence =	=	0.051	p>0.2			

In summary, the null hypothesis of independence of the distribution of patterns between Laboratory A and Laboratory B is rejected for 77 of 246 frames. It is not rejected for 169 of 246 frames. Ten frames have no observations. The fact that ten of the frames have no observations (the three consecutive bases in that frame does not exist for this region) is extremely important and can be programmed into the expert system for flagging if that frame were to appear. This could suggest that there is an erroneous result or it could suggest a very rare event.

These results demonstrate that the data obtained from the two laboratories are comparable but not the same. Each of the four primers, A1, B1, C1, and D1, were evaluated to characterize the different patterns for each frame. With these results, an expert system could be initially programmed with a single laboratory's parameters and then optimized for another laboratory with its own sequence data.

3.8.4 — Statistical significance of pattern distribution between two laboratories

Appendix IV uses the same tools to statistically evaluate each of the 64 frames using a 2 x 6 Chi Square analysis spreadsheet, comparing the results from data from different primers produced in the same laboratory. The results in Appendix IV demonstrate that the data obtained from the different primers are not comparable. Comparisons were made between Primers A1 and C1; Primers B1 and D1; and Primers A1 and B1. Data for each frame for the different primers cannot be pooled into a single database.

Appendix V also uses the same tools to statistically evaluate each of the 64 frames using a 2 x 6 Chi Square analysis spreadsheet, comparing the results from data from different dye chemistries for sequences produced in the same laboratory. The results in Appendix V demonstrate that the data obtained from the different dye chemistries are not comparable. Comparisons were made between BigDye v1.1 dye chemistry and dRhodamine.

3.9— Patterns can be predicted

All results suggest that, if the chemical parameters and primers used are kept constant, patterns can be predicted for a given laboratory in future sample runs.

This means that one can build a pattern reference table for each frame given the primer and chemistry used in the sequencing. We call this the Sequence Biometrics standard table for this chemistry/primer combination.

An example of such table is depicted in Table XX.

Table XX (next page) – Example of the frequency table of patterns for each frame in Laboratory B, using BigDye 1.1, chemistry and primer C1. Gray cells are less than 10% frequent (rare) and green cells are over 50% frequent or more frequent for that frame

	A	В	C	D	E	F	TOTAL	p-Value
AAA	20.90%	2.54%	46.87%	0.15%	16.72%	12.84%	670.00	7.3393E-121
AAC	35.72%	10.01%	14.22%	0.46%	33.11%	6.48%	879.00	1.8946E-117
ACA	9.19%	42.10%	1.25%	29.65%	8.70%	9.12%	1437.00	6.0921E-227
ACC	33.94%	12.48%	20.20%	4.91%	13.74%	14.73%	713.00	2.5634E-42
ACT	7.67%	18.58%	22.71%	48.08%	0.59%	2.36%	339.00	6.09762E-67
ACG	0.29%	5.57%	0.00%	65.98%	0.00%	28.15%	341.00	5.449E-153
AAT	2.06%	12.79%	1.25%	11.00%	30.32%	42.58%	1118.00	2.2824E-194
ATA	34.24%	5.71%	37.10%	1.12%	9.06%	12.78%	806.00	4.0275E-119
ATT	14.46%	0.74%	24.79%	0.58%	51.07%	8.35%	1210.00	4.0832E-286
ATC	6.17%	16.30%	0.69%	28.47%	2.06%	46.31%	583.00	1.6738E-118
ATG	66.51%	1.17%	30.21%	0.00%	1.87%	0.23%	427.00	2.8625E-201
AAG	11.48%	10.93%	3.83%	49.18%	1.64%	22.95%	183.00	7.71945E-35
AGA	21.07%	0.53%	74.13%	2.67%	0.27%	1.33%	375.00	4.8407E-206
AGG	10.53%	0.44%	88.16%	0.00%	0.88%	0.00%	228.00	1.3894E-181
AGC	1.17%	0.00%	59.43%	0.50%	16.53%	22.37%	599.00	6.3073E-203
AGT	11.06%	2.13%	35.74%	0.43%	50.21%	0.43%	235.00	9.97307E-67
CAA	0.28%	24.51%	0.70%	6.41%	36.49%	31.62%	718.00	1.9824E-119
CAC	11.20%	18.55%	30.71%	0.44%	30.53%	8.57%	1143.00	3.4639E-109
CCA	0.90%	8.45%	3.92%	58.52%	7.54%	20.66%	663.00	4.4458E-198
CCC	0.90%	3.85%	0.23%	70.36%	1.36%	23.30%	442.00	3.4124E-218
CCT	7.27%	17.04%	2.11%	25.23%	17.70%	30.65%	757.00	6.49566E-54
CCG	8.23%	34.49%	19.62%	0.63%	3.80%	33.23%	316.00	6.86065E-43
CAT	14.71%	24.55%	2.69%	8.06%	36.70%	13.30%	782.00	1.0019E-73
CTA	8.39%	8.39%	46.40%	6.16%	20.03%	10.62%	584.00	4.00094E-87
CTT	40.20%	8.26%	19.75%	0.42%	22.83%	8.54%	714.00	1.57331E-90
СТС	3.18%	9.89%	1.77%	41.34%	2.83%	40.99%	283.00	1.82576E-65
CTG	59.38%	0.45%	23.81%	0.30%	12.20%	3.87%	672.00	1.6213E-223
CAG	2.02%	1.87%	0.29%	19.02%	3.17%	73.63%	694.00	2.8300E-370
CGA	0.00%	0.00%	66.67%	0.00%	33.33%	0.00%	327.00	1.1667E-162
CGG	25.88%	6.47%	55.88%	0.00%	10.59%	1.18%	170.00	2.81304E-48
CGC CGT	1.85%	2.16%	34.31% 78.81%	28.13% 0.66%	16.38% 15.23%	17.16%	647.00 151.00	4.44939E-71
	2.65%	1.99%		47.02%	0.34%	0.66%	1174.00	1.54625E-91 6.0223E-238
TAA TAC	7.67%	28.45% 2.30%	4.51% 54.60%	1.26%	7.95%	1.67%	478.00	4.2511E-148
ТСА	0.47%	0.00%	68.15%	0.00%	31.38%	0.00%	427.00	2.9824E-217
ТСС	3.04%	2.02%	18.02%	6.28%	40.89%	29.76%	494.00	4.67588E-79
тст	5.39%	4.11%	32.06%	13.90%	37.73%	6.81%	705.00	1.31091E-95
TCG	0.38%	0.00%	4.91%	4.53%	40.75%	49.43%	265.00	4.01349E-83
TAT	13.63%	45.38%	16.59%	18.13%	5.45%	0.83%	844.00	1.9361E-130
TTA	37.98%	16.19%	37.17%	3.26%	1.43%	3.97%	982.00	3.4131E-182
TTT	4.35%	52.95%	0.98%	36.52%	0.42%	4.78%	712.00	6.6018E-230
TTC	5.23%	17.08%	0.62%	12.46%	0.46%	64.15%	650.00	2.4707E-244
TTG	49.72%	2.78%	41.74%	1.67%	1.11%	2.97%	539.00	2.6052E-177
TAG	0.00%	0.46%	0.92%	58.99%	1.38%	38.25%	217.00	4.75852E-90
TGA	3.86%	78.97%	1.29%	11.59%	1.72%	2.58%	233.00	1.1671E-140
TGG	5.59%	52.35%	1.47%	27.06%	2.06%	11.47%	340.00	6.65475E-85
TGC	9.30%	36.77%	0.73%	51.89%	0.15%	1.16%	688.00	6.9029E-218
TGT	0.00%	20.08%	0.13%	79.54%	0.00%	0.26%	782.00	< 1%0048E-499
GAA	0.67%	54.21%	0.00%	8.75%	0.00%	36.36%	297.00	1.1894E-100
GAC	9.80%	57.42%	0.56%	31.93%	0.00%	0.28%	357.00	6.5042E-125
GCA	19.68%	27.68%	18.70%	8.12%	0.12%	25.71%	813.00	2.90678E-57
GCC	12.98%	20.70%	18.07%	0.70%	43.68%	3.86%	570.00	4.5238E-85
GCT	1.86%	25.99%	40.60%	2.09%	1.39%	28.07%	431.00	3.79508E-79
GCG	2.70%	1.89%	7.28%	29.38%	1.62%	57.14%	371.00	2.216E-119
GAT	0.74%	56.25%	0.00%	2.94%	0.00%	40.07%	272.00	1.5307E-107
GTA	4.86%	29.79%	9.73%	1.22%	9.73%	44.68%	329.00	5.65438E-59
GTT GTC	0.00%	48.77% 1.31%	0.00% 0.52%	0.00%	4.51%	46.72%	244.00 381.00	5.02487E-90 8.3542E-171
GTC	6.82% 28.87%	0.26%	20.36%	0.00%	23.88%	67.45% 0.26%	381.00	8.8089E-104
GAG	22.58%	8.50%	0.29%	12.61%	1.47%	54.55%	341.00	1.56937E-88
GGA	35.94%	29.28%	3.19%	7.83%	4.93%	18.84%	345.00	8.47539E-40
GGG	1.16%	12.79%	0.00%	1.16%	0.00%	84.88%	86.00	1.62366E-61
GGC	2.04%	42.45%	0.00%	0.82%	8.98%	45.71%	245.00	2.96643E-71
GGT	0.59%	8.82%	0.00%	72.94%	1.76%	15.88%	170.00	1.06385E-85
001	0,0000	010270	0.0070		, / 0 /0	10.00%	1,0.00	2.000002.00

Hence, it is possible to predict the behavior of patterns for any given frame if all the parameters between samples are kept constant within the same laboratory. This prediction can also be made using samples that were run in different instruments or at different timeframes within the laboratory. It is proven that changing the primer or chemistry will change, within the laboratory, the distribution of patterns. All in all, frame pattern tables can be a tool for calibrating and predicting frame pattern results for any sample within the laboratory, given its run parameters on that laboratory. Besides, building these tables can allow software tools to predict future patterns in sequence traces and to understand comprehensively changes in these files.

Chapter 4 — Discussion

4.1 — Presumptions

First and foremost, we must start by defending all the assumptions that led to the origin of the study, as well as some factors that were taken for granted first hand.

As described in the introduction there were a few hints and results that indicated that peak height patterns meant something and might not be random for some frames. This became clear with our investigation and it could be proved that those assumptions were true, yet underestimated, of the real phenomenon.

This study assumes that several technical parameters are held constant throughout this investigation, which is debatable, but nevertheless we would not be able to study this phenomenon if we did not assume that chemistry parameters are kept mostly constant for the same kind of samples and primers, that those primers are the same or very similar either from laboratory to laboratory or in forward and reverse sequencing and that methodology within the same laboratory is consistent throughout time. Furthermore, it is assumed that any software will interpret .AB1 files in the same way. This is not necessarily true for the first basecalls of any sequence, so in our comparisons we always took out the first 5-10 bases. We call that an artifact but in fact it is more of a variation of interpretation of sequence trace data, at the beginning of the trace, done by different basecallers.

Hence, three major presumptions were made and kept throughout this study:

1 – The same chemistry means that there are minor variations in the chemical or technical parameters used to obtain the trace sequence from the sample. One cannot assume that methodology of one laboratory is exactly the same as methodology of another laboratory. In this study, standard protocols were used in each laboratory. When comparing results from one laboratory to another, it cannot be presumed that all procedural steps are equivalent. This study shows that differences between laboratories' methodologies, machines, reagents and samples each produce a unique distribution of patterns within frames for the laboratory.

2 - Different samples processed in the same laboratory with the same parameters, such as chemistry or primers, are only as variable as the sample itself. It is assumed that neither methodologies nor chemistry or primers have changed in the laboratory. That is, it is assumed that

any variation within two samples processed in the same laboratory occurs because of differences between the samples and not because of the moment when samples were processed or the batch of chemicals used in the reaction. Within the laboratory it is assumed that everything but the sample is kept constant when comparing two samples processed with the same chemistry and sequenced with the same primer.

3 – Different software programs will output the same relative heights for the same .AB1 file and will interpret sequence trace data in a similar manner. Hence different software programs will produce similar results. Sometimes, especially at the beginning and ends of sequences traces with low quality data, different algorithms within each program will interpret data differently.

4.2 — Methods

As stated in the Materials and Methods section, peak height patterns are dependent on the resolution of the sequencer. Two or three peaks within a frame can have the same height value. When two or three peaks have the same height, pattern grouping was defined. For this study, pattern grouping was not considered in the overall characterization of patterns for each frame because they are rare. Hence, though their existence was not ignored, the overall weight of groups within each frame was so low that they were not used to characterize the overall pattern distribution on any of the frames, but they were used when comparing two or more similar sequences side-by-side.

Flip-flopping, another common phenomenon, was also addressed by characterizing minor and major differences. Yet, we never set a threshold on flipping and believed that flip-flopping would not occur with significant peak height differences between the two flipping peaks. That is, of course, a simplification. There is the possibility of a minor difference becoming a major one if a set threshold is determined and the change is beyond the limits of that threshold and also, a major change could become minor if below the defined threshold. Now, the reason why thresholds were not defined has to be cleared. What would be a perfect threshold? An exact value or a percentage? Why choose 5% of the total peak height as the threshold and not 10%? Such questions led us to focus on the phenomenon of flip-flopping without looking at all the heights of the peaks involved and calculating debatable thresholds. These decisions slightly affect the results but, in our point of view, such effect is not weighted enough to affect the overall results and conclusions. Hence, whether groups and thresholds are considered or not, we are convinced that the overall results and conclusions will not change dramatically.

Secondly, there is also the reason why we chose frames of three bases and not more or less bases. Simplicity was the key, as three bases allow for 64 frame combinations. Yet, one base height tells nothing and two bases in a frame cannot say more than which height is smaller and which is bigger. To get the most information with the least possible frame combinations, frames of three bases were chosen because they allow for the extraction of more information out of all combinations of peak heights for the smallest number of possible peaks. If patterns occur within these three base frames, then they might also occur for frames of larger number of bases, but calculating and most importantly understanding that data would be a task requiring supercomputing capabilities. If frames of three bases have 64 combinations and each frame can exhibit six different patterns (excluding groups), which is the equivalent to 384 possibilities. A frame of four bases has 256 combinations and can exhibit 12 different patterns (again, excluding groups), which is the equivalent to 3072 possibilities. It is easy to understand that three bases within a frame provide some information for our study and that future studies may want to evaluate larger frames.

Another interesting observation was non-independent data for calculating patterns. Nonindependent frames occur when the heights of the peaks in that frame are given or altered by the height of any of the peaks of the proceeding frame due to homopolymeric stretches. Hence, the latter frames are not statistically independent of the previous ones because their peak heights are affected by the heights of other peaks in earlier frames. When this happens, the outcome pattern of that frame is not an independent event and therefore is not considered to have a statistical significance; therefore, it should be removed from our analysis since it adds randomness. This is a common occurrence in the Sanger sequencing method when dealing with homopolymeric stretches. Here, the first frame of three repeats is considered but the next repetitive frames are not taken into account because their heights are dependent on the heights of the first homopolymeric frame.

In other sequencing procedures, such as in pyrosequencing, this phenomenon is much more serious because base signals are given as an average. In this kind of sequencing a repeat of equal bases will have a certain signal that is given by the mathematical average of the total repeat signal. Hence, the signal of the base will be dependent on its intensity and of the neighboring bases. The extension of this behavior is so important that, even though we had access to data other than Sanger sequencing data, we were not able to use these data because of severe independence issues. Yet, the extension of the independence problem made it too difficult to treat these data and we focused our study on the Sanger sequencing data.

As was said before, we assume that any basecaller will make its choices and call bases in a similar way and that all sequences will look similar from application to application. That is why editing files with Finch TV or 4Peaks produces sequences similar to the ones exported through Mutation Surveyor[®]. This is not such a straightforward process and, in fact, some minor differences do occur. That is why the first bases are never considered, as explained before. When trimming occurs in the sequence, different basecallers will analyze the first data points differently and try their best to provide an accurate basecall. Trimming may result in different basecalls being made, at the beginning of sequences, by different basecallers. Usually after a few basecalls everything goes back to normal and different basecaller cannot provide an accurate call on a low quality peak. Different basecallers use different algorithms that try to cope with ambiguous data and they do it differently. It is now obvious that editing was needed, for this first analytical study of peak height patterns, since only the best stretches of sequence data were used to produce these results, therefore minimizing the possibilities of base call ambiguity.

There is also much to be said about the Python scripts used for finding and counting patterns in the data files. "Sanger", "Cleaner" and "Reporter" were the three main scripts used but they show several minor limitations. The most important script is the "Sanger" script because it not only finds patterns within frames but also does it using its own basecalling, by comparing the signal intensity of each of the four dyes at the basecall point. Sometimes this new basecall differs from the basecall made by Mutation Surveyor for reasons that we have explained before, especially in low quality basecalls. Though such issues are rare and insignificant because of the quality of the data used, they do happen from time to time. Also, "Sanger" ignores all of the quality values from the basecall because it was not designed to provide this feature. We think that the quality assessment from 4Peaks or FinchTV is enough and further editing downstream in our workflow, during the script run is not usually necessary.

"Cleaner" is a simple script designed to replace frame data after the first homopolymeric frame in a stretch of bases and stops cleaning when the first non-homopolymeric frame appears

downstream. Its major limitation is that it is difficult to add new parameters to the cleaning procedure. In this way, it is very specific for the Sanger sequencing procedure.

"Reporter" is also simple in nature, but its implementation makes it the slowest script that we used. Although there were some options to count the patterns for each frame, we decided to use a simple but blunt approach to counting. Our "Reporter" script uses a counter for each and every expected frame pattern occurrence, reads the data file from top to bottom for any given counter, stores the count and repeats this procedure to the next counter. With over seven hundred counters, "Reporter" is memory intensive and slow yet very simple. This allows for faster changes and easier debugging than any other solution, which is a curious fact since the program has over 2000 lines of source code. These Python scripts were kept separate for simplicity. Although all the calculations could be performed using a single script, I chose to keep the scripts independent to perform their tasks individually for easier debugging, better understanding and faster modification, if necessary.

Excel[®] spreadsheets also follow the same simplicity philosophy. They are complex in size yet most formulae in the spreadsheet are the combination of simple Boolean functions for each cell. This is also important for debugging the spreadsheet or modifying its contents. Excel[®] statistical calculations are also simple and common. Though other statistical programs could be used, the simplicity of this application, the ease of programming the spreadsheets, testing, making collaborative changes and its capability in handling these calculations so well, made us choose it rather than any other program.

All in all, these spreadsheets were a simple way to calculate the distribution of the pattern findings. Yet, as it later became clear, a simple Chi Square Goodness of Fit test was sufficient for most of the calculations. With few observations, the Kolmogorov-Smirnov test was performed. The results from the Kolmogorov-Smirnov tests generally agreed with the Chi Square results. That is, for the general conclusions of our work, a simple Chi Square Goodness of Fit test performed in an Excel[®] spreadsheet is sufficient; though, we have shown that more advanced tests can be performed on the data in order to improve the reliability of the results.

Again, Excel[®] was used for simplicity, availability and development speed but it is not, in our opinion, the best tool to execute the statistical tests. We hope, in the future, to develop new ways of performing such calculations. Perhaps we shall use Python because, in fact, the first draft of a pattern finder script was built on Excel[®] and then later transported into this programming language. This was possible because the simple calculations in the spreadsheets can be translated

into scripting code without much modification. Hence, the statistics spreadsheets could also be, in the future, translated into a language such as Python or any other streamlined programming language.

4.3 — Results

Up to this point we discussed our choices and decisions to analyze and characterize patterns in trace sequence frames. We shall start by answering the first question: Are patterns kept constant if a sample is run twice on the sequencer? If a sample run twice on the same instrument were not to exhibit the same distribution of patterns in each run, the pattern formation would be considered random. Such is not true and we demonstrated this by doing the simplest test, a side-by-side comparison of two electropherograms. As it becomes clear after repeating the process, sequences are, in fact, similar when the same sample is run twice on the same instrument. This was expected, yet our results show beyond any doubt that this is the truth. Patterns are kept constant within the frames from one run to the other. Yet, though sometimes differences occur, they are mostly minor and dependant on the resolution of the equipment.

Two other questions sprouted naturally once we understood that patterns are not random. Do two very similar samples exhibit the same patterns for each frame? Yes. Do the same samples run on two different instruments produce similar patterns? Absolutely. These outcomes are of extreme importance. Not only are patterns kept constant if the same sample is run twice independent of the instrument used, but also similar samples, run with the same chemistry, sequenced with the same primers and processed in the same laboratory will show similar patterns for each frame.

The positive response for these three questions led us to the fourth, and perhaps the most important question of the study: Can similar sequences be pooled together and will their frames show any tendency for a type of pattern? This question was answered in section 3.4 where it was made clear that not only sequences can be pooled together, but the sum of those sequence frame patterns will exhibit, for the majority of frames, a non-random behavior. That is, when we pool sequences together for the same chemistry, primer and laboratory, the resulting pool of frames will show definable and predictable patterns for any type of pattern, independent of the instrument used in the laboratory.

So, not only patterns are kept constant in the frames from sequence run to sequence run, but also from sample to sample if the conditions are the same. This happens independent from the instrument. Also, these sequence traces are so similar that when pooled together they will form predictable patterns for each frame. Such a result is fundamental for any further study of patterns and this is the first time patterns within frames are not only thoughtfully studied but also can be predicted for each and any frame using simple computer programs.

This new method of qualitative assessment tools for sequences data has never, to date, been explored. By knowing which patterns a certain frame may exhibit and most importantly which patterns it will never exhibit, programs can be written to signal the analyst to rare sequence results. It is possible to calibrate and to have a standard table of the distribution of frame patterns for DNA sequence data using the Sanger method with fluorescence dye chemistry. Hence we have shown that peak height patterns are an intrinsic characteristic of the DNA sequencing procedure; we have developed methods for interpreting and predicting them.

The next analysis after this point was to understand the distribution of peak height patterns within frames of sequence trace data. If sequences run on two different instruments are similar and different samples with all parameters constant also show comparable patterns, do two laboratories, sequencing the same DNA regions, using equivalent techniques, procedures and instruments produce similar distribution of patterns? Our results show that there are some similarities in the distribution of patterns between laboratories. Sequence frame pattern distributions are globally similar from laboratory to laboratory if the chemistry and primer combination is the same. It is clear that peak height patterns within frames in sequence trace data are best conserved in the same laboratory, using the same standardized methods. Using the results of pattern distribution from one laboratory to the other is too much of a risk because of all the subtle, yet important, differences in methodology and processing that might affect the overall pattern distribution. Yet, global chemistry/primer combination results are a good start for the optimization of software definitions of sequence patterns in other laboratories. All in all, though the peak height patterns for a chemistry/primer combination of Laboratory A could, theoretically, be merged with the patterns of Laboratory B, in practice, we think it is best for each laboratory to be treated independently, as if it was producing different patterns.

So, if patterns are not highly conserved from one laboratory to the other for similar samples run with similar procedures, what is affecting the pattern distribution? There are two main reasons that can change the way patterns are formed. One is the DNA sequence itself and the other is the dye chemistry used. Therefore, we initiated a study to determine if the same samples run in the same laboratory and instrument but sequenced with different primers, hence sequencing different DNA areas, would show the same pattern distribution. If the pattern distribution were similar, then the DNA sequence itself would not affect the distribution of patterns. Patterns within frames cannot be compared when using different primers. If the sequence is different, then the frames of that sequence will show different pattern distribution.

Later, we also tried to understand if the chemistry would affect pattern distribution. Our results show that different chemistries produce a different distribution patterns for most frame. The distributions of peak height patterns for a frame within a sequence are an intrinsic characteristic of that sequence and that procedure. But these patterns are repeatable and can be predicted if the parameters are known and kept constant.

Sequence Biometrics are the qualitative values defined for sequence data. Different DNA sequence traces have a defined distribution of patterns for each frame and similar sequence traces display similar distributions. Yet, when the chemistry varies so does the distribution of patterns and if the sequenced DNA region changes, so does the distribution. The distribution of patterns within a sequence frame is not random; the distribution is characteristic of the DNA region and the sequencing procedure. Sequence Biometrics allows the analyst to build standard pattern distribution tables to describe its frames for a specific DNA region and chemistry and use this calibration to better understand changes for similar sequences. If the sequencing procedure is standardized, such as it is in a forensic laboratory, the analyst can build a calibration table for each primer and chemistry using very few samples. The analyst can compare the patterns for each frame processed and then be sure that any other sample, processed similarly within the laboratory, will exhibit similar peak height patterns for each frame. If different, then the analyst can study the data closely.

We provide in section 3.9 a first example of a standard pattern frequency table for each frame of a specific DNA area sequenced using specific dye chemistry. Most, if not all of the frames, show predominant patterns within each frame. Moreover, the distribution is different from frame to frame and, as said before, not random. Hence, by building a prediction table for the sequence, that is the Sequence Biometrics, one can more easily find aberrances in each of the frames throughout the sequences.

The calibration must be done within the laboratory, for a specific chemistry/primer combination. Although these biometric values can be transported to other laboratories using similar methodologies, it is our opinion that each laboratory should build their own standard sequence biometric tables using the tools that I have designed.

4.4 — Sequence Biometrics

During our study, it has become evident that each sequence trace is highly repeatable and can be compared with sibling sequences that share characteristics such as the DNA area sequenced and sequencing chemistry. Hence, we have unraveled a new characteristic of DNA sequence traces: Sequence Biometrics. Sequence Biometrics is the parameter that allows a sequence trace to be compared with other similar sequence traces. We can separate populations of sequence traces according to their DNA area sequenced and dye chemistry used but we cannot compare different populations. It is clear that sequences within the same population are comparable and that such population exhibits definable and conserved patterns within each frame, which are dependent on the context of the sequence.

In our opinion, there are at least two factors that, when combined, form these different populations. First, the sequence template, or DNA area sequenced, will affect the amount of dye that is incorporated at a given time with the cycle sequencing procedure used. Second, the chemistry used will affect the different dye incorporation rates since not all dyes take the same time to be incorporated into the PCR product. These two factors, when combined, can output a much bigger change in the overall biometrics as is evident in our results.

If these were the two sole factors that had anything to do with Sequence Biometrics, DNA area and dye incorporation rate, then we could compare populations of two different laboratories. But this is not true. The reaction environment is a third factor that affects Sequence Biometrics. Different laboratories use slightly different procedures that can change the dye incorporation kinetics in each laboratory. Hence, Sequence Biometrics is dependent on a multitude of variables, some more significant than others but, when combined, provide an identity for each sequence in each laboratory.

If analytical parameters and DNA sequences are kept constant, so will the Sequence Biometrics. So, if Laboratory A and Laboratory B were to use the exact same extraction procedure, PCR cycling and chemistry, standardizing the procedures and diminishing variability, the biometrics of each DNA area sequenced in both laboratories could be the same and highly comparable, because we have shown that Sequence Biometrics is not dependant on the sequencing instrument. All in all, by knowing the Sequence Biometrics for a DNA area processed with a known chemistry, we can predict the patterns in each frame for a new sequence that has been sequenced using the same parameters; therefore, new Sequence Biometrics prediction is also possible if properly controlled.

4.5 — Future development

From what we have been discussing so far, it is clear that the use of patterns in future sequencing applications is not only possible but will also add value to the entire process. It has become clear that sequences exhibit discrete and predictable frame patterns for any type of dye chemistry and primer combination but that those patterns are characteristic of such parameters. Hence, Sequence Biometrics defines what patterns will be more common for a sequence when sequenced with a determined chemistry in a determined laboratory that applies standardized sequencing procedures. The existence and properties of such Sequence Biometrics allows a user to calibrate a table of pattern frames for each situation and predict, in future runs, the pattern output for the sequences it is using. This not only provides a better quality assessment for the analyst but also a faster and more reliable way of interpreting sequence data, and most importantly, finding aberrations.

At the end of our methodology, we proposed a new type of system for looking at sequences: an expert system. The expert system that we propose must be able, having been fed with a standard pattern table for each different laboratory situation, to validate and interpret future sequences that use the same method and chemistry. Our investigation defines the theoretical basis for such a system, provides some of the basic procedures for automated pattern distribution characterization and answers some of the fundamental questions for understanding the mechanisms inherent to patterns. In the future, we plan on conducting a thorough study on mutations and mixtures of DNA and the effect on the patterns observed. It is clear, especially when looking at differences from sequence to sequence, that such variations will alter the overall distribution of patterns in the frames that are affected by it. Such differences could be flagged by the expert system. All in all, we propose a more automated and reliable way to look at sequences using Sequence Biometric information (such as distribution of patterns in a frame) to provide further quality assessments in future integrated expert systems.

4.6 — Final thoughts

Thus, throughout this study we have been able to prove that, in sequence trace data, peak height patterns within frames are not random and can be predicted. Moreover, we have shown that each DNA sequence area, dye chemistry and laboratory procedures they produce a repeatable batch of pattern distributions for a frame. Hence, Sequence Biometrics can be applied for each laboratory by knowing the type of chemistry used and the DNA area sequenced. These biometric parameters are specific for the DNA area sequenced but are only kept constant if the sequencing parameters are the same, independent of the instrument used to read the samples. In conclusion, we have set the foundation for a new type of computer tool to analyze sequence trace data: the expert system with pattern finding and Sequence Biometrics characterization abilities.

Chapter 5 _____ Conclusions

From our study, several conclusions can be made from our results.

- Tools such as Mutation Surveyor[®] that allow the export of sequence trace data provide qualitative data for further analysis
- By examining several software tools for our study, we were able to determine which features should be present on a future expert system
- Peak height patterns in DNA sequence trace data frames are not random and can be characterized and predicted
- Peak height patterns are conserved if the chemistry and primer combination used to sequence DNA are kept constant from sample to sample
- Different instruments do not affect peak height pattern distribution
- Pattern distributions are best conserved within the same laboratory by keeping all the parameters the same
- Different laboratories produce similar, but not equal, pattern distributions for each chemistry/primer combination because of small variations in protocols
- The distribution of peak height patterns defines a new characteristic of sequence trace data: Sequence Biometrics
- Sequence Biometrics standard tables can be built for each chemistry/primer combination group within the laboratory and define the characteristic pattern distribution for each of those groups
- Sequence Biometrics is a new quality parameter for sequence analysis and can be built into new expert systems
- New expert systems should be able to benefit from Sequence Biometrics to identify alterations in DNA sequence trace files

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—Appendices

Appendix I — Comparisons of Frames with Two Sequence Traces

The tables in this appendix are automatically generated from the bioinformatics tools designed for this thesis. The first row is the frame obtained from the sequence. The second row is the pattern from each frame for the first injection or sample. The third row is the pattern from each frame for the second injection or sample. The Consensus row displays the consensus pattern for the sequences compared.

A dash (-) in the first row signifies those frames that have been deleted due to sequence variation in the base caller program between samples in the second and third rows. Differences in the same sample are usually due to base sequence differences or dye background or other sequencing anomalies that occur with dye chemistry and capillary electrophoresis. A triple dash (---) in the first row signifies data that have been deleted due to frames exhibiting homopolymeric stretches of a particular base and cannot be considered independent. An asterisk (*) in the Consensus row signifies a different sequence between the samples/injections in the frame or a Minor pattern difference when comparing Rows 2 and 3. A number sign (#) in the Consensus row signifies a Major pattern difference when comparing the frames, Row 2, and Row 3.

With the sequencing protocol held constant (i.e., $BigDye^{TM}$ sequencing chemistry v1.1, BetterBuffer, 3130xl Genetic Analyzer, POP-6), the following comparisons have been made between two injections. Each legend describes the comparisons performed with sequence metrics. Overwhelmingly, consensus of patterns is achieved.

Frame	1		-	ССТ	СТС	тст	CTG	TGT	GTT	TTC	тст	CTT	TTT	-	-	-
Inj.1	1		Α	А	D	С	А	D	E	В	С	А	Α	D	E	Α
Inj.2	1		В	С	D	С	Α	D	E	В	С	А	Α	D	С	Α
Consensus	1		*	*	D	С	А	D	E	В	С	А	А	*	*	*
Frame	15	TGG	GGG		GGA	GAA	AAG	AGC	GCA	CAG	AGA	GAT	ATT	TTT	TTG	TG
Inj.1	15	BETA	F	-	А	А	D	E	В	F	С	В	F	F	С	В
Inj.2	15	D	F	-	Α	Α	D	Е	В	F	С	В	F	F	С	В
Consensus	15	*	F	-	А	А	D	Е	В	F	С	В	F	F	С	В
Frame	30	GGG	GGT	GTA	TAC	ACC	CCA	CAC	ACC	CCC	CCA	CAA	AAG	AGT	GTA	TA
Inj.1	30	F	F	С	Α	D	F	F	С	В	F	F	E	А	В	C
Inj.2	30	F	F	Ċ	А	D	F	F	Ċ	В	F	F	Е	А	В	C
Consensus	30	F	F	С	А	D	F	F	С	В	F	F	Е	А	В	С
Frame	45	ATT	TTG	TGA	GAC	ACT	СТТ	TTA	TAC	ACC	CCC	CCA	CAT	ATC	TCA	CA
Inj.1	45	В	С	В	E	А	D	С	D	E	D	С	В	F	E	D
Inj.2	45	В	С	В	E	В	F	С	D	E	D	С	Α	D	E	D
Consensus	45	В	С	В	Е	*	*	С	D	Е	D	С	*	*	Е	D
Frame	60	AAC	ACA	CAA	AAC	ACC	CCG	CGC	GCT	СТА	TAT	ATG	TGT	GTA	TAT	AT
Inj.1	60	С	В	С	В	E	Α	D	E	В	С	Α	D	F	С	В
Inj.2	60	С	В	С	В	Е	А	D	Е	В	С	Α	D	F	С	В

Table A. The same sample sequenced twice with the A1 primer electrophoresed on the same instrument in the same run. The frames displayed in this example are from position 16,019 (p16,019) to p16,398.

Characterizing patterns in	DNA sequence trace data	through informatics tools

Consensus	60	С	В	С	В	E	А	D	E	В	С	А	D	F	С	В
Frame	75	TTT	TTC	TCG	CGT	GTA	TAC	ACA	CAT	ATT	TTA	TAC	ACT	CTG	TGC	GCC
Inj.1 Inj.2	75 75	F F	F F	E E	A A	A A	A A	B D	F E	F D	C C	B B	E E	A A	D D	E E
Consensus	75	F	F	E	A	A	A	*	*	*	C	B	E	A	D	E
Frame	90	CCA	CAG	AGC	GCC	CCA	CAC	ACC	CCA	CAT	ATG	TGA	GAA	AAT	ATA	TAT
Inj.1	90	D	F	С	Α	В	F	E	Α	D	С	В	E	D	Е	D
<u>Inj.2</u> Consensus	90 90	D D	F F	C C	A	B	F F	E	A	D D	C C	B	E	D	E	D D
	105															
<u>Frame</u> Inj.1	105 105	ATT F	TTG C	TGT D	GTA E	TAC A	ACG B	CGG C	GGT D	GTA E	TAC A	ACC B	CCA F	CAT E	ATA A	TAA D
<u>Inj.2</u> Consensus	105 105	F F	<u>с</u>	D D	E	A	B	<u>с</u>	D D	E	A	B	F	E	A	D D
	105	I	C	D	L	Λ	U	C	U	L	Λ	D	I	L	Λ	<u> </u>
Frame Inj.1	120 120	AAA C	AAT B	ATA E	TAC A	ACT D	CTT E	TTG A	TGA B	GAC F	ACC C	CCA A	CAC D	ACC F	CCT C	CTG A
Inj.2	120	С	В	E	Α	D	E	Α	В	F	С	Α	D	F	С	Α
Consensus	120	С	В	E	Α	D	E	Α	В	F	С	Α	D	F	С	А
Frame	135	TGT	GTA	TAG	AGT	GTA	TAC	ACA	CAT	ATA	TAA	AAA			AAC	ACC
Inj.1 Inj.2	135 135	D D	F F	F F	C C	A A	A A	B A	F D	C C	D D	F E	-	-	C C	B B
Consensus	135	D	F	F	C	A	A	*	*	C	D	*	-	-	C	В
Frame	150	ССС	CCA	CAA	AAT	ATC	тсс	CCA	CAC	ACA	CAT	ATC	TCA	CAA	AAA	
Inj.1 Inj.2	150 150	F F	E E	B B	E E	A A	B B	C C	D D	C C	B B	F F	E E	B D	C C	-
Consensus	150	F	E	B	E	A	B	C	D	C	B	F	E	*	C	-
Frame	165	AAC	ACC	CCC			ССТ	СТС	тсс	CCC	ССТ	СТА	TAT	ATG	TGC	GCT
Inj.1	165	E	А	D	-	-	Α	В	E	D	С	Α	В	С	В	F
<u>Inj.2</u> Consensus	165 165	E	A	D D	-	-	C *	B	E	D D	C C	A	B	C C	B	F
Fromo	100	CTT	TTA	TAC	A.C.A	C A A	AAC		664	C A A	AAC	ACT	CT A	тас		
<u>Frame</u> Inj.1	180 180	CTT F	TTA C	TAC B	ACA F	CAA E	AAG B	AGC C	GCA D	CAA E	AAG B	AGT E	GTA D	TAC C	ACA B	CAG F
Inj.2 Consensus	180 180	F F	C C	B	F	E	D *	C C	D D	E	B	E	D D	C C	B	F F
Frame Inj.1	195 195	AGC F	GCA E	CAA B	AAT C	ATC B	TCA E	CAA A	AAC A	ACC A	CCC D	CCT E	CTC D	TCA E	CAA B	AAC C
Inj.2	195	F	E	D *	С	В	E	Α	Α	А	D	E	D	Е	В	E *
Consensus	195	F	E	*	С	В	E	A	A	A	D	E	D	E	В	*
Frame Inj.1	210 210	ACT A	CTA B	TAT C	ATC D	TCA E	CAC B	ACA C	CAC A	ACA D	CAT E	ATC D	TCA E	CAA D	AAC C	ACT A
Inj.2	210	А	В	С	D	E	В	С	А	D	E	D	E	D	С	Α
Consensus	210	A	В	С	D	E	В	С	A	D	E	D	E	D	С	A
Frame	225	CTG	TGC	GCA	CAA	AAC	ACT	СТС	TCC	CCA	CAA	AAA	AAG	AGC	GCC	CCA
Inj.1 Inj.2	225 225	A A	D D	F F	E E	A A	A A	D D	E E	D D	E E	A A	D D	C C	A A	D D
Consensus	225	А	D	F	Е	А	А	D	E	D	Е	А	D	C	А	D
Frame	240	CAC	ACC	CCC		ССТ	СТС	TCA	CAC	ACC	CCC	CCA	CAC	ACT	СТА	TAG
Inj.1 Inj.2	240 240	E E	A A	B B	-	C C	D B	E E	B B	C C	B B	F F	E E	A A	A A	D D
Consensus	240	E	A	B	-	C	*	E	B	C	B	F	E	A	A	D
Frame	255	AGG	GGA	GAT	ATA	TAT	ATC	TCA	CAA	AAC	ACA	CAA	AAA	AAC	ACC	ССТ
Inj.1	255	E	А	D	Е	В	F	E	В	С	D	E	Α	В	F	С
<u>Inj.2</u> Consensus	255 255	E	A	D D	E	B	F F	E	B	C C	D D	E	A	B	F F	C C
Eromo	720	CT^	TAC	ACC		<u> </u>	C^2	ACC		CCT	677	TT 4	T ^ ^	AAC	AC 4	
<u>Frame</u> Inj.1	270 270	CTA D	TAC C	ACC B	CCC F	CCA E	CAC A	ACC A	CCC D	CCT E	CTT A	A TTA	TAA D	AAC E	ACA A	CAG D
<u>Inj.2</u> Consensus	270	D D	C C	B	F	E	A	A	D D	E	A	B *	F *	E	A	D D
			-													
Frame Inj.1	285 285	AGT F	GTA F	TAC C	ACA B	CAT E	ATA A	TAG D	AGT E	GTA A	TAC A	ACA A	CAT B	ATA F	TAA F	AAA E
Inj.2	285	F	F	С	В	E	Α	D	E	Α	Α	Α	В	F	F	E
Consensus	285	F	F	С	В	E	A	D	E	A	A	A	В	F	F	E
Frame	300	AAG	AGC	GCC	CCA	CAT	ATT	TTT	TTA	TAC	ACC	CCG	CGT	GTA	TAC	ACA

Appendices

Inj.1	300	A	А	A	D	E	В	F	E	A	В	E	D	E	А	D
Inj.2	300	A	A	A	D	E	В	F	E	A	D	E	D	Ē	A	D
Consensus	300	A	A	A	D	E	В	F	E	A	*	E	D	E	A	D
Frame	315	CAT	ATA	TAG	AGC	GCA	CAC	ACA	CAT	ATT	TTA	TAC	ACA	CAG	AGT	GTC
Inj.1	315	E	В	F	E	А	В	С	В	F	E	В	F	F	E	Α
Inj.2	315	E	В	F	E	Α	В	С	В	F	E	Α	D	F	F	С
Consensus	315	E	В	F	E	А	В	С	В	F	E	*	*	F	*	*
Frame	330	TCA	CAA	AAA	AAT	ATC	TCC	CCC	ССТ	СТТ	TTC	тст	СТС	TCG	CGC	GCC
Inj.1	330	D	С	В	E	В	С	D	C	А	D	E	D	E	Α	А
Inj.2	330	D	С	В	С	В	С	D	С	Α	D	E	D	E	Α	Α
Consensus	330	D	С	В	*	В	С	D	С	Α	D	E	D	E	Α	Α
Frame	345	CCC			CCA	CAT	ATG	TGG	GGA	GAT	ATG	TGA	GAC	ACC	CCC	
Inj.1	345	В	-	-	D	С	А	D	E	D	С	А	D	E	D	-
Inj.2	345	В	-	-	D	С	Α	BETA	E	D	С	Α	D	E	D	-
Consensus	345	В	-	-	D	С	А	*	E	D	С	А	D	E	D	-
Frame	360			ССТ	СТС	TCA	CAG	AGA	GAT	ATA	TAG	AGG	GGG		GGT	GTC
Inj.1	360	-	-	С	D	E	D	С	В	E	D	С	В	-	F	ALF
Inj.2	360	-	-	A	D	E	D	С	В	E	D	С	В	-	F	F
Consensus	360	-	-	*	D	E	D	С	В	E	D	С	В	-	F	*
Frame	375	тсс	CCC	ССТ	CTT	TTG	-									
Inj.1	375	PSI	D	E	А	Α										
Inj.2	375	С	D	E	A	Α										

Inj.2375CDEAAConsensus375*DEAA

Table B. Two different samples sequenced with the A1 primer electrophoresed on the same instrument in
the same run. The frames displayed in this example are from p16,043 to p16,186.

Frame	1		ATT	TTT	TTG	TGG	GGG	GGT	GTA	TAC	ACC	CCA	CAC	ACC	CCC	ССА
Sample 1	1		F	ALFA	PSI	В	F	F	С	Α	D	E	D	С	В	E
Sample 2	1		F	F	С	В	F	F	С	Α	D	E	D	С	В	С
Consensus	1		F	*	*	В	F	F	С	А	D	E	D	С	В	*
Frame	15	CAA	AAG	AGT	GTA	TAT	ATT	TTG	TGA	GAC	ACT	СТС	TCA	CAC	ACC	CCC
Sample 1	15	D	E	А	В	С	В	С	В	E	Α	D	E	В	С	В
Sample 2	15	D	F	С	В	С	D	С	В	E	В	F	E	В	E	В
Consensus	15	D	*	*	В	С	*	С	В	E	*	*	E	В	*	В
Frame	30	ССА	CAT	ATC	TCA	CAA	AAC	ACA	CAA	AAC	ACC	CCG	CGC	GCT	СТА	TAT
Sample 1	30	E	А	D	С	В	E	В	С	В	Е	Α	D	E	В	С
Sample 2	30	С	А	D	С	В	E	В	С	D	E	Α	D	E	А	В
Consensus	30	*	Α	D	С	В	E	В	С	*	E	Α	D	E	*	#
Frame	45	ATG	TGT	GTA	TAT	ATT	TTT	TTC	TCG	CGT	GTA	TAC	ACA	CAT	ATT	TTA
Sample 1	45	A	D	E	A	D	F	F	E	A	A	A	В	F	F	C
Sample 2	45	С	D	Е	Α	D	F	F	Е	Α	Α	Α	D	F	F	С
Consensus	45	*	D	Е	А	D	F	F	E	Α	А	Α	*	F	F	С
Frame	60	TAC	ACT	CTG	TGC	GCC	CCA	CAG	AGC	GCC	CCA	CAC	ACC	CCA	CAT	ATG
Sample 1	60	В	E	А	D	E	D	F	С	Α	В	F	E	Α	D	С
Sample 2	60	В	E	А	D	E	D	F	С	Α	В	F	F	С	D	C
Consensus	60	В	E	А	D	E	D	F	С	А	В	F	*	*	D	С
Frame	75	TGA	GAA	AAT	ATA	TAT	ATT	TTG	-	-	-	ACG	CGG	GGT	GTA	TAC
Sample 1	75	В	E	D	E	D	F	С	D	E	А	В	С	D	E	А
Sample 2	75	В	E	D	E	D	F	С	D	E	Α	D	С	D	E	Α
Consensus	75	В	E	D	E	D	F	С	*	*	*	*	С	D	E	А
Frame	90	ACC	CCA	CAT	ATA	TAA	AAA	AAT	ATA	TAC	ACT	CTT	TTG	TGA	GAC	ACC
Sample 1	90	В	F	С	Α	D	С	В	E	Α	D	E	Α	D	F	С
Sample 2	90	В	F	E	Α	D	С	В	Е	Α	D	Е	Α	D	F	C
Consensus	90	В	F	*	А	D	С	В	Е	А	D	E	А	D	F	С
Frame	105	CCA	CAC	ACC	ССТ	CTG	TGT	GTA	TAG	AGT	GTA	TAC	ACA	CAT	ATA	TAA
Sample 1	105	Α	D	F	С	Α	D	F	F	С	Α	Α	В	F	С	D
Sample 2	105	Α	D	F	С	Α	D	F	F	С	А	Α	Α	D	С	D
Consensus				F	С	Α	D	F	F	C	Α	Α	*	*	С	D
	105	Α	D	F	L	Л	5			-						
	105	Α	D	F	L	Λ	U									
Frame	105	A AAA	D		AAC	ACC	CCC	CCA	CAA	AAT	ATC	тсс	CCA	CAC	ACA	CAT
Frame Sample 1										AAT	ATC A	TCC B	CCA C	CAC D	ACA E	CAT A
Sample 1 Sample 2	120 120 120	AAA E E			AAC C C	ACC B B	CCC F F	CCA E E	CAA D B	E F	A C	B B	C C	D D	E	A B
Sample 1	120 120	AAA E			AAC C	ACC	CCC F	CCA E	CAA	Е	Α	В	C	D	E	Α
Sample 1 Sample 2	120 120 120	AAA E E			AAC C C	ACC B B	CCC F F	CCA E E	CAA D B	E F	A C	B B	C C	D D	E	A B
Sample 1 Sample 2	120 120 120	AAA E E			AAC C C	ACC B B	CCC F F	CCA E E	CAA D B	E F	A C	B B	C C	D D	E	A B
Sample 1 Sample 2 Consensus	120 120 120 120	AAA E E E	 - - -		AAC C C C	ACC B B B	CCC F F F	CCA E E E	CAA D B *	E F *	A C *	B B B	C C C	D D D	E	A B
Sample 1 Sample 2 Consensus Frame	120 120 120 120 135	AAA E E E ATC	 - - - TCA	 - - - CAA	AAC C C C	ACC B B B	CCC F F F AAC	CCA E E E	CAA D B *	E F *	A C *	B B B	C C C	D D D	E	A B
Sample 1 Sample 2 Consensus Frame Sample 1	120 120 120 120 120 135	AAA E E E ATC D	 - - - - - - - - - - - - - - - - -	 - - - - - - - - - - - - - - - - -	AAC C C C AAA C	ACC B B B 	CCC F F F AAC C	CCA E E E ACC A	CAA D B * CCC D	E F *	A C *	B B - A	C C C - B	D D D - E	E	A B

Table C. The same sample sequenced with the B1 primer electrophoresed on two different instruments in
same laboratory. The frames displayed in this example are from p16,367 to p16,034.

Frame	1		-	-	-	-	-	-	-	-			-	-	-	-
Inst. 1	1		-	-	-	-	-	-	-	2	-	-	-	-	-	2
Inst. 2	<u>1</u> 1		A *	<u>B</u>	F	<u>C</u>	A*	B *	F*	<u>E</u>	-	-	D	<u>C</u>	B *	F
Consensus	1					*			-	*	-	-		-	*	
Franc	1 5	_				тсс			664	C \ C	100	CC 1	C \ C	A.C.A	C A A	A A C
Frame Inst. 1	15 15	-	-	-	-	TGG B	GGG F		GGA A	GAC A	ACG D	CGA E	GAG D	AGA E	GAA B	AAG E
Inst. 2	15	E	Ā	Ā	В	F	F	_	A	A	D	E	D	Ē	B	E
Consensus	15	*	*	*	*	#	F	-	A	A	D	E	D	E	В	E
Frame	30	AGG	GGG	GGA	GAT	ATT	TTT	TTG	TGA	GAC	ACT	CTG	TGT	GTA	TAA	AAT
Inst. 1	30	Α	D	E	В	F	F	E	Α	Α	Α	Α	D	F	E	Α
Inst. 2	30	Α	D	E	Α	D	F	Е	Α	Α	Α	А	D	F	E	Α
Consensus	30	Α	D	E	*	*	F	E	Α	Α	Α	Α	D	F	E	А
Frame	45	ATG	TGT	GTG	TGC	GCT	СТА	TAT	ATG	TGT	GTA	TAC	ACG	CGA	GAT	ATG
Inst. 1	45	A	D	E	A	D	F	С	A	D	F	C	В	C	В	E
Inst. 2	45	A	D	E	A	D	F	C	A	D	F	C	B	C	B	E
Consensus	45	A	D	E	A	D	F	С	Α	D	F	С	В	С	В	E
F = = = = =	60	TC •	C • •		470	TCC	666	CCT	CTT	+++	++·	T / T	470	TCT	CT·	T 4 C
Frame	60	TGA	GAA	AAT D	ATG	TGG	GGC	GCT	CTT		TTA	TAT	ATG B	TGT F	GTA	TAC
Inst. 1 Inst. 2	60 60	A A	A A	D	C C	B D	F F	E	B B	F F	F F	C C	A	F B	F F	C C
Consensus	60	A	A	D	<u> </u>	*	F	E	B	F	F	с С	*	#	F	C
	50			2	-		•		2			÷		"		v
Frame	75	ACT	СТА	TAT	ATG	TGT	GTA	TAC	ACT	CTG	TGT	GTT	TTG	TGA	GAG	AGG
Inst. 1	75	В	E	В	E	D	F	C	B	C	D	E	D	E	D	C
Inst. 2	75	В	E	В	E	D	F	Č	В	C	D	E	D	E	D	Č
Consensus	75	В	E	В	E	D	F	С	В	С	D	E	D	E	D	С
Frame	90	GGA	GAT	ATG	TGG	GGG	GGT	GTA	TAG	AGG	GGT	GTT	TTT	TTG	TGT	GTT
Inst. 1	90	В	F	С	В	F	E	В	F	С	В	F	F	С	D	E
Inst. 2	90	В	F	С	В	F	E	D	F	С	В	F	F	С	D	E
Consensus	90	В	F	С	В	F	E	*	F	С	В	F	F	С	D	E
Frame	105	TTG	TGG	GGT	GTA	TAT	ATC	TCC	CCT	CTA	TAG	AGT	GTG	TGG	GGG	GGT
Inst. 1	105	A	В	F	F	C	В	E	D	C	D	E	A	D	E	В
Inst. 2 Consensus	105 105	A	B	F	F	<u>с</u>	B	E	B *	<u>с</u> С	D	E	A	D D	E	B
consensus	105	A	D	Г	Г	L	D	L		Ľ	D	L	~	D	L	D
Frame	120	GTG	TGA	GAG	AGG	GGG		GGT	GTG	TGG	GGC	GCT	CTT	TTT	TTG	TGG
Inst. 1	120	C	A	D	C	B		D	C	B	F	C	B	 F	C	D
Inst. 2	120	Č	A	D	Č	В	-	D	č	В	F	č	В	F	Č	D
Consensus	120	C	А	D	C	В	-	D	C	В	F	C	В	F	C	D
Frame	135	GGA	GAG	AGT	GTT	TTG	TGC	GCA	CAG	AGT	GTT	TTG	TGA	GAT	ATG	TGT
Inst. 1	135	E	В	С	В	F	F	F	F	E	Α	В	С	D	С	В
Inst. 2	135	E	В	С	В	F	F	F	F	E	Α	Α	Α	D	С	В
Consensus	135	E	В	С	В	F	F	F	F	E	Α	*	*	D	С	В
Frame	150	GTG	TGT	GTG	TGA	GAT	ATA	TAG	AGT	GTT	TTG	TGA	GAA	AAG	AGG	GGT
Inst. 1	150	E	D	C	A	D	E	D	E	A	В	C	B	F	C	В
Inst. 2	150 150	E	D D	<u>с</u>	A A	D D	E	D D	E	A	B	C C	BETA	F	<u>с</u>	B
Consensus	U U U	L	U	L	Λ	U	L	U	L	Λ	U	L		Г	L	U
Frame	165	GTT	TTG	TGA	GAT	ATT	TTG	TGC	GCT	CTG	TGT	GTA	TAC	ACT	СТТ	TTG
Inst. 1		F	C	A	D	E	A	D	E	A	D	F	C	ACT	A	A
	165	Г		~ `	-	Ē	A	D	Ē	A	D	F	C	A	A	A
Inst. 2	165 165	F	C	A	D	L .										
Inst. 2 Consensus		•	C C	A A	D	E	A	D	E	А	D	F	С	A	A	Α
	165	F						D	E	A	D					A
	165	F						D TAA	E AAG	A AGC	D GCA					A
Consensus Frame Inst. 1	165 165 180 180	F F TGC D	C GCT E	A CTT B	D TTG C	E TGT D	A GTA F	TAA C	AAG B	AGC C	GCA B	F CAT E	C ATG A	A TGG D	A GGG F	
Consensus Frame Inst. 1 Inst. 2	165 165 180 180 180	F F TGC D D	C GCT E E	A CTT B B	D TTG C C	E TGT D D	A GTA F F	TAA C C	AAG B B	AGC C C	GCA B B	F CAT E E	C ATG A A	A TGG D D	A GGG F F	
Consensus Frame Inst. 1	165 165 180 180	F F TGC D	C GCT E	A CTT B	D TTG C	E TGT D	A GTA F	TAA C	AAG B	AGC C	GCA B	F CAT E	C ATG A	A TGG D	A GGG F	
Consensus Frame Inst. 1 Inst. 2 Consensus	165 165 180 180 180 180	F F TGC D D D	C GCT E E E	A CTT B B B	D TTG C C C	E TGT D D D	A GTA F F F	TAA C C C	AAG B B B	AGC C C C	GCA B B B	F CAT E E E	C ATG A A A	A TGG D D D	A GGG F F F	
Consensus Frame Inst. 1 Inst. 2 Consensus Frame	165 165 180 180 180 180 180	F F TGC D D D GGA	C GCT E E E GAG	A CTT B B B AGG	D TTG C C C GGG	E TGT D D D	A GTA F F F	TAA C C C GGT	AAG B B GTT	AGC C C TTT	GCA B B B	F CAT E E TTG	C ATG A A A TGA	A TGG D D D GAT	A GGG F F F ATG	 - - - TGT
Consensus Frame Inst. 1 Inst. 2 Consensus Frame Inst. 1	165 165 180 180 180 180 180 195	F F TGC D D D GGA A	C GCT E E GAG B	A CTT B B B AGG C	D TTG C C C GGG B	E TGT D D D	A GTA F F 	TAA C C C GGT D	AAG B B GTT F	AGC C C TTT F	GCA B B 	F CAT E E TTG C	C ATG A A A TGA A	A TGG D D D GAT D	A GGG F F F ATG C	 - - - TGT B
Consensus Frame Inst. 1 Inst. 2 Consensus Frame Inst. 1 Inst. 2	165 165 180 180 180 180 180 195 195 195	F F TGC D D D GGA A A	C GCT E E E GAG	A CTT B B B AGG	D TTG C C C GGG B B B	E TGT D D D	A GTA F F - -	TAA C C C GGT D D	AAG B B GTT F F	AGC C C TTT F F	GCA B B -	F CAT E E TTG C C	C ATG A A A TGA	A TGG D D D GAT F	A GGG F F F ATG C C	 - - TGT B B
Consensus Frame Inst. 1 Inst. 2 Consensus Frame Inst. 1	165 165 180 180 180 180 180 195	F F TGC D D D GGA A	C GCT E E GAG B A	A CTT B B B AGG C	D TTG C C C GGG B	E TGT D D D	A GTA F F 	TAA C C C GGT D	AAG B B GTT F	AGC C C TTT F	GCA B B 	F CAT E E TTG C	C ATG A A A TGA A B	A TGG D D D GAT D	A GGG F F F ATG C	 - - - TGT B
Consensus Frame Inst. 1 Inst. 2 Consensus Frame Inst. 1 Inst. 2 Consensus	165 165 180 180 180 180 195 195 195 195	F F D D GGA A A A	C E E GAG B A *	A CTT B B B AGG C A *	D TTG C C C GGG B B B B B	E TGT D D - -	A GTA F F - - -	TAA C C GGT D D D	AAG B B GTT F F F	AGC C C TTT F F F	GCA B B - - -	F CAT E E TTG C C C	C ATG A A TGA A B *	A TGG D D GAT F *	A GGG F F F ATG C C C	 - - TGT B B B B
Consensus Frame Inst. 1 Inst. 2 Consensus Frame Inst. 1 Inst. 2 Consensus Frame	165 165 180 180 180 180 195 195 195 195 195 210	F F D D GGA A A A GTG	C GCT E E GAG B A * TGG	A CTT B B B AGG C A * GGA	D TTG C C GGG B B B B GAT	E TGT D D T - - - ATT	A GTA F F - - - TTG	TAA C C C GGT D D D D TGG	AAG B B GTT F F F GGG	AGC C C TTT F F F GGT	GCA B B - - GTT	F CAT E E C TTG C C C TTT	C ATG A A TGA A B *	A TGG D D GAT F *	A GGG F F ATG C C C TTA	 - TGT B B B B TAT
Consensus Frame Inst. 1 Inst. 2 Consensus Frame Inst. 1 Inst. 2 Consensus Frame Inst. 1	165 165 180 180 180 180 195 195 195 195 195 195 210 210	F F TGC D D D D GGA A A A A GTG ALFA	C GCT E E GAG A A * TGG GAMMA	A CTT B B B AGG C A * *	D TTG C C GGG B B B B GAT B	E TGT D D T - - - - - - - - - - - - F	A F F - - TTG C	TAA C C GGT D D D TGG D	AAG B B GTT F F F GGG E	AGC C C TTT F F F GGT A	GCA B B - - - - GTT A	F CAT E E E TTG C C C C TTT D	C ATG A A A TGA B *	A TGG D D GAT F *	A GGG F F ATG C C C TTA C	 - - - - - - - - - - - - - - - - -
Consensus Frame Inst. 1 Inst. 2 Consensus Frame Inst. 1 Inst. 2 Consensus Frame	165 165 180 180 180 180 195 195 195 195 195 210	F F D D GGA A A A GTG	C GCT E E GAG B A * TGG	A CTT B B B AGG C A * GGA	D TTG C C GGG B B B B GAT	E TGT D D T - - - - - - - - - - - -	A GTA F F - - - TTG	TAA C C C GGT D D D D TGG	AAG B B GTT F F F GGG	AGC C C TTT F F F GGT	GCA B B - - GTT	F CAT E E C TTG C C C TTT	C ATG A A TGA A B *	A TGG D D GAT F *	A GGG F F ATG C C C TTA	 - TGT B B B B TAT

Characterizing patterns in DNA	sequence trace data through informatics tools

Consensus	210	*	#	C	В	F	С	D	E	A	A	D		-	С	В
Frame	225	ATG	TGT	GTA	TAC	ACT	СТА	TAC	ACA	CAG	AGG	GGT	GTG	TGG	GGT	GTC
Inst. 1	225	F	F	F	С	Α	Α	D	F	F	С	В	С	В	F	E
Inst. 2	225	F	F	F	С	В	С	D	F	F	С	В	С	В	F	E
Consensus	225	F	F	F	С	*	*	D	F	F	С	В	С	В	F	E
Frame	240	TCA	CAA	AAG	AGT	GTA	TAT	ATT	TTT	TTA	TAT	ATG	TGG	GGT	GTA	TAC
Inst. 1	240	A	Α	D	C	В	С	В	F	С	А	D	E	D	E	A
Inst. 2	240	А	А	D	C	В	E	В	F	C	Α	D	Е	D	Е	А
Consensus	240	А	А	D	С	В	*	В	F	С	А	D	E	D	Е	А
Frame	255	ACC	CCG	CGT	GTA	TAC	ACA	CAA	AAT	ATA	TAT	ATT	TTC	TCA	CAT	ATG
Inst. 1	255	B	F	E	B	C	B	F	C	A	В	F	F	E	A	A
Inst. 2	255	В	F	Ē	В	C	B	F	E	A	В	F	F	Ē	A	A
Consensus	255	B	F	Ē	B	Č	B	F	*	A	B	F	F	Ē	A	A
-	270	TCC	CCT	676	TCC	666	CCT	CTC.	TCC		664	616	ACT	CT 1	T 1 1	
Frame	270	TGG	GGT	GTG	TGG	GGC	GCT	CTG	TGG	GGC	GCA	CAG	AGT	GTA	TAA	AAT
Inst. 1	270 270	D	F	C	В	F F	C	A	D	F	E F	D F	E	В	C	A
Inst. 2 Consensus	270	B *	F F	<u>С</u> С	B	F	<u>с</u>	A	D D	F F	۲	F *	C *	B	C C	A
consensus	270		F	C	D	Г	C	Λ	U	Г				D	L	
Frame	285	ATG	TGT	GTA	TAC	ACG	CGA	GAA	AAA	AAT	ATA	TAC	ACA	CAT	ATA	TAG
Inst. 1	285	Α	D	E	А	D	С	В	E	В	С	В	F	С	В	F
Inst. 2	285	A	D	E	A	D	C	B	E	B	C	B	F	C	B	F
Consensus	285	A	D	E	A	D	С	В	E	В	С	В	F	С	В	F
Frame	300	AGC	GCG	CGG	GGT	GTT	TTG	TGT	GTT	TTG	TGA	GAT	ATG	TGG	GGG	GGT
Inst. 1	300	E	А	А	D	С	А	D	E	А	Α	D	E	В	F	E
Inst. 2	300	E	А	В	F	С	А	D	E	А	Α	D	С	В	F	E
Consensus	300	E	А	*	*	С	A	D	E	A	A	D	*	В	F	E
Frame	315	GTG	TGA	GAG	AGT	GTC	ТСА	CAA	AAT	ATA	TAC	ACT	СТТ	TTG	TGG	GGG
Inst. 1	315	A	A	D	E	B	C	B	E	D	E	A	A	D	F	E
Inst. 2	315	A	A	D	Ē	В	C	B	Ē	В	Ē	A	A	D	F	Ē
Consensus	315	А	А	D	Е	В	С	В	Е	*	Ε	А	А	D	F	E
	220	CCT	CTC	TCC	CCT	CT A	TAC	100	666	664	<u> </u>			ATC	тст	CTC
Frame	330	GGT	GTG	TGG	GGT F	GTA	TAC	ACC	CCC F	CCA	CAA F	AAA C	AAT	ATC	TCT C	CTG
Inst. 1 Inst. 2	330 330	A A	A A	B B	F	E CHI	A A	B B	F	F F	F	C	A A	D D	C	A A
Consensus	330	A	A	B	F	*	A	B	F	F	F	C	A	D	C	A
Frame	345	TGC	GCT	СТТ	TTC	тсс	CCC	_								
Inst. 1	345	D	E	А	D	Е	В									
Inst. 2	345	D	E	В	F	E	D	-								
Consensus	345	D	E	*	*	E	*	_								

Appendix II — Frame Distributions Within a Laboratory

The following tables are examples of the processed data using the bioinformatics tools designed to statistically evaluate each of the 64 frames using Chi Square analysis. Each of the four primers, A1, B1, C1, and D1, were evaluated to characterize the different patterns for each frame for two different laboratories. The white cells are the observed number of occurrences of each pattern. The peach cells are the expected number of occurrences under the null hypothesis that each of the six patterns is equally likely. The Chi Square contribution for each pattern is in the corresponding purple cell. The totals correspond to the total number of observations and the total Chi Square. The p-value is the probability of observing a Chi Square greater than or equal to that observed under the null hypothesis of a uniform distribution with each cell having a relative frequency of 1/6 with 5 degrees of freedom.

	A	В	C	D	E	F	TOTALS	
AAA	199.00	87.00	264.00	1.00	159.00	85.00	795.00	
Exp.	132.50	132.50	132.50	132.50	132.50	132.50		p-value
X^2	33.38	15.62	130.51	130.51	5.30	17.03	332.34	1.10576E-69
						.		
AAC	296.00	271.00	353.00	26.00	217.00	75.00	1238.00	
Exp.	206.33	206.33	206.33	206.33	206.33	206.33		p-value
X^2	38.97	20.27	104.25	157.61	0.55	83.60	405.24	2.19786E-85
ACA	174.00	330.00	414.00	380.00	56.00	204.00	1558.00	
Exp.	259.67	259.67	259.67	259.67	259.67	259.67		p-value
X^2	28.26	19.05	91.73	55.76	159.74	11.93	366.48	4.94025E-77
ACC	269.00	503.00	386.00	318.00	288.00	268.00	2032.00	
Exp.	338.67	338.67	338.67	338.67	338.67	338.67		p-value
X^2	14.33	79.74	6.62	1.26	7.58	14.75	124.27	3.90081E-25
=								
ACT	445.00	58.00	98.00	104.00	112.00	2.00	819.00	
Exp.	136.50	136.50	136.50	136.50	136.50	136.50		p-value
X^2	697.23	45.14	10.86	7.74	4,40	132.53	897.90	7.5747E-192
ACG	1.00	98.00	0.00	11.00	0.00	1.00	111.00	
Exp.	18.50	18.50	18.50	18.50	18.50	18.50		p-value
X^2	16.55	341.64	18.50	3.04	18.50	16.55	414.78	1.9299E-87
AAT	13.00	120.00	81.00	66.00	162.00	110.00	552.00	
Exp.	92.00	92.00	92.00	92.00	92.00	92.00	552100	p-value
X^2	67.84	8.52	1.32	7.35	53.26	3.52	141.80	7.39751E-29
ATA	185.00	94.00	148.00	5.00	445.00	18.00	895.00	
Exp.	149.17	149.17	149.17	149.17	149.17	149.17	000.00	p-value
X^2	8.61	20.40	0.01	139.33	586.71	115.34	870.40	6.7716E-186
	0.01	201.0	0.02	200.00			0,00	
ATT	249.00	199.00	26.00	70.00	238.00	82.00	864.00	
Exp.	144.00	144.00	144.00	144.00	144.00	144.00		p-value
X^2	76.56	21.01	96.69	38.03	61.36	26.69	320.35	4.21498E-67
	,0.50	21.01	50.05	50.05	01.00	20.05	520.55	
ATC	93.00	222.00	53.00	231.00	13.00	170.00	782.00	
	55.00	222.00	55.00	201.00	10.00	1/0.00	702.00	

Table A. Laboratory A data compiled for results obtained from Primer A1.

Exp. X^2								
X^2	130.33	130.33	130.33	130.33	130.33	130.33		p-value
	10.69	64.47	45.89	77.75	105.63	12.07	316.51	2.82496E-66
ATG	193.00	0.00	267.00	0.00	3.00	0.00	463.00	
Exp. X^2	77.17	77.17	77.17	77.17	77.17 71.28	77.17	943.66	p-value 9.4623E-202
<u> </u>	1/3.00	//.1/	467.00	//.1/	/1.20	//.1/	943.00	9.40236-202
AAG	73.00	176.00	26.00	219.00	54.00	61.00	609.00	1
Exp.	101.50	101.50	101.50	101.50	101.50	101.50		p-value
X^2	8.00	54.68	56.16	136.02	22.23	16.16	293.26	2.82071E-61
AGA	1.00	0.00	143.00	0.00	0.00	0.00	144.00	
Exp. X^2	24.00 22.04	24.00	24.00 590.04	24.00	24.00	24.00	708.08	p-value 8.7789E-151
X ²	22.04	24.00	590.04	24.00	24.00	24.00	/00.00	0.//09E-131
AGG	0.00	0.00	46.00	0.00	101.00	0.00	147.00	1
Exp.	24.50	24.50	24.50	24.50	24.50	24.50	1.1.00	p-value
X^2	24.50	24.50	18.87	24.50	238.87	24.50	355.73	1.01943E-74
								-
AGC	96.00	32.00	281.00	17.00	240.00	92.00	758.00	
Exp.	126.33	126.33	126.33	126.33	126.33	126.33	472.00	p-value
X^2	7.28	70.44	189.35	94.62	102.27	9.33	473.30	4.6226E-100
AGT	75.00	0.00	186.00	1.00	305.00	9.00	576.00	1
Exp.	96.00	96.00	96.00	96.00	96.00	96.00	570.00	p-value
X^2	4.59	96.00	84.38	94.01	455.01	78.84	812.83	1.936E-173
				•				
CAA	75.00	261.00	216.00	427.00	617.00	81.00	1677.00	
Exp.	279.50	279.50	279.50	279.50	279.50	279.50		p-value
X^2	149.63	1.22	14.43	77.84	407.54	140.97	791.63	7.4958E-169
CAC	126 00	481 00	20.00	270.00	212 00		1342.00	1
CAC Exp.	126.00	481.00 223.67	30.00	270.00	213.00 223.67	222.00 223.67	1342.00	p-value
X^2	42.65	296.07	167.69	9.60	0.51	0.01	516.52	2.1631E-109
CCA	145.00	120.00	313.00	422.00	276.00	716.00	1992.00	
Exp.	332.00	332.00	332.00	332.00	332.00	332.00		p-value
X^2	105.33	135.37	1.09	24.40	9.45	444.14	719.78	2.599E-153
666	10.00	266.00	7.00	530.00	0.00	270.00	1207.00	1
CCC Exp.	18.00 216.17	366.00 216.17	7.00 216.17	520.00 216.17	8.00 216.17	378.00 216.17	1297.00	p-value
X^2	181.67	103.86	202.39	427.05	200.46	121.16	1236.59	3.4899E-265
~ -	101107	200.00	202.00	127105	200110			5110552 205
ССТ	98.00	29.00	312.00	37.00	275.00	36.00	787.00	
Exp.	131.17		131.17	131.17	131.17	131.17		p-value
		131.17				CO 05		
X^2	8.39	131.17 79.58	249.31	67.60	157.72	69.05	631.65	2.9344E-134
X^2	8.39	79.58	249.31					
X^2 CCG	8.39	79.58	249.31 25.00	4.00	78.00	19.00	631.65 231.00	2.9344E-134
X^2 CCG Exp.	8.39 93.00 38.50	79.58 12.00 38.50	249.31 25.00 38.50	4.00 38.50	78.00 38.50	19.00 38.50	231.00	2.9344E-134 p-value
X^2 CCG	8.39	79.58	249.31 25.00	4.00	78.00	19.00		2.9344E-134
X^2 CCG Exp.	8.39 93.00 38.50	79.58 12.00 38.50	249.31 25.00 38.50	4.00 38.50	78.00 38.50 40.53 555.00	19.00 38.50	231.00	2.9344E-134 p-value
X^2 CCG Exp. X^2 CAT Exp.	8.39 93.00 38.50 77.15 43.00 249.83	79.58 12.00 38.50 18.24 368.00 249.83	249.31 25.00 38.50 4.73 217.00 249.83	4.00 38.50 30.92 245.00 249.83	78.00 38.50 40.53 555.00 249.83	19.00 38.50 9.88 71.00 249.83	231.00 181.44 1499.00	2.9344E-134 p-value 2.63361E-37 p-value
X^2 CCG Exp. X^2 CAT	8.39 93.00 <u>38.50</u> 77.15 43.00	79.58 12.00 38.50 18.24 368.00	249.31 25.00 38.50 4.73 217.00	4.00 38.50 30.92 245.00	78.00 38.50 40.53 555.00	19.00 38.50 9.88 71.00	231.00 181.44	2.9344E-134 p-value 2.63361E-37
X^2 CCG Exp. X^2 CAT Exp. X^2	8.39 93.00 38.50 77.15 43.00 249.83 171.23	79.58 12.00 38.50 18.24 368.00 249.83 55.89	249.31 25.00 38.50 4.73 217.00 249.83 4.31	4.00 38.50 30.92 245.00 249.83 0.09	78.00 38.50 40.53 555.00 249.83 372.76	19.00 38.50 9.88 71.00 249.83 128.01	231.00 181.44 1499.00 732.30	2.9344E-134 p-value 2.63361E-37 p-value
X^2 CCG Exp. X^2 CAT Exp. X^2 CAT CAT Exp. X^2 CAT	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00	4.00 38.50 30.92 245.00 249.83 0.09 55.00	78.00 38.50 40.53 555.00 249.83 372.76 3.00	19.00 38.50 9.88 71.00 249.83 128.01 47.00	231.00 181.44 1499.00	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156
X^2 CCG Exp. X^2 CAT Exp. CAT Exp. CAT Exp. X^2 CTA Exp.	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00 85.83	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00 85.83	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00 85.83	4.00 38.50 30.92 245.00 249.83 0.09 55.00 85.83	78.00 38.50 40.53 555.00 249.83 372.76 3.00 85.83	19.00 38.50 9.88 71.00 249.83 128.01 47.00 85.83	231.00 181.44 1499.00 732.30 515.00	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156 p-value
X^2 CCG Exp. X^2 CAT Exp. X^2 CAT CAT Exp. X^2	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00	4.00 38.50 30.92 245.00 249.83 0.09 55.00	78.00 38.50 40.53 555.00 249.83 372.76 3.00	19.00 38.50 9.88 71.00 249.83 128.01 47.00	231.00 181.44 1499.00 732.30	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156
X^2 CCG Exp. X^2 CAT Exp. CAT Exp. CTA Exp.	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00 85.83	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00 85.83	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00 85.83	4.00 38.50 30.92 245.00 249.83 0.09 55.00 85.83	78.00 38.50 40.53 555.00 249.83 372.76 3.00 85.83	19.00 38.50 9.88 71.00 249.83 128.01 47.00 85.83	231.00 181.44 1499.00 732.30 515.00	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156 p-value
X^2 CCG Exp. CAT Exp. X^2 CAT Exp. X^2 CTA Exp. X^2 CTA Exp. X^2 CTA Exp. X2	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00 85.83 185.45	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00 85.83 136.31	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00 85.83 78.02	4.00 38.50 30.92 245.00 249.83 0.09 55.00 85.83 11.08	78.00 38.50 40.53 555.00 249.83 372.76 3.00 85.83 79.94	19.00 38.50 9.88 71.00 249.83 128.01 47.00 85.83 17.57	231.00 181.44 1499.00 732.30 515.00 508.37	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156 p-value
X^2 CCG Exp. X^2 CAT Exp. X^2 CTA Exp. X^2 CTT	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00 85.83 185.45 282.00	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00 85.83 136.31 11.00	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00 85.83 78.02 19.00	4.00 38.50 30.92 245.00 249.83 0.09 55.00 85.83 11.08 0.00	78.00 38.50 40.53 555.00 249.83 372.76 3.00 85.83 79.94 145.00	19.00 38.50 9.88 71.00 249.83 128.01 47.00 85.83 17.57 76.00	231.00 181.44 1499.00 732.30 515.00 508.37	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156 p-value 1.2478E-107
X^2 CCG Exp. Y^2 CAT Exp. Y^2 CTA Exp. Y^2 CTT Exp. X^2 X^2	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00 85.83 185.45 282.00 88.83 420.04	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00 85.83 136.31 11.00 88.83 68.20	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00 85.83 78.02 19.00 88.83 54.90	4.00 38.50 30.92 245.00 249.83 0.09 55.00 85.83 11.08 0.00 88.83 88.83	78.00 38.50 40.53 555.00 249.83 372.76 3.00 85.83 79.94 145.00 88.83 35.51	19.00 38.50 9.88 71.00 249.83 128.01 47.00 85.83 17.57 76.00 88.83 1.85	231.00 181.44 1499.00 732.30 515.00 508.37 533.00 669.33	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156 p-value 1.2478E-107 p-value
X^2 CCG Exp. CAT Exp. X^2 CTT Exp. X^2 CTT Exp. X^2	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00 85.83 185.45 282.00 88.83 420.04 1.00	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00 85.83 136.31 11.00 88.83 68.20 175.00	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00 85.83 78.02 19.00 88.83 54.90 2.00	4.00 38.50 30.92 245.00 249.83 0.09 55.00 85.83 11.08 0.00 88.83 88.83 88.83	78.00 38.50 40.53 555.00 249.83 372.76 3.00 85.83 79.94 145.00 88.83 35.51 3.00	19.00 38.50 9.88 71.00 249.83 128.01 47.00 85.83 17.57 76.00 88.83 1.85 46.00	231.00 181.44 1499.00 732.30 515.00 508.37 533.00	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156 p-value 1.2478E-107 p-value 2.099E-142
X^2 CCG Exp. X^2 CAT Exp. X^2 CTA Exp. X^2 CTT Exp. X^2 CTT Exp. CTT Exp. CTT Exp. CTT Exp. CTT Exp. CTC Exp.	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00 85.83 185.45 282.00 88.83 420.04 1.00 125.83	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00 85.83 136.31 11.00 88.83 68.20 175.00 125.83	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00 85.83 78.02 19.00 88.83 54.90 2.00 125.83	4.00 38.50 30.92 245.00 249.83 0.09 55.00 85.83 11.08 0.00 88.83 88.83 528.00 125.83	78.00 38.50 40.53 555.00 249.83 372.76 3.00 85.83 79.94 145.00 88.83 35.51 3.00 125.83	19.00 38.50 9.88 71.00 249.83 128.01 47.00 85.83 17.57 76.00 88.83 1.85 46.00 125.83	231.00 181.44 1499.00 732.30 515.00 508.37 533.00 669.33 755.00	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156 p-value 1.2478E-107 p-value 2.099E-142 p-value
X^2 CCG Exp. CAT Exp. X^2 CTT Exp. X^2 CTT Exp. X^2	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00 85.83 185.45 282.00 88.83 420.04 1.00	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00 85.83 136.31 11.00 88.83 68.20 175.00	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00 85.83 78.02 19.00 88.83 54.90 2.00	4.00 38.50 30.92 245.00 249.83 0.09 55.00 85.83 11.08 0.00 88.83 88.83 88.83	78.00 38.50 40.53 555.00 249.83 372.76 3.00 85.83 79.94 145.00 88.83 35.51 3.00	19.00 38.50 9.88 71.00 249.83 128.01 47.00 85.83 17.57 76.00 88.83 1.85 46.00	231.00 181.44 1499.00 732.30 515.00 508.37 533.00 669.33	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156 p-value 1.2478E-107 p-value 2.099E-142
X^2 CCG Exp. X^2 CAT Exp. X^2 CTA Exp. X^2 CTT Exp. X^2 CTT Exp. CTT Exp. CTT Exp. CTT Exp. CTT Exp. CTC Exp.	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00 85.83 185.45 282.00 88.83 420.04 1.00 125.83	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00 85.83 136.31 11.00 88.83 68.20 175.00 125.83	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00 85.83 78.02 19.00 88.83 54.90 2.00 125.83	4.00 38.50 30.92 245.00 249.83 0.09 55.00 85.83 11.08 0.00 88.83 88.83 528.00 125.83	78.00 38.50 40.53 555.00 249.83 372.76 3.00 85.83 79.94 145.00 88.83 35.51 3.00 125.83	19.00 38.50 9.88 71.00 249.83 128.01 47.00 85.83 17.57 76.00 88.83 1.85 46.00 125.83	231.00 181.44 1499.00 732.30 515.00 508.37 533.00 669.33 755.00	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156 p-value 1.2478E-107 p-value 2.099E-142 p-value
X^2 CCG Exp. CAT Exp. X^2 CTA Exp. CTA Exp. X^2 CTA Exp. X^2 CTA Exp. X^2 CTT Exp. X^2 CTT Exp. X^2 CTC Exp. X^2	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00 85.83 185.45 282.00 88.83 420.04 1.00 125.83 123.84	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00 85.83 136.31 11.00 88.83 68.20 175.00 125.83 19.21	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00 85.83 78.02 19.00 88.83 54.90 2.00 125.83 121.87	4.00 38.50 30.92 245.00 249.83 0.09 55.00 85.83 11.08 0.00 88.83 88.83 528.00 125.83 1285.34	78.00 38.50 40.53 555.00 249.83 372.76 3.00 85.83 79.94 145.00 88.83 35.51 3.00 125.83 119.90	19.00 38.50 9.88 71.00 249.83 128.01 47.00 85.83 17.57 76.00 88.83 1.85 46.00 125.83 50.65	231.00 181.44 1499.00 732.30 515.00 508.37 533.00 669.33 755.00 1720.81	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156 p-value 1.2478E-107 p-value 2.099E-142 p-value
X^2 CCG Exp. Y CAT Exp. X^2 CTA Exp. Y CTA Exp. Y CTA Exp. Y CTT Exp. Y CTC Exp. Y CTG	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00 85.83 185.45 282.00 88.83 420.04 1.00 125.83 123.84 462.00	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00 85.83 136.31 11.00 88.83 68.20 175.00 125.83 19.21 1.00	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00 85.83 78.02 19.00 88.83 54.90 2.00 125.83 121.87 34.00	4.00 38.50 30.92 245.00 249.83 0.09 55.00 85.83 11.08 0.00 88.83 88.83 528.00 125.83 1285.34 2.00	78.00 38.50 40.53 555.00 249.83 372.76 3.00 85.83 79.94 145.00 88.83 35.51 3.00 125.83 119.90 0.00	19.00 38.50 9.88 71.00 249.83 128.01 47.00 85.83 17.57 76.00 88.83 1.85 46.00 125.83 50.65 0.00	231.00 181.44 1499.00 732.30 515.00 508.37 533.00 669.33 755.00 1720.81	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156 p-value 1.2478E-107 p-value 2.099E-142 p-value 4.074E-370
X^2 CCG Exp. Y CAT Exp. Y CAT Exp. Y CTA Exp. Y CTA Exp. Y CTT Exp. Y CTT Exp. Y CTC Exp. Y CTG Exp. Y CT CT	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00 85.83 185.45 282.00 88.83 420.04 1.00 125.83 123.84 462.00 83.17 1725.63	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00 85.83 136.31 11.00 88.83 68.20 175.00 125.83 19.21 1.00 83.17 81.18	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00 85.83 78.02 19.00 88.83 54.90 2.00 125.83 121.87 34.00 83.17 29.07	4.00 38.50 30.92 245.00 249.83 0.09 55.00 85.83 11.08 0.00 88.83 88.83 528.00 125.83 1285.34 2.00 83.17 79.21	78.00 38.50 40.53 555.00 249.83 372.76 3.00 85.83 79.94 145.00 88.83 35.51 3.00 125.83 119.90 0.00 83.17 83.17	19.00 38.50 9.88 71.00 249.83 128.01 47.00 85.83 17.57 76.00 88.83 1.85 46.00 125.83 50.65 0.00 83.17 83.17	231.00 181.44 1499.00 732.30 515.00 508.37 533.00 669.33 755.00 1720.81 499.00 2081.42	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156 p-value 1.2478E-107 p-value 2.099E-142 p-value 4.074E-370 p-value
X^2 I CCG I Exp. I CAT I Exp. I X^2 I CTA I Exp. I X^2 I CTT I Exp. I X^2 I CTT I Exp. I X^2 I CTT I Exp. I X^2 I CTG I Exp. I CTG I Exp. I CTG I Exp. I CAG I	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00 85.83 185.45 282.00 88.83 420.04 1.00 125.83 123.84 462.00 83.17 1725.63 0.00	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00 85.83 136.31 11.00 88.83 68.20 175.00 125.83 19.21 1.00 83.17 81.18 0.00	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00 85.83 78.02 19.00 88.83 54.90 2.00 125.83 121.87 34.00 83.17 29.07 0.00	4.00 38.50 30.92 245.00 249.83 0.09 55.00 85.83 11.08 0.00 88.83 88.83 528.00 125.83 1285.34 2.00 83.17 79.21 176.00	78.00 38.50 40.53 555.00 249.83 372.76 3.00 85.83 79.94 145.00 88.83 35.51 3.00 125.83 119.90 0.00 83.17 83.17 50.00	19.00 38.50 9.88 71.00 249.83 128.01 47.00 85.83 17.57 76.00 88.83 1.85 46.00 125.83 50.65 0.00 83.17 83.17 327.00	231.00 181.44 1499.00 732.30 515.00 508.37 533.00 669.33 755.00 1720.81 499.00	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156 p-value 1.2478E-107 p-value 2.099E-142 p-value 4.074E-370 p-value 2.681E-448
X^2 Exp. K^2 CAT Exp. X^2 CTA Exp. X^2 CTA Exp. X^2 CTA Exp. X^2 CTA Exp. X^2 CTT Exp. X^2 CTC Exp. X^2 CTG Exp. X^2 CTG CAG Exp. CAG	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00 85.83 185.45 282.00 88.83 420.04 1.00 125.83 123.84 462.00 83.17 1725.63 0.00 92.17	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00 85.83 136.31 11.00 88.83 68.20 175.00 125.83 19.21 1.00 83.17 81.18 0.00 92.17	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00 85.83 78.02 19.00 88.83 54.90 2.00 125.83 121.87 34.00 83.17 29.07 0.00 92.17	4.00 38.50 30.92 245.00 249.83 0.09 55.00 85.83 11.08 0.00 88.83 88.83 528.00 125.83 1285.34 2.00 83.17 79.21 176.00 92.17	78.00 38.50 40.53 555.00 249.83 372.76 3.00 85.83 79.94 145.00 88.83 35.51 3.00 125.83 119.90 0.00 83.17 83.17 50.00 92.17	19.00 38.50 9.88 71.00 249.83 128.01 47.00 85.83 17.57 76.00 88.83 1.85 46.00 125.83 50.65 0.00 83.17 83.17 327.00 92.17	231.00 181.44 1499.00 732.30 515.00 508.37 533.00 669.33 755.00 1720.81 499.00 2081.42 553.00	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156 p-value 1.2478E-107 p-value 2.099E-142 p-value 4.074E-370 p-value 2.681E-448 p-value
X^2 I CCG I Exp. I CAT I Exp. I X^2 I CTA I Exp. I X^2 I CTT I Exp. I X^2 I CTT I Exp. I X^2 I CTT I Exp. I X^2 I CTG I Exp. I CTG I Exp. I CTG I Exp. I CAG I	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00 85.83 185.45 282.00 88.83 420.04 1.00 125.83 123.84 462.00 83.17 1725.63 0.00	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00 85.83 136.31 11.00 88.83 68.20 175.00 125.83 19.21 1.00 83.17 81.18 0.00	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00 85.83 78.02 19.00 88.83 54.90 2.00 125.83 121.87 34.00 83.17 29.07 0.00	4.00 38.50 30.92 245.00 249.83 0.09 55.00 85.83 11.08 0.00 88.83 88.83 528.00 125.83 1285.34 2.00 83.17 79.21 176.00	78.00 38.50 40.53 555.00 249.83 372.76 3.00 85.83 79.94 145.00 88.83 35.51 3.00 125.83 119.90 0.00 83.17 83.17 50.00	19.00 38.50 9.88 71.00 249.83 128.01 47.00 85.83 17.57 76.00 88.83 1.85 46.00 125.83 50.65 0.00 83.17 83.17 327.00	231.00 181.44 1499.00 732.30 515.00 508.37 533.00 669.33 755.00 1720.81 499.00 2081.42	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156 p-value 1.2478E-107 p-value 2.099E-142 p-value 4.074E-370 p-value 2.681E-448
X^2 CCG Exp. X^2 CAT Exp. X^2 CTA Exp. X^2 CTT Exp. X^2 CTT Exp. X^2 CTT Exp. X^2 CTC Exp. X^2 CTG Exp. X^2 CTG Exp. X^2 CAG Exp.	8.39 93.00 38.50 77.15 43.00 249.83 171.23 212.00 85.83 185.45 282.00 88.83 420.04 1.00 125.83 123.84 462.00 83.17 1725.63 0.00 92.17	79.58 12.00 38.50 18.24 368.00 249.83 55.89 194.00 85.83 136.31 11.00 88.83 68.20 175.00 125.83 19.21 1.00 83.17 81.18 0.00 92.17	249.31 25.00 38.50 4.73 217.00 249.83 4.31 4.00 85.83 78.02 19.00 88.83 54.90 2.00 125.83 121.87 34.00 83.17 29.07 0.00 92.17	4.00 38.50 30.92 245.00 249.83 0.09 55.00 85.83 11.08 0.00 88.83 88.83 528.00 125.83 1285.34 2.00 83.17 79.21 176.00 92.17	78.00 38.50 40.53 555.00 249.83 372.76 3.00 85.83 79.94 145.00 88.83 35.51 3.00 125.83 119.90 0.00 83.17 83.17 50.00 92.17	19.00 38.50 9.88 71.00 249.83 128.01 47.00 85.83 17.57 76.00 88.83 1.85 46.00 125.83 50.65 0.00 83.17 83.17 327.00 92.17	231.00 181.44 1499.00 732.30 515.00 508.37 533.00 669.33 755.00 1720.81 499.00 2081.42 553.00	2.9344E-134 p-value 2.63361E-37 p-value 5.091E-156 p-value 1.2478E-107 p-value 2.099E-142 p-value 4.074E-370 p-value 2.681E-448 p-value

Characterizing patterns in DNA sequence trace data through informatics tools

-								
Exp.	N/A	N/A	N/A	N/A	N/A	N/A		p-value
X^2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			*	•	•	•		
CGG	1.00	0.00	110.00	1.00	1.00	0.00	113.00	
Exp.	18.83	18.83	18.83	18.83	18.83	18.83		p-value
X^2	16.89	18.83	441.31	16.89	16.89	18.83	529.64	3.1915E-112
CGC	0.00	1.00	1.00	96.00	0.00	16.00	114.00	1
Exp.	19.00	19.00	19.00	19.00	19.00	19.00		p-value
X^2	19.00	17.05	17.05	312.05	19.00	0.47	384.63	6.08251E-81
<u> </u>		27100	11100	512.05	101.00	0.17		01001011 01
CGT	86.00	15.00	93.00	89.00	5.00	17.00	305.00	1
Exp.	50.83	50.83	50.83	50.83	50.83	50.83	505100	p-value
X^2	24.33	25.26	34.98	28.66	41.33	22.52	177.07	2.26494E-36
~ ~ ~	24.33	23.20	54.50	20.00	41.55	22.32	177.07	2.204942-30
TAA	6.00	82.00	6.00	376.00	16.00	26.00	512.00	1
Exp.	85.33	85.33	85.33	85.33	85.33	85.33	512.00	p-value
X^2	73.76	0.13	73.76	990.08	56.33	41.26	1235.31	6.5893E-265
<u>^</u>	/3./0	0.15	/3.70	990.00	50.55	41.20	1235.31	0.38332-205
TAC	070 00	152.00	409.00	88.00	26.00	71.00	1622.00	1
TAC	878.00	152.00	408.00	88.00	26.00	71.00	1623.00	
Exp.	270.50	270.50	270.50	270.50	270.50	270.50	1077 43	p-value
X^2	1364.35	51.91	69.89	123.13	221.00	147.14	1977.42	9.513E-426
7.04	0.00	1.00	210.00	02.02	600.00	44.00	055 63	1
TCA	9.00	1.00	210.00	83.00	608.00	44.00	955.00	
Exp.	159.17	159.17	159.17	159.17	159.17	159.17		p-value
X^2	141.68	157.17	16.23	36.45	1265.66	83.33	1700.52	1.019E-365
	.							1
TCC	28.00	84.00	175.00	29.00	259.00	16.00	591.00	
Exp.	98.50	98.50	98.50	98.50	98.50	98.50		p-value
X^2	50.46	2.13	59.41	49.04	261.53	69.10	491.67	5.014E-104
	-			-	-	-		
ТСТ	5.00	0.00	287.00	6.00	163.00	1.00	462.00	
Exp.	77.00	77.00	77.00	77.00	77.00	77.00		p-value
X^2	67.32	77.00	572.73	65.47	96.05	75.01	953.58	6.7143E-204
								-
TCG	0.00	0.00	3.00	1.00	91.00	96.00	191.00	
Exp.	31.83	31.83	31.83	31.83	31.83	31.83		p-value
X^2	31.83	31.83	26.12	29.86	109.97	129.34	358.96	2.06179E-75
								_
TAT	63.00	89.00	201.00	69.00	198.00	11.00	631.00	
Exp.	105.17	105.17	105.17	105.17	105.17	105.17		p-value
X^2	16.91	2.49	87.33	12.44	81.95	84.32	285.42	1.36177E-59
TTA	153.00	41.00	221.00	45.00	41.00	91.00	592.00	
Exp.	98.67	98.67	98.67	98.67	98.67	98.67		p-value
X^2	29.92	33.70	151.68	29.19	33.70	0.60	278.79	3.6208E-58
		•		•		•		
TTT	111.00	184.00	5.00	139.00	1.00	24.00	464.00	
Exp.	77.33	77.33	77.33	77.33	77.33	77.33		p-value
X^2	14.66	147.13	67.66	49.17	75.35	36.78	390.74	2.93475E-82
		•		•		•		
TTC	3.00	78.00	0.00	198.00	2.00	185.00	466.00	
Exp.	77.67	77.67	77.67	77.67	77.67	77.67		p-value
X^2	71.78	0.00	77.67	186.44	73.72	148.33	557.94	2.4656E-118
TTG	239.00	1.00	233.00	0.00	0.00	0.00	473.00	
Exp.	78.83	78.83	78.83	78.83	78.83	78.83		p-value
X^2	325.41	76.85	301.49	78.83	78.83	78.83	940.25	5.1754E-201
TAG	0.00	0.00	0.00	251.00	19.00	187.00	457.00	1
Exp.	76.17	76.17	76.17	76.17	76.17	76.17	157.00	p-value
X^2	76.17	76.17	76.17	401.31	42.91	161.28	834.00	5.1027E-178
~ 4	,0.1/	, 0.1/	/0.1/	101.01	72.51	101.20	004.00	J.102/L 1/0
TGA	65.00	157.00	3.00	212.00	0.00	1.00	438.00	1
Exp.	73.00	73.00	73.00	73.00	73.00	73.00	-30.00	p-value
X^2	0.88	96.66	67.12	264.67	73.00	71.01	573.34	1.1614E-121
~ 4	0.00	30.00	07.12	204.07	75.00	/1.01	575.54	1.10146-121
TGG	0.00	222 00	0.00	37 00	0.00	0.00	260 00	1
	0.00	223.00	0.00	37.00	0.00	0.00	260.00	n, volue
Exp.	43.33	43.33	43.33	43.33	43.33	43.33	010 10	p-value
X^2	43.33	744.93	43.33	0.93	43.33	43.33	919.18	1.8747E-196
TCC	7 00	00.00	0.00		0.00	0.00	242.00	1
TGC	7.00	99.00	0.00	237.00	0.00	0.00	343.00	
Exp.	57.17	57.17	57.17	57.17	57.17	57.17		p-value
X^2	44.02	30.61	57.17	565.71	57.17	57.17	811.85	3.1577E-173
	0.05	47.05	0.05		2.05		407.07	1
TGT	0.00	17.00	0.00	387.00	2.00	1.00	407.00	l

Exp.	67.83	67.83	67.83	67.83	67.83	67.83		p-value
X^2	67.83	38.09	67.83	1501.73	63.89	65.85	1805.23	2.040E-388
-								
GAA	90.00	5.00	3.00	4.00	49.00	58.00	209.00	
Exp.	34.83	34.83	34.83	34.83	34.83	34.83		p-value
X^2	87.37	25.55	29.09	27.29	5.76	15.41	190.47	3.09427E-39
GAC	0.00	1.00	2.00	58.00	142.00	116.00	319.00	-
Exp.	53.17	53.17	53.17	53.17	53.17	53.17	276 72	p-value
X^2	53.17	51.19	49.24	0.44	148.43	74.26	376.72	3.08355E-79
GCA	142.00	108.00	37.00	94.00	90.00	104.00	575.00	1
Exp.	95.83	95.83	95.83	95.83	95.83	95.83	375.00	p-value
X^2	22.24	1.54	36.12	0.04	0.36	0.70	60.99	7.58872E-12
<u> </u>		2101	50112	0101	0100	0170		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
GCC	209.00	66.00	31.00	4.00	115.00	1.00	426.00	1
Exp.	71.00	71.00	71.00	71.00	71.00	71.00		p-value
X^2	268.23	0.35	22.54	63.23	27.27	69.01	450.62	3.61072E-95
	-							
GCT	0.00	0.00	32.00	7.00	78.00	100.00	217.00	
Exp.	36.17	36.17	36.17	36.17	36.17	36.17		p-value
X^2	36.17	36.17	0.48	23.52	48.39	112.66	257.39	1.42841E-53
666	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1
GCG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n volue
Exp. X^2	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A	p-value N/A
~ 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GAT	0.00	145.00	0.00	147.00	0.00	17.00	309.00	1
Exp.	51.50	51.50	51.50	51.50	51.50	51.50		p-value
X^2	51.50	169.75	51.50	177.09	51.50	23.11	524.46	4.194E-111
	-	•	•			*		-
GTA	329.00	173.00	49.00	176.00	266.00	229.00	1222.00	
Exp.	203.67	203.67	203.67	203.67	203.67	203.67		p-value
X^2	77.13	4.62	117.46	3.76	19.08	3.15	225.19	1.14924E-46
CTT	0.00	0.00	0.00	0.00	00.00	1.00	01.00	1
GTT	0.00	0.00	0.00	0.00	90.00	1.00	91.00	n valua
Exp. X^2	15.17 15.17	15.17 15.17	15.17 15.17	15.17 15.17	15.17 369.23	15.17 13.23	443.13	p-value 1.48831E-93
<u>^ </u>	15.17	15.17	13.1/	15.17	509.25	15.25	445.15	1.400311-33
GTC	85.00	73.00	1.00	12.00	0.00	37.00	208.00	1
Exp.	34.67	34.67	34.67	34.67	34.67	34.67	200100	p-value
X^2	73.08	42.39	32.70	14.82	34.67	0.16	197.81	8.36294E-41
-								
GTG	1.00	0.00	5.00	1.00	2.00	3.00	12.00	
Exp.	2.00	2.00	2.00	2.00	2.00	2.00		p-value
X^2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<u> </u>	0.00	0.00	0.00	E 00	0.00	0.00	F 00	1
GAG	0.00	0.00	0.00	5.00	0.00	0.00	5.00	
Exp. X^2	0.83 N/A	0.83 N/A	0.83 N/A	0.83 N/A	0.83 N/A	0.83 N/A	N / A	p-value N/A
~ 2			N/A	N/A	N/A		N/A	
GGA	193.00	4.00	1.00	0.00	48.00	13.00	259.00	1
Exp.	43.17	43.17	43.17	43.17	43.17	43.17		p-value
X^2	520.08	35.54	41.19	43.17	0.54	21.08	661.59	9.8681E-141
GGG	14.00	29.00	0.00	1.00	0.00	197.00	241.00	
Exp.	40.17	40.17	40.17	40.17	40.17	40.17		p-value
X^2	17.05	3.10	40.17	38.19	40.17	612.37	751.04	4.5026E-160
	-	-	-	-	-	-		
GGC	0.00	0.00	0.00	0.00	2.00	0.00	2.00	
Exp.	0.33	0.33	0.33	0.33	0.33	0.33	N / A	p-value
X^2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GGT	1.00	1.00	15.00	111.00	91.00	40.00	259.00	1
Exp.	43.17	43.17	43.17	43.17	43.17	40.00	255.00	p-value
	41.19	41.19	18.38	106.60	53.00	0.23	260.59	2.93217E-54
X^2								

Characterizing patterns in DNA sequence trace data through informatics tools

 18.38
 106.60
 53.00
 0.23

 *Kolmogorov test performed and generally consistent with the Chi Square test.

Table B. The p-values for each of the frames and each of the primers are provided. Any p-value < 7.8125E-4 (0.05/64) is considered statistically significant with an overall $\alpha = 0.05$ for that frame. All p-values exceeding 7.8125E-4 are black reversed; the null hypothesis is not to be rejected. Overall, the frames are not distributed uniformly across the six patterns. All N/A correspond to no observations or too few observations for that frame.

Frame A1 B1 C1 D1 AAC 1.97615-16 7.33917-121 1.128291-108 ACC 3.9408215-77 3.498711-18 6.90211-227 7.986791-37 ACC 3.940811-25 3.596651-33 2.56346-42 1.5948411-15* ACT 7.5771-122 1.327766-76 6.967521-67 5.863391-64 ACG 1.92991-87 1.334741-49 5.44491-153 4.7133318-08* ACG 1.92991-87 1.334741-49 5.44491-153 4.713318-08* ATA 6.77161-186 5.611721-11 4.027551-119 6.84227-011 ATT 4.714981-67 3.89321-234 6.803212-234 6.804212-031 ATC 2.82971E-61 3.82785E-63 7.71945E-35 4.21051-44 AGG 1.03272-132 2.23112-106 1.3894E-181 3.5311-42 AGG 1.03261-73 2.79175E-56 9.97307E-67 1.52731-35 CAA 7.4595E-163 3.9452-29 3.44385E-189 9.02865274 AGC 2.0332162-64 4.44538E-			p-V;	alue	
AAC 2.19786E-85 2.21986E-08* 1.8946E-117 5.98501E-227 7.98679E-37 ACC 3.99081E-25 3.6965E-33 2.5634E-42 1.59481E-15* ACT 7.977E-122 1.33776E-76 6.0976E-67 6.0976E-67 6.0976E-67 ACG 1.3297E-28 8.498E-35 2.2824E-194 7.33427E-07 ATA 6.7716E-186 5.61172E-11 4.0275E-119 6.804257E-119 ATT 4.71498E-67 2.99312E-24 4.0837E-286 8.60482120 ATC 2.8498E-66 2.79912E-27 1.6738E-118 1.47331E-111 ATG 2.82071E-61 3.82785E-63 7.71945E-35 4.2105E-48 AGA 8.7799E-151 1.11052E-55 4.8407E-206 8.0942E-119 7.8373E-35 CAA 7.4936E-169 9.97307E-67 1.53733E-35 CAA 7.4936E-33 2.2956274 CAC 2.199E-153 3.4947E-206 1.9824E-119 7.8195274 CAC 2.199E-156 3.995E-29 9.97307E-67 1.53733E-35 CAA 7.4999E-	Frame	A1			D1
ACA 4.94925E-77 3.49871E-18 6.0921E-227 7.96679E-37 ACC 3.59665E-33 2.5634E-42 1.59481E-13 5.484542 1.59481E-169 ACG 1.39751E-29 8.498E-35 2.2634E-42 1.34747E-49 5.449E-133 4.7133326-199 ATA 6.7716E-186 5.61172E-11 4.0735E-119 6.84257E-07 ATA 6.7716E-186 5.61172E-11 4.0735E-119 6.84257E-07 ATG 9.4623E-202 2.93389E-62 2.8625E-201 9.20277E-21 AKG 8.7799E-151 1.11052E-35 4.8407E-206 8.0448E-85 AGG 1.6326E-173 2.79317E-56 9.97307E-67 1.53737E-233 AGC 4.6226E-100 1.16187E-27 6.3073E-203 4.8602E-43 AGC 4.6326E-109 1.90125E-66 1.9934E-181 3.5831E-44 AGC 2.399E-133 0.70439E-139 3.9385E-22 3.4124E-218 3.5381E-62 CCA 2.4939E-265 3.9385E-23 3.4124E-218 3.6388E-62 2.55827E-66 CCC	AAA	1.10576E-69	1.97613E-16	7.3393E-121	1.12829E-10
ACC 3.90681E-25 3.50665E-33 2.5534E-42 1.59481E-15* ACG 1.9299E-87 1.33776E-76 6.09762E-67 5.6439E-07 ATA 6.7716E-186 5.61172E-11 4.0275E-119 6.8427E-08 ATA 6.7716E-186 5.61172E-21 4.0275E-119 6.8427E-111 ATT 4.21498E-67 2.29138DE-24 4.0837E-286 8.60422E-08 ATC 2.8249EE-66 2.79912E-27 1.6738E-118 1.473721E-11 AAG 2.82071E-61 3.82785E-63 7.71945E-35 4.8407E-206 9.92077E-7337255 AGG 1.01934E-74 2.2631E-106 1.3894E-181 3.53372-335 CAA 7.4936E-137 2.79175E-96 9.97367E-67 1.527373-335 CAA 7.4936E-137 2.79175E-96 9.7367E-67 1.52737-335 CAC 2.1631E-109 N/A 3.4638E-149 0.009455724 CCC 2.4839E-265 3.995E-29 3.4124E-218 3.639848E-65* CCC 2.4839E-169 1.05138E-190 0.009455724 <	AAC	2.19786E-85	2.21986E-08*	1.8946E-117	5.98581E-08*
ACT 7.5747E-192 1.32776E-67 6.09762F-67 5.6839F-09* ACG 1.33747E-79 8.498E-35 2.2824E-194 7.33731E-08* ATT 4.71331E-29 8.498E-35 2.2824E-194 7.33731E-08* ATT 4.21498E-67 3.29153E-24 4.0827E-216 8.0422F-60 ATC 2.82496E-66 2.7912E-27 1.6738E-118 1.4731E-11 ATG 9.4232F-202 2.93389E-62 2.6625E-201 9.22077E-21 AGA 8.8785E-63 7.71945E-35 4.210277E-31 4.0438E-181 3.531E-42 AGA 8.7789E-151 1.11652E-35 4.9407E-206 8.06748-33 0.662E-33 AGC 4.0236E-103 2.1017E-266 9.37307E-671 9.8602E-43 9.366E-132 CAA 7.4958E-108 1.90125E-66 1.8924E-119 3.7019E-35 9.286E-32 CCC 2.394E-133 0.00122235 6.436865E-43 9.2868E-32 CCC 2.394E-137 1.06168E-24* 6.36956E-54 2.05827E-65* CCT 2.3144E-144 <th0< td=""><td>ACA</td><td>4.94025E-77</td><td>3.49871E-18</td><td>6.0921E-227</td><td>7.98679E-37</td></th0<>	ACA	4.94025E-77	3.49871E-18	6.0921E-227	7.98679E-37
ACG 1.9299E-87 1.33474E-49 5.449E-153 4.71333E-08T ATT 7.9751E-29 8.498E-155 2.2824E-194 7.33427E-07 ATT 6.7716E-186 5.61172E-11 4.0232E-1266 8.649427E-01 ATTC 2.82496E-66 2.79912E-27 1.6738E-118 1.2427F-11 ATG 9.8429E-02 2.8398E-62 2.8625E-1281 9.2077F-21 AAG 2.82071E-61 3.82705E-63 7.71945E-35 4.8407E-266 8.95448E-85 AGG 1.0193E-74 2.2631E-106 1.8394E-181 3.831E-42 4.8007E-266 8.95237E-33 AGC 4.2526E-103 1.90125E-06 1.9824E-119 3.7337E-13 CAC CAC 2.994E-133 2.49176E-95 3.41262181 9.2056E-12 CCC 3.495E-255 3.985E-29 3.4124E-218 9.2056E-12 CCC 3.499E-255 3.985E-29 3.4124E-218 9.2058E-12 CCC 3.499E-255 3.985E-29 3.4124E-218 9.2058E-12 CCC 2.994E-131 0.6138E-244	ACC	3.90081E-25	3.50665E-33	2.5634E-42	1.59481E-15*
AAT 7.39731E-29 8.498E-35 2.2824E-194 7.347347E-67 ATA 6.7716E-186 5.61172E-11 4.0275E-119 6.8422F-80 ATC 2.82496E-66 2.93189E-62 2.6632E-286 8.64042E-80 ATG 9.4632E-202 2.93389E-62 2.6632E-201 9.20277E-21 AAG 8.7789E-151 1.11852E-35 4.9407E-206 8.6672E-33 4.66672E-33 AGG 1.9348E-714 2.2631E-106 1.3946E-113 3.5331E-32 CAC 2.936E-173 2.20175E-96 9.97307E-63 4.8067E-43 AGG 2.939E-153 0.001292735 3.4124E-218 3.7318E-33 CAC 2.939E-153 0.001292735 3.42182E-189 9.2086E-32 CCC 2.934E-134 0.001292735 5.81374E-24 2.38388E-63 CCCT 2.9344E-134 0.001292735 5.81374E-24 2.38388E-63 CCT 2.9344E-134 0.001292735 5.81374E-24 CTT 2.099E-142 1.36358E-22 1.00138E-73 5.81374E-24 CCT </td <td>ACT</td> <td>7.5747E-192</td> <td>1.32776E-67</td> <td>6.09762E-67</td> <td>5.86839E-09*</td>	ACT	7.5747E-192	1.32776E-67	6.09762E-67	5.86839E-09*
ATA 6.7716E-186 5.61172E-11 4.0232E-119 6.42327E-11 ATC 2.82496E-66 2.79912E-27 1.6738E-118 1.4237E-11 ATG 2.82496E-66 2.79912E-27 1.6738E-118 1.4731E-11 ATG 2.82496E-66 2.79912E-27 1.6738E-158 4.6032E-286 8.60482E-88 AGG 2.8277E-11 3.82785E-63 7.71945E-35 4.2125E-43 4.607E-266 8.62448E-85 AGG 1.938E-173 2.2631E-186 1.3804E-181 3.5831E-42 AGC 4.69226E-189 1.90125E-66 1.9824E-119 3.7312E-35 CAA 7.4956E-159 1.90125E-66 1.9824E-119 3.7312E-35 CAC 2.1631E-109 N/A 3.4639E-109 0.044945224 CCC 3.4995E-25 3.9358E-29 3.414E-218 3.63988E-05* CCC 2.934E-134 0.000232535 6.49565E-34 9.49811E-07* CCA 2.934E-134 0.0014940545 4.4448E-198 9.2955E-32 CCCC 2.3484E-14 0.40945E-73 4.31	ACG	1.9299E-87	1.33474E-49	5.449E-153	4.71333E-08*
ATT 4.21498E-67 3.29153E-24 4.0832E-286 8.0482E-08 ATG 9.4623E-202 2.93389E-62 2.6623E-201 9.20277E-21 AAG 2.8071E-61 3.82785E-63 7.71945E-35 4.22107E-21 AAG 2.8071E-61 3.82785E-63 7.71945E-35 4.22107E-21 AGC 4.6226E-100 1.16167E-27 6.0738E-203 4.8062E-43 AGC 4.6226E-100 1.9012E-06 1.9824E-119 3.7819E-13 CAA 7.4956E-162 1.9012E-06 1.9824E-119 3.7819E-13 CAC 2.1631E-109 N/A 3.4639E-109 9.060455274 CCC 3.499E-255 3.985E-29 3.4124E-218 3.63388E-05 CCC 2.994E-131 1.06168E-24* 6.86665E-43 9.49811E-07 CCG 2.6338E-107 1.691286E-267 1.8276E-65 1.1092E-24 CCG 2.639E-107 1.961286E-267 1.8276E-65 1.1092E-24 CCG 2.639E-107 1.98598E-22 2.81374E-24 CCG 2.639E-107	AAT	7.39751E-29	8.498E-35	2.2824E-194	7.33427E-07
ATC 2.82496E-66 2.79912E-27 1.6738E-118 1.47321E-11 AAG 2.8621E-201 2.9382E-62 2.8621E-201 2.9777E-21 AAG 2.8201E-161 3.87785E-63 7.71945E-35 4.22195E-48 AGG 1.01852E-35 4.8407E-206 8.6548E-85 AGG 1.01948E-74 2.2631E-106 1.39394E-181 3.5331E-42 AGC 4.0216E-109 1.16187E-27 6.3971E-203 4.868E-85 AGT 1.936E-173 2.79175E-36 9.97307E-67 1.52373E-35 CAA 7.4958E-169 1.90125E-06 1.9302E-109 0.80455274 CCC 3.4839E-125 3.965E-29 3.4124E-218 3.63988E-65* CCC 3.4839E-137 1.85168E-24* 3.4458E-189 9.2856E-32 CCG 2.63451E-37 1.85168E-24* 1.82576E-54 2.555274.89* CCG 2.63451E-37 1.89168E-24* 1.86566E-54 2.855274.89* CCG 2.63451E-37 1.8918E-85* 1.23556E-65* 1.9925531E-18 CTA 1.2	ATA	6.7716E-186	5.61172E-11	4.0275E-119	6.84257E-11
ATG 9.4623E-202 2.93389E-62 2.8625E-201 9.20277E-21 AGA 2.877E-51 3.2785E-63 7.71945E-35 4.2105E-48 AGA 8.7789E-151 1.11052E-35 4.8407E-266 3.85341E-42 AGC 4.6226E-100 1.16187E-27 6.3073E-203 4.8062E-43 AGC 4.6226E-173 2.75175E-36 9.97307E-67 1.52373E-35 CAA 7.4958E-169 1.9012E-06 1.9224E-119 3.7617E-13 CCA 2.1599E-153 0.041940545 4.4458E-139 9.20656E-32 CCC 2.43934E-134 0.000322335 6.49566E-54 2.05827E-09* CCG 2.63361E-37 1.05168E-24* 6.68055E-43 9.20556E-06* CCT 2.9344E-134 0.0022558-36 1.23555E-18 1.23555E-18 CTC 2.9344E-147 1.35634E-56 1.23555E-18 1.23556E-06* CTT 2.999E-142 1.33634E-56 1.23555E-18 1.23556E-06* CTT 2.999E-142 1.33634E-56 1.23555E-18 1.23556E-06*	ATT	4.21498E-67	3.29153E-24	4.0832E-286	8.60482E-08
AAG 2.82071E-61 3.82785E-63 7.71945E-35 4.22105E-48 AGC 8.7789E-151 1.1632E-35 4.8407E-206 8.0848E-85 AGC 1.01943E-74 2.2631E-166 1.3894E-181 3.5831E-42 AGC 4.6226E-106 1.16127E-27 6.3073E-263 4.40862E-42 AGT 1.936E-173 2.79175E-36 9.9730FE-67 1.52373E-35 CAA 7.4958E-169 1.90125E-66 1.9824E-119 3.7819E-13 CCC 2.1631E-109 N/A 3.4639E-109 0.606455274 CCC 3.4899E-265 3.395E-239 3.4124E-218 3.6398E-05* CCT 2.934E-134 0.000322335 6.49566E-54 2.05827E-09* CAT 5.091E-136 3.53938E-22 1.0019E-73 5.81374E-24 CAT 2.49561-142 1.33634E-56 1.57331E-90 6.95553E-18 CTT 2.093E-142 1.38596PE-09* 1.62357E-65 1.1002E-24 CTG 2.661E-448 6.5425E-38 1.6213E-23 2.44356E-24 CTG	ATC	2.82496E-66	2.79912E-27	1.6738E-118	1.47321E-11
AGA 8.7789E-151 1.11052E-35 4.8407E-206 8.05448E-85 AGC 1.01943E-74 2.2631E-106 1.3894E-181 3.5831E-42 AGC 4.0226E-100 1.16187E-27 6.3073E-203 4.8062E-43 AGT 1.936E-173 2.79175E-96 9.97307E-67 1.52373E-35 CAA 7.4958E-169 1.90125E-06 1.924E-119 3.7819E-13 CAC 2.1599E-153 0.04390645 4.4458E-198 9.2056E-32 CCC 3.934E-144 0.000222335 6.4956E-54 2.0582E-28 CCG 2.9344E-134 0.00222335 6.4956E-54 2.0582E-09* CCT 2.9344E-144 0.0022235 6.4956E-54 2.0585E-08* CTA 5.991E-156 3.5958E-22 1.0019E-73 5.8174E-24 CTA 1.2478E-107 1.04622E-19 4.000494E-87 1.2355E-06* CTC 4.074E-370 1.28059E-09* 1.2355E-18 CTC 4.074E-370 1.28059E-09* 1.2355E-18 CTC 4.074E-370 1.28059E-137	ATG	9.4623E-202	2.93389E-62	2.8625E-201	9.20277E-21
AGG 1.01948-74 2.2631E-106 1.3894E-181 1.3.931E-42 AGC 4.6226E-100 1.1618F2-27 6.3973E-203 4.8062E-43 AGT 1.936E-173 2.79175E-96 9.97307E-67 1.52373E-35 CAA 7.4958E-169 1.90125E-06 1.92424E-119 3.7813E-13 CCC 2.1631E-109 N/A 3.4633E-109 0.0049455274 CCC 3.4899E-755 3.985E-29 3.124E-218 3.6388E-05* CCC 2.334E-134 0.000322335 6.49566E-54 2.05827E-09* CCG 2.63361E-37 1.05168E-24* 1.0919E-73 5.81374E-24 CTT 2.997E-142 1.33634E-56 1.57331E-90 6.95553E-18 CTC 4.7474E-170 1.8969E-09* 1.82756E-65 1.02263E-265 CTC 4.7474E-170 1.8959E-28 2.13934E-42 2.34536E-24 CAG N/A 1.43446E-42 1.6213E-223 2.34536E-24 CTC 4.7474E-170 1.8969E-09* 1.82766-15 1.108726 CGG	AAG	2.82071E-61	3.82785E-63	7.71945E-35	4.22105E-48
AGC 4.6226E-100 1.16187E-27 6.3073E-283 4.8062E-43 AGT 1.936E-173 2.7917SE-96 9.97307E-67 1.52373E-35 CAA 7.4958E-169 1.90125E-06 1.9824E-119 3.7819E-13 CAC 2.1631E-109 N/A 3.4639E-109 0.00045274 CCC 3.4959E-265 3.985E-29 3.4124E-218 9.2056E-32 CCC 3.4899E-265 3.955E-29 3.4124E-218 9.49211E-0* CAT 5.091E-156 3.53958E-22 1.0019E-73 5.8174E-24 CCG 2.6392TE-07 1.0452E19 4.00094E-87 1.23556E-06* CTT 2.699E-107 1.64525E-38 1.6213E-223 2.3453524-06* CTG 4.074E-370 1.89569E-09* 1.82576E-65 1.1002E-24 CGG 3.9151-112 1.935E-08 2.81304E-48 6.04351E-32 CGG 3.913E-120 1.335E-08 2.81304E-48 6.04351E-32 CGG 6.933E-265 1.6872E-31 6.6223E-217 1.0478E-09 CGG 0.93	AGA	8.7789E-151	1.11052E-35	4.8407E-206	8.05448E-85
AGT 1.936E-173 2.79175E-96 9.97307E-67 1.52273E-35 CAA 7.4958E-169 1.90125E-06 1.9824E-119 3.7819E-13 CAC 2.1631E-109 N/A 3.4639E-109 0.000455274 CCC 3.4899E-755 0.041940545 4.4458E-198 9.7055E-32 CCC 3.4344E-118 3.65398E-65 3.9355E-22 1.0019E-73 5.81374E-24 CAT 5.031E-156 3.5358E-22 1.0019E-73 5.81374E-24 CAT 1.2478E-107 1.04622E-19 4.00094E-87 1.23556E-065 CTT 2.099E-142 1.33634E-56 1.57331E-90 6.95553E-18 CTG 2.681E-448 6.54255E-38 1.6213E-223 2.34536E-24 CAG N/A 1.4434E-42 1.5627E-162 8.58393E-20 CGG 6.08231E-81 N/A 4.44396-71 1.14478E-09 CGC 6.08231E-81 N/A 4.44398E-71 1.14478E-08 CGG 0.9234E-26 1.68372E-31 6.0234E-28 6.16486E-08 TAC	AGG	1.01943E-74	2.2631E-106	1.3894E-181	3.5831E-42
CAA 7. 4958E-169 1.90125E-06 1.9824E-119 3.7819E-13 CAC 2.1631E-109 N/A 3.4639E-169 0.000455274 CCA 2.599E-153 0.011200515 4.4498E-188 9.2856E-32 CCT 2.3944E-134 0.000322535 4.4498E-188 9.4981E-65* CCT 2.9344E-134 0.000322535 6.49566E-54 2.05827E-09* CAT 5.091E-156 3.5358E-22 1.001P-73 5.81374E-0* CTT 2.099E-142 1.3354E-56 1.57331E-90 6.95553E-18 CTC 4.042370 1.89699E-09* 1.82576E-65 1.1002E-24 CTG 2.681E-444 6.64255E-38 1.6213E-223 2.34336E-24 CAG 1.532E-207 1.70036E-47 2.8306E-370 1.22861E-93 CGG 3.1935E-12 1.935E-08 2.81304E-48 6.04351E-32 CGG 3.1935E-12 1.935E-08 2.81304E-48 6.04351E-32 CGG 3.1935E-26 1.6223E-91 2.94296E-13 CAG 9.513E-426 8.2	AGC	4.6226E-100	1.16187E-27	6.3073E-203	4.8062E-43
CAA 7. 4958E-169 1.90125E-06 1.9824E-119 3.7819E-13 CAC 2.1631E-109 N/A 3.4639E-169 0.000455274 CCA 2.599E-153 0.011200515 4.4498E-188 9.2856E-32 CCT 2.3944E-134 0.000322535 4.4498E-188 9.4981E-65* CCT 2.9344E-134 0.000322535 6.49566E-54 2.05827E-09* CAT 5.091E-156 3.5358E-22 1.001P-73 5.81374E-0* CTT 2.099E-142 1.3354E-56 1.57331E-90 6.95553E-18 CTC 4.042370 1.89699E-09* 1.82576E-65 1.1002E-24 CTG 2.681E-444 6.64255E-38 1.6213E-223 2.34336E-24 CAG 1.532E-207 1.70036E-47 2.8306E-370 1.22861E-93 CGG 3.1935E-12 1.935E-08 2.81304E-48 6.04351E-32 CGG 3.1935E-12 1.935E-08 2.81304E-48 6.04351E-32 CGG 3.1935E-26 1.6223E-91 2.94296E-13 CAG 9.513E-426 8.2	AGT	1.936E-173	2.79175E-96	9.97307E-67	1.52373E-35
CAC 2.1631E-109 N/A 3.4639E-109 0.000455274 CCC 3.4899E-265 3.985E-29 3.4124E-218 3.63988E-05* CCC 2.0344E-134 0.000322335 6.49566E-54 2.05827E-09* CCG 2.034E-137 1.95168E-24* 6.8065E-43 9.49811E-07* CAT 5.091E-156 3.53958E-22 1.0019E-73 5.81374E-24 CAT 1.2478E-107 1.04622E-19 4.00094E-87 1.23556E-66* CTT 2.099E-142 1.3634E-56 1.57331E-90 6.95553E-18 CTG 4.074E-370 1.80699E-09* 1.82576E-65 1.1002E-24 CGG 2.681E-448 6.54255E-38 1.6213E-223 2.34536E-24 CAG N/A 1.44346E-42 1.1657E-162 8.58539E-20 CGG 6.09251E-11 1.935E-08 2.81304E-48 6.04351E-32 CGG 6.09251E-31 N/A 4.4339E-71 1.14478E-09 CGT 2.26494E-36 9.19214E-17* 1.54623E-191 2.8296E-13 TAA 6.589	CAA	7.4958E-169	1.90125E-06		3.7819E-13
CCA 2.599E-153 0.641940545 4.4458E-184 9.2056E-32 CCC 3.4899E-265 3.985E-29 3.4124E-218 3.63988E-05* CCT 2.0344E-134 0.000322535 6.49566E-54 2.05827E-09* CCG 2.6334E-137 1.95168E-24* 6.8665E-43 9.49811E-07* CAT 5.091E-156 3.53358E-22 1.0019E-73 5.81374E-24 CTA 1.2478E-107 1.04622E-19 4.00094E-87 1.23556E-06* CTC 4.074E-370 1.3634E-56 1.5731E-390 6.59553E-18 CTC 4.074E-370 1.3634E-42 1.82576E-65 1.1002E-24 CAG 1.552E-207 1.70036E-47 2.8300E-370 1.22861E-93 CGG 3.1915E-112 1.935E-08 2.81342E-24 8.635393E-20 CGG 6.03531E-32 2.84926E-21 1.04478E-09 2.85393E-20 CGT 2.26494E-36 9.19214E-17* 1.54632E-91 2.88296E-13 TAC 9.5332E-426 1.68872E-31 6.0232E-238 6.16486E-08 TAA		2.1631E-109		3.4639E-109	0.000455274
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CGG 3.1915E-112 1.935E-08 2.81304E-48 6.04351E-32 CGC 6.08251E-81 N/A 4.44393E-71 1.14478E-09 CGT 2.26494E-36 9.19214E-17* 1.54625E-91 2.88296E-13 TAA 6.5893E-265 1.68872E-31 6.0223E-238 6.16486E-08 TAC 9.513E-426 8.22043E-88 4.2511E-148 2.2579E-14 TCA 1.09296-365 8.54231E-19 2.9824E-217 1.08796E-22* TCC 5.014E-104 1.65804E-36 4.67588E-79 2.91618E-25 TCT 6.7143E-204 3.1875E-13 1.31012E-95 2.5745E-10 TAT 1.36177E-59 2.09234E-36 1.9361E-130 1.23074E-25 TTA 3.6208E-58 1.55213E-13 3.4131E-182 3.43921E-42 TTT 2.93475E-82 1.3947E-81 6.6018E-230 1.0613E-29 TTC 2.4565E-118 1.06789E-18 2.4707E-244 2.13543E-22 TTG 5.1754E-201 8.63259E-42 2.6052E-177 3.64868E-65 TAG					
CGC 6.08251E-81 N/A 4.44939E-71 1.14478E-09 CGT 2.26494E-36 9.19214E-17* 1.54625E-91 2.88296E-13 TAA 6.5893E-265 1.68872E-31 6.0223E-238 6.16486E-08 TAC 9.513E-426 8.22043E-88 4.2511E-148 2.2579E-14 TCA 1.019e-365 8.54231E-19 2.9824E-217 1.08796E-22* TCC 5.014E-104 1.65804E-36 4.67588E-79 2.91618E-25 TCT 6.7143E-204 3.1875E-13 1.31091E-95 2.5745E-10 TCG 2.06179E-75 N/A 4.01349E-83 4.33358E-33 TAT 1.36208E-58 1.56213E-13 3.4131E-182 3.43921E-42 TTC 2.4656E-118 1.06739E-18 2.4707E-244 2.13543E-22 TTG 2.4656E-118 1.06739E-18 2.4707E-244 2.7372E-66 TGA 1.1614E-121 4.5887E-79 1.1671E-140 2.8784E-06 TGA 1.614E-121 4.5887E-79 1.671E-140 3.04136E-24 GA 3					
CGT 2.26494E-36 9.19214E-17* 1.54625E-91 2.88296E-13 TAA 6.5893E-265 1.68872E-31 6.0223E-238 6.16486E-08 TAC 9.513E-426 8.22043E-88 4.2511E-148 2.2579E-14 TCA 1.019e-365 8.54231E-19 2.9824E-217 1.08796E-22* TCC 5.014E-104 1.65804E-36 4.67588E-79 2.91618E-25 TCT 6.7143E-204 3.1875E-13 1.31091E-95 2.5745E-10 TCG 2.06179E-75 N/A 4.01349E-83 4.33358E-33 TAT 1.36177E-59 2.09234E-36 1.9361E-130 1.23074E-25 TTA 3.6208E-58 1.56213E-13 3.4131E-182 3.43921E-42 TTT 2.93475E-82 1.3947E-81 6.6018E-230 1.0613E-29 TTC 2.4656E-118 1.06789E-18 2.4707E-244 2.13543E-23 TGS 5.1027E-178 3.764252E-83 4.7852E-90 2.79722E-66 TGA 1.1614E-121 4.58887E-79 1.1671E-140 1.28784E-06 TGG					
TAA 6.5893E-265 1.68872E-31 6.0223E-238 6.16486E-08 TAC 9.513E-426 8.22043E-88 4.2511E-148 2.2579E-14 TCA 1.019e-365 8.54231E-19 2.9842E-217 1.08796E-22* TCC 5.014E-104 1.65804E-36 4.67588E-79 2.91618E-25 TCT 6.7143E-204 3.1875E-13 1.31091E-95 2.5745E-10 TCG 2.06179E-75 N/A 4.01349E-83 4.33358E-33 TAT 1.3617E-59 2.09234E-36 1.9361E-130 1.23074E-25 TTA 3.6208E-58 1.56213E-13 3.4131E-182 3.43921E-42 TTC 2.4656E-118 1.06789E-18 2.4707E-244 2.13543E-22 TTG 5.1027E-178 3.76452E-83 4.75852E-90 2.79722E-66 TGA 1.1614E-121 4.5887E-79 1.1671E-140 1.28784E-06 TGC 3.09427E-39 6.61348E-35 1.1894E-100 3.04136E-24 GAA 3.09427E-39 6.61348E-57 2.127E-112 GG 3.1577E-173					
TAC 9.513E-426 8.22043E-88 4.2511E-148 2.2579E-14 TCA 1.019e-365 8.54231E-19 2.9824E-217 1.08796E-22* TCC 5.014E-104 1.65804E-36 4.67588E-79 2.91618E-25 TCT 6.7143E-204 3.1875E-13 1.31091E-95 2.5745E-10 TCG 2.06179E-75 N/A 4.01349E-83 4.33358E-33 TAT 1.36177E-59 2.09234E-36 1.9361E-130 1.23074E-25 TTA 3.6208E-58 1.56213E-13 3.4131E-182 3.43921E-42 TTC 2.93475E-82 1.3947E-81 6.6018E-230 1.0613E-29 TTC 2.4656E-118 1.06789E-18 2.4707E-244 2.13543E-22 TGG 5.1754E-201 8.63259E-42 2.6052E-177 3.64688E-65 TAG 5.1027E-178 3.76452E-83 4.75852E-90 2.79722E-66 TGG 1.8747E-196 5.271E-137 6.65475E-85 4.48611E-84 TGC 3.1642E-125 1.1671E-140 1.28784E-06 TGG 3.7947E-139					
TCA 1.019e-365 8.54231E-19 2.9824E-217 1.08796E-22* TCC 5.014E-104 1.65804E-36 4.67588E-79 2.91618E-25 TCT 6.7143E-204 3.1875E-13 1.31091E-95 2.5745E-10 TCG 2.06179E-75 N/A 4.01349E-83 4.33358E-33 TAT 1.36177E-59 2.09234E-36 1.9361E-130 1.23074E-25 TTA 3.6208E-58 1.56213E-13 3.4131E-182 3.43921E-42 TTT 2.93475E-82 1.3947E-81 6.6018E-230 1.0613E-29 TTC 2.4656E-118 1.06789E-18 2.4707E-244 2.13543E-22 TTG 5.1754E-201 8.63259E-42 2.6052E-177 3.64868E-65 TGG 5.1027E-178 3.76452E-83 4.75852E-90 2.79722E-66 TGG 1.8747E-196 5.271E-137 6.65475E-85 4.48611E-84 TGC 3.1577E-173 7.34499E-14 6.9029E-218 1.69061E-32 GAA 3.09427E-39 6.61348E-35 1.1894E-100 3.04136E-24 GAC					
TCC 5.014E-104 1.65804E-36 4.67588E-79 2.91618E-25 TCT 6.7143E-204 3.1875E-13 1.31091E-95 2.5745E-10 TCG 2.06179E-75 N/A 4.01349E-83 4.3358E-33 TAT 1.36177E-59 2.09234E-36 1.9361E-130 1.23074E-25 TTA 3.6208E-58 1.56213E-13 3.4131E-182 3.43921E-42 TTC 2.93475E-82 1.3947E-81 6.6018E-230 1.0613E-29 TTC 2.4556E-118 1.06789E-18 2.4707E-244 2.13543E-22 TTG 5.1754E-201 8.63259E-42 2.6052E-177 3.64868E-65 TAG 5.1027E-178 3.76452E-83 4.75852E-90 2.79722E-66 TGG 1.1614E-121 4.5887E-79 1.1671E-140 1.28784E-06 TGG 3.1577E-173 7.34499E-14 6.9029E-218 1.69061E-32 TGT 2.040E-388 5.9162E-142 4.0648E-499 5.1127E-112 GAA 3.09427E-39 6.61348E-35 1.1894E-100 3.04136E-24 GAC					
TCT 6.7143E-204 3.1875E-13 1.31091E-95 2.5745E-10 TCG 2.06179E-75 N/A 4.01349E-83 4.33358E-33 TAT 1.36177E-59 2.09234E-36 1.9361E-130 1.23074E-25 TTA 3.6208E-58 1.56213E-13 3.4131E-182 3.43921E-42 TTT 2.93475E-82 1.3947E-81 6.6018E-230 1.0613E-29 TTC 2.4656E-118 1.06789E-18 2.4707E-244 2.13543E-22 TTG 5.1754E-201 8.63259E-42 2.6052E-177 3.64868E-65 TAG 5.1027E-178 3.76452E-83 4.75852E-90 2.79722E-66 TGA 1.1614E-121 4.58887E-79 1.1671E-140 1.28784E-06 TGC 3.1577E-173 7.34499E-14 6.9029E-218 1.69061E-32 TGT 2.040E-388 5.9162E-142 <1.0048E-499					
TCG 2.06179E-75 N/A 4.01349E-83 4.33358E-33 TAT 1.36177E-59 2.09234E-36 1.9361E-130 1.23074E-25 TTA 3.6208E-58 1.56213E-13 3.4131E-182 3.43921E-42 TTT 2.93475E-82 1.3947E-81 6.6018E-230 1.0613E-29 TTC 2.4656E-118 1.06789E-18 2.4707E-244 2.13543E-22 TTG 5.1754E-201 8.63259E-42 2.6052E-177 3.64868E-65 TGG 5.1754E-201 8.63259E-42 2.6052E-177 3.64868E-65 TGG 1.1614E-121 4.58887E-79 1.1671E-140 1.28784E-06 TGC 3.1577E-173 7.34499E-14 6.9029E-218 1.69061E-32 TGT 2.040E-388 5.9162E-142 <1.0648E-499					
TAT 1.36177E-59 2.09234E-36 1.9361E-130 1.23074E-25 TTA 3.6208E-58 1.56213E-13 3.4131E-182 3.43921E-42 TTT 2.93475E-82 1.3947E-81 6.6018E-230 1.0613E-29 TTC 2.4656E-118 1.06789E-18 2.4707E-244 2.13543E-22 TTG 5.1754E-201 8.63259E-42 2.6052E-177 3.64868E-65 TAG 5.1027E-178 3.76452E-83 4.75852E-90 2.79722E-66 TGG 1.8747E-196 5.271E-137 6.65475E-85 4.48611E-84 TGC 3.1577E-173 7.34499E-14 6.9029E-218 1.69061E-32 TGT 2.040E-388 5.9162E-142 <1.0648E-499					
TTA3.6208E-581.56213E-133.4131E-1823.43921E-42TTT2.93475E-821.3947E-816.6018E-2301.0613E-29TTC2.4656E-1181.06789E-182.4707E-2442.13543E-22TTG5.1754E-2018.63259E-422.6052E-1773.64868E-65TAG5.1027E-1783.76452E-834.75852E-902.79722E-66TGA1.1614E-1214.58887E-791.1671E-1401.28784E-06TGG1.8747E-1965.271E-1376.65475E-854.48611E-84TGC3.1577E-1737.34499E-146.9029E-2181.69061E-32TGT2.040E-3885.9162E-142<1.0048E-499					
TTT2.93475E-821.3947E-816.6018E-2301.0613E-29TTC2.4656E-1181.06789E-182.4707E-2442.13543E-22TTG5.1754E-2018.63259E-422.6052E-1773.64868E-65TAG5.1027E-1783.76452E-834.75852E-902.79722E-66TGA1.1614E-1214.5887E-791.1671E-1401.28784E-06TGC3.1577E-1737.34499E-146.9029E-2181.69061E-32TGT2.040E-3885.9162E-142<1.0048E-4995.1127E-112GAA3.09427E-396.61348E-351.1894E-1003.04136E-24GAA3.09427E-121.7476E-132.90678E-572.21434E-13GCA3.68355E-791.08369E-546.5042E-1251.31739E-51GCA7.58872E-121.7476E-132.90678E-572.21434E-13GCC3.61072E-95N/A4.5238E-851.06769E-15GCT1.42841E-533.3107E-213.79508E-790.000609876GCGN/A4.15856E-591.5307E-1071.78362E-30GTT1.48831E-931.05207E-355.02487E-904.17155E-38GTC8.36294E-414.37348E-128.3542E-1712.26187E-16GTGN/A1.15875E-588.8089E-1045.51488E-43GAG9.8681E-1411.49611E-248.47539E-400.003305783GGGN/A1.5875E-588.8089E-1045.51488E-43GTGN/A1.5875E-588.3689E-1045.51488E-43GGA9.8681E-1411.49611E-248.47539					
TTC2.4656E-1181.06789E-182.4707E-2442.13543E-22TTG5.1754E-2018.63259E-422.6052E-1773.64868E-65TAG5.1027E-1783.76452E-834.75852E-902.79722E-66TGA1.1614E-1214.58887E-791.1671E-1401.28784E-06TGG1.8747E-1965.271E-1376.65475E-854.48611E-84TGC3.1577E-1737.34499E-146.9029E-2181.69061E-32TGT2.040E-3885.9162E-142<1.0048E-499					
TTG5.1754E-2018.63259E-422.6052E-1773.64868E-65TAG5.1027E-1783.76452E-834.75852E-902.79722E-66TGA1.1614E-1214.58887E-791.1671E-1401.28784E-06TGG1.8747E-1965.271E-1376.65475E-854.48611E-84TGC3.1577E-1737.34499E-146.9029E-2181.69061E-32TGT2.040E-3885.9162E-142<1.0048E-4995.1127E-112GAA3.09427E-396.61348E-351.1894E-1003.04136E-24GAA3.09427E-396.61348E-351.1894E-1003.04136E-24GCC3.08355E-791.08369E-546.5042E-1251.31739E-51GCA7.58872E-121.7476E-132.90678E-572.21434E-13GCC3.61072E-95N/A4.5238E-851.06769E-15GCT1.42841E-533.3107E-213.79508E-790.000609876GCGN/A4.48654E-27*2.216E-1196.1411E-12GAT4.194E-1111.31856E-591.5307E-1071.78362E-30GTT1.4831E-931.05207E-355.02487E-904.17155E-38GTC8.36294E-414.37348E-128.3542E-1712.26187E-16GTGN/A1.15875E-588.8089E-1045.51488E-43GAGN/A1.5569E-1211.62366E-613.58748E-25GGGN/A1.21759E-562.96643E-711.6383E-11GGT2.93217E-543.99124E-221.06385E-851.56661E-30					
TAG5.1027E-1783.76452E-834.75852E-902.79722E-66TGA1.1614E-1214.58887E-791.1671E-1401.28784E-06TGG1.8747E-1965.271E-1376.65475E-854.48611E-84TGC3.1577E-1737.34499E-146.9029E-2181.69061E-32TGT2.040E-3885.9162E-142<1.0048E-4995.1127E-112GAA3.09427E-396.61348E-351.1894E-1003.04136E-24GAC3.08355E-791.08369E-546.5042E-1251.31739E-51GCA7.58872E-121.7476E-132.90678E-572.21434E-13GCC3.61072E-95N/A4.5238E-851.06769E-15GCT1.42841E-533.3107E-213.79508E-790.000609876GCGN/A4.48654E-27*2.216E-1196.1411E-12GAT4.194E-1111.31856E-591.5307E-1071.78362E-30GTT1.4831E-931.05207E-355.02487E-904.17155E-38GTC8.36294E-414.37348E-128.3642E-1712.26187E-16GTGN/A1.15875E-588.8089E-1045.51488E-43GAGN/A1.5569E-1211.6236E-613.58748E-25GGGN/A1.21759E-562.96643E-711.6383E-11GGT2.93217E-543.99124E-221.06385E-851.56661E-30					
TGA1.1614E-1214.58887E-791.1671E-1401.28784E-06TGG1.8747E-1965.271E-1376.65475E-854.48611E-84TGC3.1577E-1737.34499E-146.9029E-2181.69061E-32TGT2.040E-3885.9162E-142<1.0048E-4995.1127E-112GAA3.09427E-396.61348E-351.1894E-1003.04136E-24GAC3.08355E-791.08369E-546.5042E-1251.31739E-51GCA7.58872E-121.7476E-132.90678E-572.21434E-13GCC3.61072E-95N/A4.5238E-851.06769E-15GCT1.42841E-533.3107E-213.79508E-790.000609876GCGN/A4.48654E-27*2.216E-1196.1411E-12GAT4.194E-1111.31856E-591.5307E-1071.78362E-30GTT1.48831E-931.05207E-355.02487E-904.17155E-38GTC8.36294E-414.37348E-128.3542E-1712.26187E-16GTGN/A1.15875E-588.8089E-1045.51488E-43GAGN/A1.2569E-1211.56937E-881.11912E-14GGA9.8681E-1411.49611E-248.47539E-400.033005783GGG4.5026E-1608.68089E-751.6236E-613.58748E-25GGCN/A1.21759E-562.96643E-711.6383E-11GGT2.93217E-543.99124E-221.06385E-851.56661E-30					
TGG1.8747E-1965.271E-1376.65475E-854.48611E-84TGC3.1577E-1737.34499E-146.9029E-2181.69061E-32TGT2.040E-3885.9162E-142<1.0048E-4995.1127E-112GAA3.09427E-396.61348E-351.1894E-1003.04136E-24GAC3.08355E-791.08369E-546.5042E-1251.31739E-51GCA7.58872E-121.7476E-132.90678E-572.21434E-13GCC3.61072E-95N/A4.5238E-851.06769E-15GCT1.42841E-533.3107E-213.79508E-790.000609876GCGN/A4.48654E-27*2.216E-1196.1411E-12GAT4.194E-1111.31856E-591.5307E-1071.78362E-30GTT1.48831E-931.05207E-355.02487E-904.17155E-38GTC8.36294E-414.37348E-128.3542E-1712.26187E-16GTGN/A1.15875E-588.8089E-1045.51488E-43GAGN/A1.5169E-1211.6236E-613.58748E-25GGG4.5026E-1608.68089E-751.6236E-613.58748E-25GGGN/A1.21759E-562.96643E-711.6338E-11GGT2.93217E-543.99124E-221.06385E-851.56661E-30					
TGC3.1577E-1737.34499E-146.9029E-2181.69061E-32TGT2.040E-3885.9162E-142<1.0048E-4995.1127E-112GAA3.09427E-396.61348E-351.1894E-1003.04136E-24GAC3.08355E-791.08369E-546.5042E-1251.31739E-51GCA7.58872E-121.7476E-132.90678E-572.21434E-13GCC3.61072E-95N/A4.5238E-851.06769E-15GCT1.42841E-533.3107E-213.79508E-790.000609876GCGN/A4.48654E-27*2.216E-1196.1411E-12GAT4.194E-1111.31856E-591.5307E-1071.78362E-30GTT1.48831E-931.06207E-355.02487E-904.17155E-38GTC8.36294E-414.37348E-128.3542E-1712.26187E-16GTGN/A1.5569E-1211.56937E-881.11912E-14GAG9.8681E-1411.49611E-248.47539E-400.033005783GGGM/A1.21759E-562.96643E-711.6383E-11GGT2.93217E-543.99124E-221.06385E-851.56661E-30					
TGT 2.040E-388 5.9162E-142 <1.0048E-499 5.1127E-112 GAA 3.09427E-39 6.61348E-35 1.1894E-100 3.04136E-24 GAC 3.08355E-79 1.08369E-54 6.5042E-125 1.31739E-51 GCA 7.58872E-12 1.7476E-13 2.90678E-57 2.21434E-13 GCC 3.61072E-95 N/A 4.5238E-85 1.06769E-15 GCT 1.42841E-53 3.3107E-21 3.79508E-79 0.000609876 GCG N/A 4.48654E-27* 2.216E-119 6.1411E-12 GAT 4.194E-111 1.31856E-59 1.5307E-107 1.78362E-30 GTT 1.4924E-46 4.17879E-51 5.65438E-59 7.79196E-20 GTT 1.4831E-93 1.05207E-35 5.02487E-90 4.17155E-38 GTC 8.36294E-41 4.37348E-12 8.3542E-171 2.26187E-16 GTG N/A 1.15875E-58 8.8089E-104 5.51488E-433 GAG N/A 1.5569E-121 1.62366E-61 3.58748E-25 GGG N/A					
GAA 3.09427E-39 6.61348E-35 1.1894E-100 3.04136E-24 GAC 3.08355E-79 1.08369E-54 6.5042E-125 1.31739E-51 GCA 7.58872E-12 1.7476E-13 2.90678E-57 2.21434E-13 GCC 3.61072E-95 N/A 4.5238E-85 1.06769E-15 GCT 1.42841E-53 3.3107E-21 3.79508E-79 0.000609876 GCG N/A 4.48654E-27* 2.216E-119 6.1411E-12 GAT 4.194E-111 1.31856E-59 1.5307E-107 1.78362E-30 GTA 1.14924E-46 4.17879E-51 5.65438E-59 7.79196E-20 GTT 1.48831E-93 1.05207E-35 5.02487E-90 4.17155E-38 GTC 8.36294E-41 4.37348E-12 8.3542E-171 2.26187E-16 GTG N/A 1.5569E-121 1.56937E-88 1.11912E-14 GAG N/A 1.2569E-121 1.56337E-88 1.11912E-14 GGA 9.8681E-141 1.49611E-24 8.47539E-40 0.933005783 GGG 4.5026E-160					
GAC 3.08355E-79 1.08369E-54 6.5042E-125 1.31739E-51 GCA 7.58872E-12 1.7476E-13 2.90678E-57 2.21434E-13 GCC 3.61072E-95 N/A 4.5238E-85 1.06769E-15 GCT 1.42841E-53 3.3107E-21 3.79508E-79 0.000609876 GCG N/A 4.48654E-27* 2.216E-119 6.1411E-12 GAT 4.194E-111 1.31856E-59 1.5307E-107 1.78362E-30 GTA 1.14924E-46 4.17879E-51 5.65438E-59 7.79196E-20 GTT 1.48831E-93 1.05207E-35 5.02487E-90 4.17155E-38 GTC 8.36294E-41 4.37348E-12 8.3542E-171 2.26187E-16 GTG N/A 1.5569E-121 1.56937E-88 1.11912E-14 GAG N/A 1.5569E-121 1.56937E-88 1.11912E-14 GGA 9.8681E-141 1.49611E-24 8.47539E-40 0.033005783 GGG 4.5026E-160 8.68089E-75 1.62366E-61 3.58748E-25 GGG N/A					
GCA 7.58872E-12 1.7476E-13 2.90678E-57 2.21434E-13 GCC 3.61072E-95 N/A 4.5238E-85 1.06769E-15 GCT 1.42841E-53 3.3107E-21 3.79508E-79 0.000609876 GCG N/A 4.48654E-27* 2.216E-119 6.1411E-12 GAT 4.194E-111 1.31856E-59 1.5307E-107 1.78362E-30 GTA 1.14924E-46 4.17879E-51 5.65438E-59 7.79196E-20 GTT 1.48831E-93 1.05207E-35 5.02487E-90 4.17155E-38 GTC 8.36294E-41 4.37348E-12 8.3542E-171 2.26187E-16 GTG N/A 1.15875E-58 8.8089E-104 5.51488E-43 GAG N/A 1.5569E-121 1.56937E-88 1.11912E-14 GGA 9.8681E-141 1.49611E-24 8.47539E-40 0.033005783 GGG 4.5026E-160 8.68089E-75 1.62366E-61 3.58748E-25 GGC N/A 1.21759E-56 2.96643E-71 1.6383E-11 GGT 2.93217E-54					
GCC3.61072E-95N/A4.5238E-851.06769E-15GCT1.42841E-533.3107E-213.79508E-790.000609876GCGN/A4.48654E-27*2.216E-1196.1411E-12GAT4.194E-1111.31856E-591.5307E-1071.78362E-30GTA1.14924E-464.17879E-515.65438E-597.79196E-20GTT1.48831E-931.05207E-355.02487E-904.17155E-38GTC8.36294E-414.37348E-128.3542E-1712.26187E-16GTGN/A1.15875E-588.8089E-1045.51488E-43GAGN/A1.5569E-1211.56937E-881.11912E-14GGA9.8681E-1411.49611E-248.47539E-400.033005783GGG4.5026E-1608.68089E-751.62366E-613.58748E-25GGCN/A1.21759E-562.96643E-711.6383E-11GGT2.93217E-543.99124E-221.06385E-851.56661E-30					
GCT 1.42841E-53 3.3107E-21 3.79508E-79 0.000609876 GCG N/A 4.48654E-27* 2.216E-119 6.1411E-12 GAT 4.194E-111 1.31856E-59 1.5307E-107 1.78362E-30 GTA 1.4924E-46 4.17879E-51 5.65438E-59 7.79196E-20 GTT 1.48331E-93 1.05207E-35 5.02487E-90 4.17155E-38 GTC 8.36294E-41 4.37348E-12 8.3542E-171 2.26187E-16 GTG N/A 1.15875E-58 8.8089E-104 5.51488E-43 GAG N/A 1.5569E-121 1.56937E-88 1.11912E-14 GGA 9.8681E-141 1.49611E-24 8.47539E-40 0.033005783 GGG 4.5026E-160 8.68089E-75 1.62366E-61 3.58748E-25 GGC N/A 1.21759E-56 2.96643E-71 1.6383E-11 GGT 2.93217E-54 3.99124E-22 1.06385E-85 1.56661E-30					
GCG N/A 4.48654E-27* 2.216E-119 6.1411E-12 GAT 4.194E-111 1.31856E-59 1.5307E-107 1.78362E-30 GTA 1.14924E-46 4.17879E-51 5.65438E-59 7.79196E-20 GTT 1.48831E-93 1.05207E-35 5.02487E-90 4.17155E-38 GTC 8.36294E-41 4.37348E-12 8.3542E-171 2.26187E-16 GTG N/A 1.15875E-58 8.8089E-104 5.51488E-43 GAG N/A 1.5569E-121 1.56937E-88 1.11912E-14 GGA 9.8681E-141 1.49611E-24 8.47539E-40 0.033005783 GGG 4.5026E-160 8.68089E-75 1.62366E-61 3.58748E-25 GGC N/A 1.21759E-56 2.96643E-71 1.6383E-11 GGT 2.93217E-54 3.99124E-22 1.06385E-85 1.56661E-30					
GAT 4.194E-111 1.31856E-59 1.5307E-107 1.78362E-30 GTA 1.14924E-46 4.17879E-51 5.65438E-59 7.79196E-20 GTT 1.48831E-93 1.05207E-35 5.02487E-90 4.17155E-38 GTC 8.36294E-41 4.37348E-12 8.3542E-171 2.26187E-16 GTG N/A 1.15875E-58 8.8089E-104 5.51488E-43 GAG N/A 1.5569E-121 1.56937E-88 1.11912E-14 GGA 9.8681E-141 1.49611E-24 8.47539E-40 0.033005783 GGG 4.5026E-160 8.68089E-75 1.62366E-61 3.58748E-25 GGC N/A 1.21759E-56 2.96643E-71 1.6383E-11 GGT 2.93217E-54 3.99124E-22 1.06385E-85 1.56661E-30					
GTA 1.14924E-46 4.17879E-51 5.65438E-59 7.79196E-20 GTT 1.48831E-93 1.05207E-35 5.02487E-90 4.17155E-38 GTC 8.36294E-41 4.37348E-12 8.3542E-171 2.26187E-16 GTG N/A 1.15875E-58 8.8089E-104 5.51488E-43 GAG N/A 1.5569E-121 1.56937E-88 1.11912E-14 GGA 9.8681E-141 1.49611E-24 8.47539E-40 0.033005783 GGG 4.5026E-160 8.68089E-75 1.62366E-61 3.58748E-25 GGC N/A 1.21759E-56 2.96643E-71 1.6383E-11 GGT 2.93217E-54 3.99124E-22 1.06385E-85 1.56661E-30					
GTT 1.48831E-93 1.05207E-35 5.02487E-90 4.17155E-38 GTC 8.36294E-41 4.37348E-12 8.3542E-171 2.26187E-16 GTG N/A 1.15875E-58 8.8089E-104 5.51488E-43 GAG N/A 1.5569E-121 1.56937E-88 1.11912E-14 GGA 9.8681E-141 1.49611E-24 8.47539E-40 0.033005783 GGG 4.5026E-160 8.68089E-75 1.62366E-61 3.58748E-25 GGC N/A 1.21759E-56 2.96643E-71 1.6383E-11 GGT 2.93217E-54 3.99124E-22 1.06385E-85 1.56661E-30					
GTC 8.36294E-41 4.37348E-12 8.3542E-171 2.26187E-16 GTG N/A 1.15875E-58 8.8089E-104 5.51488E-43 GAG N/A 1.5569E-121 1.56937E-88 1.11912E-14 GGA 9.8681E-141 1.49611E-24 8.47539E-40 0.033005783 GGG 4.5026E-160 8.68089E-75 1.62366E-61 3.58748E-25 GGC N/A 1.21759E-56 2.96643E-71 1.6383E-11 GGT 2.93217E-54 3.99124E-22 1.06385E-85 1.56661E-30					
GTG N/A 1.15875E-58 8.8089E-104 5.51488E-43 GAG N/A 1.5569E-121 1.56937E-88 1.11912E-14 GGA 9.8681E-141 1.49611E-24 8.47539E-40 0.033005783 GGG 4.5026E-160 8.68089E-75 1.62366E-61 3.58748E-25 GGC N/A 1.21759E-56 2.96643E-71 1.6383E-11 GGT 2.93217E-54 3.99124E-22 1.06385E-85 1.56661E-30					
GAG N/A 1.5569E-121 1.56937E-88 1.11912E-14 GGA 9.8681E-141 1.49611E-24 8.47539E-40 0.033005783 GGG 4.5026E-160 8.68089E-75 1.62366E-61 3.58748E-25 GGC N/A 1.21759E-56 2.96643E-71 1.6383E-11 GGT 2.93217E-54 3.99124E-22 1.06385E-85 1.56661E-30					
GGA 9.8681E-141 1.49611E-24 8.47539E-40 0.033005783 GGG 4.5026E-160 8.68089E-75 1.62366E-61 3.58748E-25 GGC N/A 1.21759E-56 2.96643E-71 1.6383E-11 GGT 2.93217E-54 3.99124E-22 1.06385E-85 1.56661E-30					
GGG 4.5026E-160 8.68089E-75 1.62366E-61 3.58748E-25 GGC N/A 1.21759E-56 2.96643E-71 1.6383E-11 GGT 2.93217E-54 3.99124E-22 1.06385E-85 1.56661E-30					
GGC N/A 1.21759E-56 2.96643E-71 1.6383E-11 GGT 2.93217E-54 3.99124E-22 1.06385E-85 1.56661E-30					
GGT 2.93217E-54 3.99124E-22 1.06385E-85 1.56661E-30					
	661				

Laboratory A

*Kolmogorov test performed and generally consistent with the Chi Square test.

		n-v	alue	
Frame	A1	B1	C1	D1
AAA	2.4015E-19	5.66898E-41	5.94755E-39	4.27164E-07
AAC	1.47379E-40	4.66112E-21*	1.20691E-67	1.41557E-08
ACA	5.81954E-28	1.07704E-31	1.9407E-70	2.62816E-46
ACC	4.5398E-08	4.15116E-55	4.08269E-18	2.22103E-32
ACT	1.99246E-88	4.5485E-97	2.35893E-18	2.83706E-12
ACG	7.72488E-40	6.43297E-41	8.07106E-43	2.37484E-07
AAT	1.57917E-10	2.29438E-54	6.33869E-56	1.81591E-14
ATA	3.08042E-42	2.18098E-11	1.91897E-21	1.10885E-19
ATT	1.42826E-49	9.18013E-20	2.39761E-61	4.76423E-09
ATC	4.51011E-41	3.05379E-35	8.81307E-56	1.23928E-12
ATG	1.98679E-77	4.09257E-32	2.90208E-57	7.84509E-24
AAG	2.33415E-25	9.3961E-61	0.01188574	1.7849E-48
AGA	8.42606E-64	2.09949E-45	3.99923E-82	5.5188E-100
AGG	9.59874E-25	3.2893E-137	5.23552E-41	1.18655E-41
AGC	2.92461E-30	5.01139E-34	1.75198E-42	1.23857E-47
AGT	4.72293E-47	1.5905E-149	2.26133E-15	6.06819E-39
CAA	9.77873E-50	3.16667E-16	8.02374E-32	8.94217E-18
CAC	1.08711E-28	N/A	3.10063E-27	3.51349E-12
CCA	4.58102E-35	3.27143E-08	1.5628E-46	2.26276E-31
	4.4424E-111	1.02667E-16	1.09157E-62	1.24518E-07* 1.35044E-30
ССТ	1.27408E-58	2.31622E-08	6.53436E-21 1.68456E-15	0.000978458*
CCG CAT	1.72067E-22 2.77056E-44	8.05057E-30 2.27913E-37	1.68456E-15 1.0623E-24	0.000978458* 3.06673E-34
	2.99906E-42	1.40316E-08	5.59292E-13	7.5511E-12
CTT	4.10768E-42	3.46188E-91	2.27655E-11	2.0618E-44
СТС	2.2497E-117	N/A	5.28302E-13	4.73764E-40
СТС	2.103E-150	4.04892E-43	8.80036E-65	1.20559E-33
CAG	9.45356E-65	1.19815E-55	2.592E-101	1.21807E-87
CGA	N/A	2.33428E-27	2.95234E-42	2.87206E-26
CGG	4.35835E-35	9.75139E-07	5.45893E-20	2.21247E-35
CGC	2.55874E-30	N/A	9.26587E-19	1.31116E-14
CGT	3.97319E-25	1.87527E-23	1.21979E-16	4.45073E-07
TAA	2.06078E-64	3.90672E-39	5.5774E-55	1.91901E-05
TAC	9.5631E-174	2.29264E-85	2.48687E-48	1.40833E-24
TCA	1.2769E-273	7.14309E-21	4.42298E-39	7.07389E-25
TCC	2.21154E-30	5.90659E-63	1.18035E-13	2.94546E-14
тст	2.05411E-48	1.15443E-20	1.30145E-33	4.08338E-36
TCG	5.76146E-60	N/A	7.24764E-29	2.26474E-45
TAT	2.15884E-38	7.51926E-78	1.18758E-51	1.26286E-21
TTA	1.72504E-47	1.89386E-33	2.09194E-57	8.29455E-51
TTT	1.07355E-32	3.1084E-163	7.04152E-45	5.66438E-36
TTC	5.81169E-38	4.22246E-45	5.3141E-65	1.05579E-18
TTG	5.90393E-84	1.43254E-68	5.30689E-65	8.99449E-72
TAG	1.51082E-57	1.8319E-98	4.408E-43	1.78966E-69
TGA	5.65214E-44	1.1231E-130	8.36594E-69	6.69995E-09
TGG	1.05602E-42	3.9485E-158	2.22348E-29	5.38629E-98
TGC	7.56442E-60	5.28634E-27	2.26696E-53	1.88197E-54
TGT	1.164E-140	5.8607E-244	2.5967E-187	7.3112E-157 4.96895E-28
GAA GAC	2.40547E-20 2.36184E-29	1.43418E-51 8.7428E-50	3.45816E-26 9.84828E-33	4.96895E-28 1.29791E-70
	0.020564676			5.5385E-15
GCA GCC	3.34127E-56	7.24901E-15 N/A	5.24932E-13 1.11361E-23	3.59097E-23
GCT	1.08487E-26	3.77338E-35	3.81025E-25	7.69814E-24
GCG	N/A	4.20543E-24	8.17806E-31	1.4237E-10
GAT	2.12048E-44	1.98722E-58	1.94885E-34	1.24928E-65
GTA	4.86965E-19	3.02542E-81	2.0574E-18	4.31008E-07
GTT	4.09733E-22*	5.73242E-46	1.77089E-19	9.06237E-88
GTC	2.99389E-06	1.83455E-23	1.93039E-40	7.57482E-51
GTG	N/A	5.33664E-93	3.01566E-34	8.51628E-76
GAG	N/A	2.61428E-91	1.6611E-16	6.39698E-20
GGA	7.96391E-45	2.13174E-26	7.5511E-12	1.76546E-08
GGG	4.40048E-44	2.74661E-65	2.4203E-15*	1.05373E-44
GGC	N/A	2.03016E-96	6.27076E-24	2.85272E-14
GGT	5.36344E-22	4.60842E-40	4.17504E-31	5.84254E-89
	*Kolmogorov tost porform	1 1 11 1.		

Laboratory B

*Kolmogorov test performed and generally consistent with the Chi Square test.

Appendix III — Comparison of Frames for Laboratory A to Laboratory B for Each Primer

The following table is an example of the processed data using the bioinformatics tools to statistically evaluate each of the 64 frames using a 2 x 6 Chi Square analysis comparing the results from Laboratory A to Laboratory B. For those frames with expected values less than that required in more than 25% of the cells, a Kolmogorov-Smirnov test was performed. These tables are not presented here; the p-values calculated with the Kolmogorov-Smirnov test statistic were consistent with the Chi Square.

These results demonstrate that the data obtained from the two laboratories are equivalent. Each of the four primers, A1, B1, C1, and D1, were evaluated to characterize the pattern distributions for each frame.

	A	В	C	D	E	F	TOTAL	
AAA	199.00	87.00	264.00	1.00	159.00	85.00	795.00	
AAA	71.00	31.00	76.00	0.00	58.00	29.00	265.00	
TOTAL	270.00	118.00	340.00	1.00	217.00	114.00	1060.00	
Exp.	202.50	88.50	255.00	0.75	162.75	85.50		p-value
Exp.	67.50	29.50	85.00	0.25	54.25	28.50		0.805545483
X^2	0.06	0.03	0.32	0.08	0.09	0.00	0.58	
X^2	0.18	0.08	0.95	0.25	0.26	0.01	1.73	
AAC	296.00	271.00	353.00	26.00	217.00	75.00	1238.00	
AAC	92.00	74.00	152.00	15.00	76.00	11.00	420.00	
TOTAL	388.00	345.00	505.00	41.00	293.00	86.00	1658.00	
Exp.	289.71	257.61	377.07	30.61	218.78	64.21		p-value
Exp.	98.29	87.39	127.93	10.39	74.22	21.79		0.001683344
X^2	0.14	0.70	1.54	0.70	0.01	1.81	4.89	
X^2	0.40	2.05	4.53	2.05	0.04	5.34	14.42	Ī
			•	•		•		•
ACA	174.00	330.00	414.00	380.00	56.00	204.00	1558.00	
ACA	87.00	134.00	114.00	131.00	8.00	55.00	529.00	
TOTAL	261.00	464.00	528.00	511.00	64.00	259.00	2087.00	
Exp.	194.84	346.39	394.17	381.47	47.78	193.35		p-value
Exp.	66.16	117.61	133.83	129.53	16.22	65.65		0.000246578
X^2	2.23	0.78	1.00	0.01	1.42	0.59	6.01	
X^2	6.57	2.28	2.94	0.02	4.17	1.73	17.70	
ACC	269.00	503.00	386.00	318.00	288.00	268.00	2032.00	
ACC	126.00	142.00	153.00	81.00	128.00	77.00	707.00	
TOTAL	395.00	645.00	539.00	399.00	416.00	345.00	2739.00	
Exp.	293.04	478.51	399.87	296.01	308.62	255.95		p-value
Exp.	101.96	166.49	139.13	102.99	107.38	89.05		3.28633E-05
X^2	1.97	1.25	0.48	1.63	1.38	0.57	7.29	
X^2	5.67	3.60	1.38	4.70	3.96	1.63	20.94	
								-
ACT	445.00	58.00	98.00	104.00	112.00	2.00	819.00	
ACT	172.00	26.00	8.00	37.00	42.00	0.00	285.00	
TOTAL	617.00	84.00	106.00	141.00	154.00	2.00	1104.00	
Exp.	457.72	62.32	78.64	104.60	114.24	1.48		p-value
Exp.	159.28	21.68	27.36	36.40	39.76	0.52		0.000552211
X^2	0.35	0.30	4.77	0.00	0.04	0.18	5.65	

Table A. 2 x 6 Chi-square analysis comparing the results from Laboratory A to Laboratory B for Primer A1.

1.02 1.00 2.00 1.46	0.86 98.00 40.00 138.00	13.70 0.00 0.00	0.01	0.13	0.52	16.23]
1.00 1.00 2.00 1.46	98.00 40.00	0.00			0.52	10.25	1
1.00 2.00 1.46	40.00		11 00				1
1.00 2.00 1.46	40.00			0.00	1.00	111.00	
2.00 1.46			0.00	0.00	0.00	41.00	
1.46		0.00	11.00	0.00	1.00	152.00	
	100.78	0.25	8.03	0.25	0.73	192.00	p-value
0.54	37.22	0.25	2.97	0.25	0.27		0.385636227*
0.15	0.08	0.25	1.10	0.25	0.10	1.92	0.0000000000
0.39	0.21	0.25	2.97	0.25	0.27	4.34	ł
0.00	0.22	0.25	2107	0125	0127		1
13.00	120.00	81.00	66.00	162.00	110.00	552.00	1
							p-value
							0.001045754
						5.31	
							1
							1
185.00	94.00	148.00	5.00	445.00	18.00	895.00	1
	34.00	49.00		139.00	27.00		
	128.00	197.00	10.00	584.00	45.00	1217.00	
	94.13	144.88	7.35	429.48	33.09		p-value
66.94	33.87	52.12	2.65	154.52	11.91		8.30891E-06
						8.27	
0.02	0.00	0.19	2.09	1.56	19.13	22.99	1
249.00	199.00	26.00	70.00	238.00	82.00	864.00	1
23.00	99.00	6.00	32.00	7.00	113.00	280.00	
	298.00	32.00	102.00	245.00	195.00	1144.00	
	225.06	24.17	77.03	185.03	147.27		p-value
66.57	72.94	7.83	24.97	59.97	47.73		1.97104E-48
9.24	3.02	0.14	0.64	15.16	28.93	57.13	
28.52	9.31	0.43	1.98	46.78	89.27	176.29	1
							•
93.00	222.00	53.00	231.00	13.00	170.00	782.00	
38.00	74.00	7.00	118.00	0.00	56.00	293.00	
131.00	296.00	60.00	349.00	13.00	226.00	1075.00	
95.29	215.32	43.65	253.88	9.46	164.40		p-value
35.71	80.68	16.35	95.12	3.54	61.60		0.000665719
0.06	0.21	2.00	2.06	1.33	0.19	5.85	
0.15	0.55	5.35	5.50	3.54	0.51	15.60	
							•
						654.00	
							p-value
							0.624053924*
							4
0.25	1.72	0.31	0.25	0.20	0.25	2.97	J
73.00	176.00	26.00	210.00	F4 00	C1 00	C00 00	1
						024.00	n velue
							p-value 9.05752E-07
						0 4 2	9.03/32E-0/
							ł
0.01	0.01	0.00	0.04	13.20	12.00	20.00	J
1 00	0.00	1/2 00	0.00	0.00	0.00	144 00	1
						205.00	n-volue
							p-value 0.994592443*
						1 1 2	0.00-002++0*
							t
0.50	0.25	0.00	0.25	0.25	0.25	1.50	1
0.00	0.00	46.00	0.00	101.00	0.00	147.00	1
1.00	1.00	24.00	0.00	37.00	0.00	63.00	
	1.00	70.00	0.00	138.00	0.00	210.00	
1 00		49.00	0.25	96.60	0.25	210.00	p-value
1.00	0 70		0.25				p value
0.70	0.70		0.25	4 40			0 311414387*
0.70 0.30	0.30	21.00	0.25	41.40 0.20	0.25	2 28	0.311414387*
0.70 0.30 0.70	0.30 0.70	21.00 0.18	0.25	0.20	0.25	2.28	0.311414387*
0.70 0.30	0.30	21.00				2.28 4.66	0.311414387*
0.70 0.30 0.70 1.63	0.30 0.70 1.63	21.00 0.18 0.43	0.25	0.20 0.47	0.25	4.66	0.311414387*
0.70 0.30 0.70	0.30 0.70	21.00 0.18	0.25	0.20	0.25		0.311414387*
	0.01 0.02 249.00 23.00 272.00 205.43 66.57 9.24 28.52 93.00 38.00 131.00 95.29 35.71 0.06	5.00 42.00 18.00 162.00 13.32 119.87 4.68 42.13 0.01 0.00 0.02 0.00 0.02 0.00 0.02 0.00 185.00 94.00 68.00 34.00 253.00 128.00 186.06 94.13 66.94 33.87 0.01 0.00 0.02 0.00 249.00 199.00 272.00 298.00 205.43 225.06 66.57 72.94 9.24 3.02 28.52 9.31 93.00 74.00 131.00 296.00 95.29 215.32 35.71 80.68 0.06 0.21 0.15 0.55 0.70 0.25 0.71 80.68 0.06 0.01	5.00 42.00 46.00 18.00 162.00 127.00 13.32 119.87 93.97 4.68 42.13 33.03 0.01 0.00 1.79 0.02 0.00 1.79 0.02 0.00 1.79 0.02 0.00 1.79 0.02 0.00 148.00 68.00 34.00 49.00 23.00 128.00 197.00 28.00 32.12 0.01 0.01 0.00 0.07 0.02 0.00 0.19 249.00 199.00 26.00 272.00 298.00 32.00 205.43 225.06 24.17 66.57 72.94 7.83 9.24 3.02 0.14 28.52 9.31 0.43 93.00 72.00 53.00 38.00 74.00 7.00	5.00 42.00 46.00 31.00 18.00 162.00 127.00 97.00 13.32 119.87 93.97 71.77 4.68 42.13 33.03 25.23 0.01 0.00 1.79 0.46 0.02 0.00 5.10 1.32 0.02 0.00 5.10 1.32 0.01 0.00 49.00 5.00 66.94 33.87 52.12 2.65 0.01 0.00 0.19 2.09 249.00 199.00 26.00 70.00 23.00 99.00 6.00 32.00 272.00 298.00 32.00 102.00 272.00 298.00 32.00 102.00 272.00 298.00 32.00 102.00 272.00 298.00 53.00 231.00 38.00 74.00 7.00 118.00 $131.$	5.00 42.00 46.00 31.00 54.00 18.00 162.00 127.00 97.00 216.00 13.32 119.87 93.97 71.77 159.83 4.68 42.13 33.03 25.23 56.17 0.01 0.00 5.10 1.32 0.08 0.02 0.00 5.10 1.32 0.08 185.00 94.00 148.00 5.00 445.00 68.00 34.00 49.00 5.00 139.00 253.00 128.00 197.00 10.00 584.00 186.06 94.13 144.88 7.35 429.48 66.94 33.87 52.12 2.65 154.52 0.01 0.00 0.07 0.75 0.56 0.27.00 298.00 32.00 70.00 238.00 272.00 298.00 32.00 70.00 245.00 205.43 225.06 24.17 77.03 185.03	5.00 42.00 46.00 31.00 54.00 16.00 18.00 162.00 127.00 97.00 216.00 126.00 13.32 119.87 93.97 71.77 159.83 93.23 4.68 42.13 33.03 25.23 56.17 32.77 0.01 0.00 5.10 1.32 0.08 8.58 10.00 0.00 5.10 1.32 0.08 8.58 10.00 94.00 197.00 10.00 544.00 45.00 128.00 197.00 10.00 584.00 45.00 136.00 253.00 128.00 197.00 10.00 584.00 45.00 0.01 0.00 $0.70.75$ 0.56 6.88 0.02 0.00 0.19 2.09 1.56 19.13 249.00 199.00 26.00 70.00 238.00 13.00 17.27	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$

Characterizing patterns in DNA sequence trace data through informatics tools

Appendices

Sp0_ 197_53 263 229 74 17.00 223.87 69.25 Purlle K2 1.24 1.23 0.01 0.01 0.10 0.02 2.65 K2 1.74 1.23 0.01 0.01 0.10 0.05 8.42 K2 3.75 3.75 0.27 0.02 0.05 0.49 0.05 8.42 K2 3.76 3.77 0.02 1.00 100.0 10.00 76.00 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>									
Exp 35, 47 6.68 97, 26 5, 76 77, 13 30, 75 0.83788488 X*2 3, 75 2, 27 0, 02 0, 02 0, 43 0, 00 1.6 0, 00 0,	_								-
X*2 1.24 1.23 0.81 0.81 0.81 0.81 0.82 2.65 X*2 3.75 3.72 0.82 0.92 <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>									
X*2 J.7.5 J.7.2 0.02 0.02 0.04 0.05 E.44 ACT 75.00 0.00 186.00 1.00 100.00 5.00 35.00 75.00 ACT 75.00 0.00 120.00 100.00 5.00 35.00 75.00 75.00 ISP 96.13 2.24 137.02 1.42 100.04 1.00 17.34 1.00 17.34 K2 4.64 2.94 5.35 0.15 0.06 4.71 1.73 1.00	Exp.	35.47	8.68	92.26	5.70	77.13	30.75		0.057880438
CAT 75,00 0.00 126,00 1.00 105,00 556,00 757,00 757,00	X^2	1.24	1.23	0.01	0.01	0.16	0.02	2.65	
ACT 75.00 0.00 165.00 1.00 105.00 576.00 777.00 777.00	X^2	3 75	3 72	0 02	0 02	0 49	0 05	8.04	
ART OTAL 15.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 2.0.00 2.0.00 20.00 7.05.00 20.00 7.05.00 20.00 7.05.00 0.00 7.05.00 0.00 7.05.00 0.00 7.05.00 0.00 7.05.00 0.00 7.05.00 0.00 7.05.00 0.00 7.05.00 0.00 7.05.00 0.00 7.05 0.00 7	· · ·	5175	5172	0.02	0.02	0115	0.05		1
ART OTAL 15.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 2.0.00 2.0.00 20.00 7.05.00 20.00 7.05.00 20.00 7.05.00 0.00 7.05.00 0.00 7.05.00 0.00 7.05.00 0.00 7.05.00 0.00 7.05.00 0.00 7.05.00 0.00 7.05.00 0.00 7.05.00 0.00 7.05 0.00 7	ACT	75.00	0.00	100.00	1 00	205 00	0.00	576 00	
TOTAL 131.00 4.98 214.00 2.00 410.80 24.90 75.00 <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>									
Exp. 46.12 2.94 157.02 1.47 380.84 17.41 p-value Stp. 44.88 1.06 5.09 0.51 109.76 6.19 17.94 X2 4.64 2.94 5.35 0.15 8.06 4.71 37.34 K2 12.79 6.89 14.74 0.41 0.16 47.79 GAA 75.90 12.60 27.70 12.70 12.90 12.00 59.00 TOTAL 104.00 377.00 122.04 27.73 07.72 07.72 0.72.72 07.24 42.73 0.93.7 K2 0.14 1.66 0.60 0.27 0.33 0.99 222.00 1347.60 0.52330555 K2 0.12 0.62 0.80 222.00 1347.60 0.327.30 0.327.30 0.327.30 0.327.30 0.327.30 0.327.30 0.327.30 0.327.30 0.327.30 0.327.30 0.327.30 0.327.30 0.327.30 0.327.30 0.327.30	AGT	56.00	4.00	28.00	1.00	105.00	15.00	209.00	
Exp. 34.88 1.06 56.93 0.53 109.16 6.33 1.054496-122 X*2 4.64 2.94 5.33 0.15 0.06 4.21 1.054496-122 X*2 1.07.40	TOTAL	131.00	4.00	214.00	2.00	410.00	24.00	785.00	
Exp. 34.88 1.06 56.93 0.53 109.16 6.33 1.054496-122 X*2 4.64 2.94 5.33 0.15 0.06 4.21 1.054496-122 X*2 1.07.40	Exp.	96.12	2.94	157.02	1.47	300.84	17.61		p-value
X*2 4.44 2.94 5.35 0.15 0.06 4.71 17.34 K*2 12.79 8.09 14.74 0.41 0.16 11.60 47.79 CM 7.599 2.61.09 72.690 2.61.09 72.690 517.690 517.690 517.690 517.690 527.900 CM 76.79 77.77 77.77 77.77 77.74 77.74 77.74 77.74 77.74 77.74 77.74 77.74 77.74 77.74 6.73 60 6.93 6.93 6.93 6.93 75.52 151.62 76.75 77.77 77.77 77.77 77.78 77.78 77.78 77.78 77.78 77.78 77.78 77.78 77.78 77.78 77.78 77.78 77.78 77.78 77.78 77.78 77.79 77.79 77.79 77.79 77.79 77.79 77.79 77.79 77.79 77.79 77.79 77.79 77.79 77.79 77.79 77.79 <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>									
X*2 12.79 8.89 14.74 0.41 0.16 11.60 77.79 CAA 75.80 261.69 215.09 427.89 617.09 554.80 554.80 TOTAL 184.69 311.69 72.00 155.08 220.90 11.00 556.80 TOTAL 184.69 311.69 72.00 155.08 220.90 11.90 223.90 0.558.80 TOTAL 104.69 77.13 75.53 112.81 556.80 223.90 0.558.80 0.52338555 X*2 0.41 0.59 0.66 0.68 0.77 0.63 6.99 223.80 1342.90 CAC 126.90 443.69 5.98 9.015 71.72 75.80 1342.90 143.80 1267.90 233.90 128.90 0.57 0.33 0.33 0.31 0.31 0.31 0.31 0.31 0.31 0.32 0.32 0.32 0.32 0.32 0.32 0.32 0.32 0.32 0.32								17 34	1.054451-12
CAA 75.98 261.99 216.99 427.98 617.90 51.96 567.90 777.90 77.93 77.90									
CAA 22.90 110.00 72.00 152.00 222.00 11.00 556.00 Exp. 76.73 273.07 212.48 427.18 604.23 82.63 0.99 X2 6.04 0.37 0.66 0.00 0.77 6.63 0.99 X2 6.04 0.37 0.66 0.00 0.77 6.63 0.99 X2 6.04 0.37 0.66 0.00 0.77 0.63 0.99 X2 0.04 41.04 19.00 77.00 70.00 432.00 432.00 X1 77.60 52.00 75.00 75.00 13.00 137.00 78.70 0.33 0.33 0.01 0.5 0.10 1.30 0.33 0.22.00 75.00 15.00 13.00 227.00 13.00 227.00 13.00 227.00 13.00 13.00 13.00 120.01 14.00 13.00 13.00 13.00 13.00 13.00 120.01 13.00 13.00 <th>X^2</th> <th>12.79</th> <th>8.09</th> <th>14.74</th> <th>0.41</th> <th>0.16</th> <th>11.60</th> <th>47.79</th> <th></th>	X^2	12.79	8.09	14.74	0.41	0.16	11.60	47.79	
CAA 22.90 110.00 72.00 152.00 222.00 11.00 556.00 Exp. 76.73 273.07 212.48 427.18 604.23 82.63 0.99 X2 6.04 0.37 0.66 0.00 0.77 6.63 0.99 X2 6.04 0.37 0.66 0.00 0.77 6.63 0.99 X2 6.04 0.37 0.66 0.00 0.77 0.63 0.99 X2 0.04 41.04 19.00 77.00 70.00 432.00 432.00 X1 77.60 52.00 75.00 75.00 13.00 137.00 78.70 0.33 0.33 0.01 0.5 0.10 1.30 0.33 0.22.00 75.00 15.00 13.00 227.00 13.00 227.00 13.00 227.00 13.00 13.00 13.00 120.01 14.00 13.00 13.00 13.00 13.00 13.00 120.01 13.00 13.00 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>-</th>									-
CAA 22.90 110.00 72.00 152.00 222.00 11.00 556.00 Exp. 76.73 273.07 212.48 427.18 604.23 82.63 0.99 X2 6.04 0.37 0.66 0.00 0.77 6.63 0.99 X2 6.04 0.37 0.66 0.00 0.77 6.63 0.99 X2 6.04 0.37 0.66 0.00 0.77 0.63 0.99 X2 0.04 41.04 19.00 77.00 70.00 432.00 432.00 X1 77.60 52.00 75.00 75.00 13.00 137.00 78.70 0.33 0.33 0.01 0.5 0.10 1.30 0.33 0.22.00 75.00 15.00 13.00 227.00 13.00 227.00 13.00 227.00 13.00 13.00 13.00 120.01 14.00 13.00 13.00 13.00 13.00 13.00 120.01 13.00 13.00 <th>CAA</th> <th>75 00</th> <th>261 00</th> <th>216 00</th> <th>427 00</th> <th>617 00</th> <th>81 00</th> <th>1677 00</th> <th>1</th>	CAA	75 00	261 00	216 00	427 00	617 00	81 00	1677 00	1
TOTAL 19.49.09 271.98 271.28 281.99 111.09 127.39 272.39.00 Exp. 77.77 97.36 75.52 151.82 214.75 29.37 0.52338595 X°2 0.44 0.55 0.66 0.69 0.77 0.93 6.99 X°2 0.11 1.66 0.60 0.76 0.09 2.78.8 CdC 125.60 141.00 5.90 77.60 27.78 78.60 21.85.00 128.70 TOTAL 75.90 0.12.77 469.61 26.28 27.69 13.78 0.12 137.09 Exp. 123.17 469.61 26.28 271.69 216.38 226.80 137.99 0.33273169 X°2 0.27 0.277 27.80 216.28 226.90 128.90 0.33273169 X°2 0.277 74.49 30.69 137.90 211.90 64.09 CdC 16.90 120.90 213.90 427.83 272.80 211.90 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>									
Exp. 76.73 273.72 212.48 427.18 664.25 82.63 P=value SX2 0.04 0.59 0.66 0.00 0.77 0.03 6.93 X2 0.01 1.66 0.06 0.76 0.09 2.78 X2 0.01 1.66 0.00 9.75 0.03 80.09 2.78 CAC 125.09 143.00 3.09 270.00 25.00 134.00 445.00 CAC 143.00 1.66 16.73 71.77 75.70 0.01 1.390 X2 0.87 0.99 1.38 0.01 0.95 0.10 1.390 X2 0.87 0.99 1.38 0.04 0.15 0.31 3.94 X2 0.87 0.99 1.20.00 276.00 716.00 716.90 120.00 2676.00 TOTAL 22.60 127.60 71.60 130.00 22.00 266.00 2676.00 TOTAL 22.6									
Exp. 27.77 97.28 75.52 151.82 214.75 29.37 6.38233655 X*2 0.11 1.66 0.66 0.80 0.77 0.03 0.95 X*2 0.11 1.66 0.66 0.80 0.76 8.99 2.78 CAC 156.90 441.90 30.69 270.60 213.60 222.60 74.85 218.85								22/3.00	_
X ² 2 0.04 0.59 0.06 0.07 0.03 0.99 2.78 CAC 126.09 141.06 30.09 270.00 213.09 222.09 1342.09 CAC 59.06 141.06 30.09 270.06 213.09 222.09 1342.09 CAC 136.09 143.09 36.09 57.08 88.06 97.09 134.09 CAC 132.09 445.09 132.09 445.09 102.09 103.09 KP2 0.27 0.27 0.32 226.00 137.09 100.02 0.00 <th>Exp.</th> <th>76.73</th> <th>273.72</th> <th>212.48</th> <th>427.18</th> <th>604.25</th> <th>82.63</th> <th></th> <th>p-value</th>	Exp.	76.73	273.72	212.48	427.18	604.25	82.63		p-value
X*2 0.11 1.66 0.16 0.09 0.76 0.09 2.78 CAC 126.09 481.09 30.09 270.00 213.09 422.09 443.09 50.00 443.09 50.00 443.09 50.00 443.09 50.00 75.00 00.00 443.09 50.00 75.00 00.00 443.09 50.00 75.00 00.00 443.09 50.00 9.78.00 50.00 443.09 50.00 9.78.00 50.00 177.00 00.00 177.00 00.00 177.00 00.00 177.00 00.00 1.30 X*2 0.07 0.33 0.13 0.127.09 77.1.23 75.00 100.01 13.30 0.00 100.01 100.01 100.01 100.01 0.00 100.01 <t< th=""><th>Exp.</th><th>27.27</th><th>97.28</th><th>75.52</th><th>151.82</th><th>214.75</th><th>29.37</th><th></th><th>0.582330595</th></t<>	Exp.	27.27	97.28	75.52	151.82	214.75	29.37		0.582330595
X*2 0.11 1.66 0.16 0.09 0.76 0.09 2.78 CAC 126.09 481.09 30.09 270.00 213.09 422.09 443.09 50.00 443.09 50.00 443.09 50.00 443.09 50.00 75.00 00.00 443.09 50.00 75.00 00.00 443.09 50.00 75.00 00.00 443.09 50.00 9.78.00 50.00 443.09 50.00 9.78.00 50.00 177.00 00.00 177.00 00.00 177.00 00.00 177.00 00.00 1.30 X*2 0.07 0.33 0.13 0.127.09 77.1.23 75.00 100.01 13.30 0.00 100.01 100.01 100.01 100.01 0.00 100.01 <t< th=""><th>X^2</th><th>0.04</th><th>0.59</th><th>0.06</th><th>0.00</th><th>0.27</th><th>0.03</th><th>0.99</th><th></th></t<>	X^2	0.04	0.59	0.06	0.00	0.27	0.03	0.99	
CAC 126.00 481.00 30.00 270.00 213.00 30.00 132.00 445.00 CAC 50.00 51.00 35.00 35.00 35.00 37.00 80.00 173.00 445.00 Exp. 132.17 446.61 22.8 271.85 216.28 226.80 975.20 0.37273159 X^2 0.29 0.33 0.53 0.01 0.65 0.10 1.30 3.30 X^2 0.87 0.99 1.58 0.04 0.15 0.31 3.30 CA 145.00 127.60 716.00 716.00 199.00 644.00 CA 145.00 127.09 127.00 776.00 716.00 199.00 644.00 CA 145.00 127.00 422.00 276.00 716.00 199.00 644.00 CC 137.77 77 15.50 0.57 0.91 0.43 4.48 X^2 9.34 0.441 1.64 9.00 <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>t</th></t<>									t
CAC 59.09 143.09 5.08 92.08 75.09 80.09 143.09 Exp. 132.17 448.61 25.28 228.80 302.09 137.09 X2 0.23 0.33 0.53 0.15 71.72 75.20 0.37273169 X2 0.29 0.33 0.53 0.01 0.95 0.13 3.94 X2 0.87 0.99 1.58 0.04 0.15 0.31 3.94 TOTAL 226.69 132.69 57.09 57.76 199.09 684.09 CCA 167.09 480.69 152.09 57.09 327.69 276.69 92.76.09 275.69 X2 3.21 0.15 0.56 0.07 0.01 0.43 13.66 0.0373017 X2 3.21 0.15 0.56 0.77 0.01 1.43 13.66 0.0373017 X2 3.21 0.15 0.56 0.77 0.02 1.43 13.76 0.02373017	A 2	0.11	1.00	0.10	0.00	0.70	5.05	2.70	1
CAC 59.09 143.09 5.08 92.08 75.09 80.09 143.09 Exp. 132.17 448.61 25.28 228.80 302.09 137.09 X2 0.23 0.33 0.53 0.15 71.72 75.20 0.37273169 X2 0.29 0.33 0.53 0.01 0.95 0.13 3.94 X2 0.87 0.99 1.58 0.04 0.15 0.31 3.94 TOTAL 226.69 132.69 57.09 57.76 199.09 684.09 CCA 167.09 480.69 152.09 57.09 327.69 276.69 92.76.09 275.69 X2 3.21 0.15 0.56 0.07 0.01 0.43 13.66 0.0373017 X2 3.21 0.15 0.56 0.77 0.01 1.43 13.66 0.0373017 X2 3.21 0.15 0.56 0.77 0.02 1.43 13.76 0.02373017	CAC	126.62	401.00	20.00	270.00	212.00	222.00	1242 00	1
TOTAL 175,00 624,00 35,00 362,00 282,00 362,00 1737,00 Exp. 43,83 155,39 8.72 99,15 71,72 75,20 0 9,312 0 9,313 0,12 1,30 0,312 0,31 0,31 3,39 X^2 0,87 0.99 1,58 0,01 0,05 0,18 1,30 X^2 0,87 0.99 1,58 0,04 0,15 0,114 3,394 CCA 145,00 126,00 90,04 152,60 37,400 369,00 321,00 687,50 192,00 687,50 0 0,00573017 K*2 3,21 0,15 0,55 0,07 0,01 0,49 4,48 0,00573017 0,00573017 0,00573017 0,01 0,49 4,48 0,00573017 0,01 0,49 4,48 0,00573017 0,01 0,49 4,48 0,00573017 0,01 0,0274,00 0,01 0,0275,00 0,01 0,00275,00 0,01									
Exp. 132.17 468.61 26.28 271.85 216.28 226.88 p.value 0.87273169 X^2 0.29 0.33 0.53 0.01 0.65 0.18 1.38 X^2 0.87 0.99 1.58 0.04 0.65 0.18 1.38 CA 145.69 120.69 158.00 275.09 71.6.90 1922.00 684.60 CA 145.69 120.69 120.69 350.90 327.09 256.60 97.90 X^2 3.21 0.15 0.56 0.07 0.91 0.43 1.36 X^2 3.34 0.44 1.64 0.19 0.92 1.43 1.66 CCC 6.00 150.66 7.00 220.06 378.00 1297.00 461.80 CCC 6.00 150.66 7.06 210.60 176.70 1297.00 461.80 CCC 6.00 150.66 7.00 18.40 1.00 1.00 1.37 0.00 </th <th>CAC</th> <th>50.00</th> <th>143.00</th> <th>5.00</th> <th>92.00</th> <th>75.00</th> <th>80.00</th> <th>445.00</th> <th></th>	CAC	50.00	143.00	5.00	92.00	75.00	80.00	445.00	
Exp. 132.17 468.61 26.28 271.85 216.28 226.88 p.value 0.87273169 X^2 0.29 0.33 0.53 0.01 0.65 0.18 1.38 X^2 0.87 0.99 1.58 0.04 0.65 0.18 1.38 CA 145.69 120.69 158.00 275.09 71.6.90 1922.00 684.60 CA 145.69 120.69 120.69 350.90 327.09 256.60 97.90 X^2 3.21 0.15 0.56 0.07 0.91 0.43 1.36 X^2 3.34 0.44 1.64 0.19 0.92 1.43 1.66 CCC 6.00 150.66 7.00 220.06 378.00 1297.00 461.80 CCC 6.00 150.66 7.06 210.60 176.70 1297.00 461.80 CCC 6.00 150.66 7.00 18.40 1.00 1.00 1.37 0.00 </th <th>TOTAL</th> <th>176.00</th> <th>624.00</th> <th>35.00</th> <th>362.00</th> <th>288.00</th> <th>302.00</th> <th>1787.00</th> <th></th>	TOTAL	176.00	624.00	35.00	362.00	288.00	302.00	1787.00	
[xh] (43.83) 155.39 8.72 99.15 71.72 75.20 (6.387273169) [xh] (9.87) (9.99) 1.58 (9.64) (9.15) (9.13) (3.94) [xh] (9.99) 1.58 (9.64) (9.15) (9.16) (9.9) (1.30) [xh] (2.06) (1.30) (1.30) (1.30) (1.30) (1.30) [xh] (2.66) (2.00) (2.12,00) (2.76,00) (3.92,00) (2.76,00) (2.76,00) (2.76,00) (2.76,00) (2.76,00) (2.76,00) (2.77,00									p-value
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X*2 0.87 0.99 1.58 0.04 0.15 0.31 3.94 CCA 145.09 120.09 31.20 422.09 276.09 716.09 1992.09 CCA 31.90 47.90 99.09 152.09 35.90 921.09 2676.09 2774.09 266.09 2774.09 266.09 1758.09 2676.09 1787.09 266.09 1787.09 266.09 2774.09								1 20	0.30/2/3103
CCA 145.00 120.00 313.00 422.00 776.00 716.00 684.00 CCA 81.00 47.00 90.00 152.00 93.00 227.00 684.00 Exp. 166.23 124.31 229.99 427.28 274.68 697.50 684.00 Exp. 57.77 42.69 103.01 146.72 94.32 239.50 0.08357807 X*2 3.21 0.15 0.56 0.07 0.81 0.49 4.48 X*2 3.21 0.44 1.64 0.19 0.62 1.43 13.06 CCC 6.80 158.00 7.00 727.00 78.00 471.00 1758.00 CCC 6.80 155.00 7.65 0.69 0.28 7.58 4.87 X*2 0.60 17.71 380.69 51.6 539.31 6.64 37.00 125.00 CCT 4.00 29.00 127.00 7.00 126.00 36.00 36.00 <									
CCA 81.00 47.00 90.00 152.00 93.00 221.00 684.00 Exp. 166.23 124.31 229.99 427.28 274.68 697.50 2676.90 KY2 3.21 0.15 0.65 0.07 0.01 0.49 4.48 X^2 3.21 0.15 0.56 0.07 0.01 0.49 4.48 X^2 3.24 0.44 1.64 0.19 0.02 1.43 13.06 CCC 18.00 366.00 7.00 520.00 8.00 378.00 451.00 TOTAL 24.09 516.00 7.00 731.00 93.00 451.00 0.002298114 X^2 0.01 1.55 1.84 191.65 2.36 13.71 0.002298114 X^2 0.01 1.57 1.84 191.69 2.66 109.00 168.00 109.00 CCT 98.00 29.00 312.00 37.00 275.00 36.00 109.00 <t< th=""><th>X^2</th><th>0.87</th><th>0.99</th><th>1.58</th><th>0.04</th><th>0.15</th><th>0.31</th><th>3.94</th><th></th></t<>	X^2	0.87	0.99	1.58	0.04	0.15	0.31	3.94	
CCA 81.00 47.00 90.00 152.00 93.00 221.00 684.00 Exp. 166.23 124.31 229.99 427.28 274.68 697.50 2676.90 KY2 3.21 0.15 0.65 0.07 0.01 0.49 4.48 X^2 3.21 0.15 0.56 0.07 0.01 0.49 4.48 X^2 3.24 0.44 1.64 0.19 0.02 1.43 13.06 CCC 18.00 366.00 7.00 520.00 8.00 378.00 451.00 TOTAL 24.09 516.00 7.00 731.00 93.00 451.00 0.002298114 X^2 0.01 1.55 1.84 191.65 2.36 13.71 0.002298114 X^2 0.01 1.57 1.84 191.69 2.66 109.00 168.00 109.00 CCT 98.00 29.00 312.00 37.00 275.00 36.00 109.00 <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>									
CCA 81.00 47.00 90.00 152.00 93.00 221.00 684.00 Exp. 166.23 124.31 229.99 427.28 274.68 697.50 2676.90 KY2 3.21 0.15 0.65 0.07 0.01 0.49 4.48 X^2 3.21 0.15 0.56 0.07 0.01 0.49 4.48 X^2 3.24 0.44 1.64 0.19 0.02 1.43 13.06 CCC 18.00 366.00 7.00 520.00 8.00 378.00 451.00 TOTAL 24.09 516.00 7.00 731.00 93.00 451.00 0.002298114 X^2 0.01 1.55 1.84 191.65 2.36 13.71 0.002298114 X^2 0.01 1.57 1.84 191.69 2.66 109.00 168.00 109.00 CCT 98.00 29.00 312.00 37.00 275.00 36.00 109.00 <t< th=""><th>CCA</th><th>145.00</th><th>120.00</th><th>313.00</th><th>422.00</th><th>276.00</th><th>716.00</th><th>1992.00</th><th>1</th></t<>	CCA	145.00	120.00	313.00	422.00	276.00	716.00	1992.00	1
TOTAL 226.00 167.00 403.00 574.00 365.00 927.00 2266.00 Exp. 166.23 124.31 229.99 427.23 274.66 697.50 0.01 0.49 4.4 X^2 3.21 0.15 0.56 0.07 0.01 0.49 4.48 0.003573017 X^2 3.21 0.15 0.56 0.07 0.01 0.49 4.48 X^2 3.34 0.44 1.64 0.19 0.02 1.43 13.66 CCC 18.00 366.00 7.00 520.00 8.00 373.00 1297.00 CCC 6.00 150.00 0.00 211.00 1.00 1350.00 1257.00 X^2 0.00 0.57 0.55 0.69 6.28 2.68 4.97 X^2 0.00 0.57 0.55 0.69 3.60 36.00 103.01 X^2 0.00 0.57 0.55 0.69 2.66 4.97									
isp. isp. <th< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th<>									
[xy]_ 57.77 42.69 103.01 146.72 94.32 239.59								20/0.00	-
X*2 3.21 0.15 0.56 0.07 0.01 0.49 4.48 X*2 9.34 0.44 1.64 0.19 0.02 1.43 13.06 CCC 18.00 366.00 7.00 520.00 8.00 378.00 1297.00 CCC 6.00 150.00 7.00 731.00 9.00 471.00 1758.00 p-value Exp. 6.29 135.31 1.84 191.69 2.36 1237.51 0.002298114 X*2 0.01 1.59 1.84 1.95 0.73 7.54 13.71 CCT 98.00 29.00 312.00 37.00 275.00 36.00 39.00 189.00 99.00 CCT 41.00 20.00 127.00 7.00 1080.00 3.00 39.00 1093.00 30.00 1093.00 30.00 1093.00 90.00 90.00 30.00 1093.00 0.003.00 30.00 1093.00 0.003.00 1007.10 10.00 0.00 90.00 30.00 1007.10 100.00 0.00 100.00 0.00 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>									
X*2 9.34 0.44 1.64 0.19 0.02 1.43 13.86 CCC 15.00 366.00 7.00 520.00 8.06 378.00 1257.00 461.00 CCC 6.00 150.00 7.00 7.00 7.00 1.00 1.00 93.00 461.00 1757.00 TOTAL 24.00 516.00 7.00 731.00 9.00 471.00 1758.00 9.002298114 X*2 0.00 0.57 0.65 0.69 0.28 2.66 4.87 X*2 0.00 0.57 0.65 0.69 0.78 7.54 13.71 CCT 41.00 20.00 127.00 7.00 108.00 3.00 306.00 707.00 CTT 100.09 35.28 316.10 31.68 275.77 28.08 0.00 0.003.00 1093.00 1093.00 1093.00 1093.00 1093.00 1093.00 1093.00 1093.00 1093.00 1093.00 231.00 20.00 33.00 10.2 0.008.05 0.00 10.00 0.00 0.00 </th <th></th> <th></th> <th>42.69</th> <th>103.01</th> <th></th> <th>94.32</th> <th>239.50</th> <th></th> <th>0.003573017</th>			42.69	103.01		94.32	239.50		0.003573017
X*2 9.34 0.44 1.64 0.19 0.02 1.43 13.86 CCC 15.00 366.00 7.00 520.00 8.06 378.00 1257.00 461.00 CCC 6.00 150.00 7.00 7.00 7.00 1.00 1.00 93.00 461.00 1757.00 TOTAL 24.00 516.00 7.00 731.00 9.00 471.00 1758.00 9.002298114 X*2 0.00 0.57 0.65 0.69 0.28 2.66 4.87 X*2 0.00 0.57 0.65 0.69 0.78 7.54 13.71 CCT 41.00 20.00 127.00 7.00 108.00 3.00 306.00 707.00 CTT 100.09 35.28 316.10 31.68 275.77 28.08 0.00 0.003.00 1093.00 1093.00 1093.00 1093.00 1093.00 1093.00 1093.00 1093.00 1093.00 1093.00 231.00 20.00 33.00 10.2 0.008.05 0.00 10.00 0.00 0.00 </th <th>X^2</th> <th>3.21</th> <th>0.15</th> <th>0.56</th> <th>0.07</th> <th>0.01</th> <th>0.49</th> <th>4.48</th> <th></th>	X^2	3.21	0.15	0.56	0.07	0.01	0.49	4.48	
CCC 18.00 366.00 7.00 520.00 8.00 378.00 1297.00 CCC 6.00 150.00 0.00 211.00 1.00 93.00 1758.00 TOTAL 24.00 516.00 7.00 731.00 9.00 471.00 1758.00 Exp. 6.29 135.31 1.84 191.69 2.36 123.51 0.002298114 X^2 0.00 0.57 0.65 0.69 0.28 2.68 4.87 X^2 0.01 1.59 1.84 1.95 0.78 7.54 13.71 CCT 98.00 29.00 127.00 7.00 108.00 3.00 1093.00 CCT 41.00 29.00 127.00 7.23 10.92 0.008383757 X^2 0.04 1.17 0 1.22 107.23 10.92 0.0088383757 X^2 0.04 1.12 0.05 0.89 0.001 5.7.4 11.17 X^2 0.04 </th <th>X^2</th> <th></th> <th></th> <th></th> <th></th> <th>0.02</th> <th></th> <th></th> <th></th>	X^2					0.02			
CCC 6.00 150.00 0.00 211.00 1.00 93.00 461.00 TOTAL 24.00 516.00 7.00 731.00 9.00 471.00 1758.00 Exp. 6.29 135.31 1.84 191.69 2.36 123.51 0.002298114 X^2 0.00 0.57 0.65 0.69 0.28 2.68 4.87 X^2 0.01 1.59 1.84 1.95 0.76 36.00 366.00 CCT 98.00 29.00 312.00 37.00 275.00 36.00 366.00 TOTAL 139.00 49.00 439.00 44.00 383.00 39.00 1093.00 Exp. 100.09 35.28 316.10 31.68 275.77 28.08 p-value 0.00833757 X^2 0.11 2.88 0.14 2.30 0.01 5.74 11.17 0.00833757 CCG 49.00 1.00 5.00 99.00 19.00 69.00									
CCC 6.00 150.00 0.00 211.00 1.00 93.00 461.00 TOTAL 24.00 516.00 7.00 731.00 9.00 471.00 1758.00 Exp. 6.29 135.31 1.84 191.69 2.36 123.51 0.002298114 X^2 0.00 0.57 0.65 0.69 0.28 2.68 4.87 X^2 0.01 1.59 1.84 1.95 0.76 36.00 366.00 CCT 98.00 29.00 312.00 37.00 275.00 36.00 366.00 TOTAL 139.00 49.00 439.00 44.00 383.00 39.00 1093.00 Exp. 100.09 35.28 316.10 31.68 275.77 28.08 p-value 0.00833757 X^2 0.11 2.88 0.14 2.30 0.01 5.74 11.17 0.00833757 CCG 49.00 1.00 5.00 99.00 19.00 69.00		18 00	366 00	7 00	570 00	8 00	378 66	1297 00	1
TOTAL 24.00 516.00 7.00 731.00 9.00 471.00 1758.00 Exp. 17.71 380.69 5.16 539.31 6.64 347.49 p-value Exp. 6.29 135.31 1.84 191.69 2.36 125.51 0.682298114 X^2 0.00 0.57 0.65 0.69 0.28 2.68 4.87 X^2 0.01 1.59 1.84 1.95 0.78 7.54 13.71 CCT 98.00 29.00 312.00 37.00 275.00 36.00 380.00 TOTAL 139.00 49.00 439.00 44.00 383.60 39.00 193.00 Exp. 38.91 13.72 122.90 12.32 107.23 10.92 0.08883757 X^2 0.04 1.12 0.05 0.89 0.00 2.31.00 GCG 49.00 12.00 25.00 4.00 78.00 19.00 CCG 49.00									
Exp. 17.71 380.69 5.16 539.31 6.64 347.49 p-value Exp. 6.29 135.31 1.84 191.69 2.36 123.51 0.002298114 X^2 0.000 0.57 0.65 0.69 0.28 2.68 4.87 X^2 0.001 1.59 1.84 1.95 0.78 7.54 13.71 CT 98.00 29.00 312.00 37.00 275.90 36.00 306.00 CT 41.00 20.00 127.00 7.00 108.00 3.00 1093.00 Exp. 180.09 43.00 439.00 44.00 383.00 39.00 1093.00 Exp. 180.09 35.28 316.10 31.68 275.77 28.68 2.32 4.34 X^2 0.11 2.88 0.14 2.30 0.01 5.74 11.77 CCG 93.00 13.00 31.00 5.00 99.00 19.00 30.00 300.0									
Exp. 6.29 135.31 1.84 191.69 2.36 123.51 0.002298114 X^2 0.00 0.57 0.65 0.69 0.28 2.68 4.87 X^2 0.01 1.59 1.84 1.95 0.78 7.54 13.71 C 98.00 29.90 312.00 37.00 108.00 3.00 306.00 CCT 41.00 29.00 127.00 7.00 108.00 3.00 306.00 CT 43.00 49.00 44.00 38.00 39.00 1093.00 Exp. 100.09 35.28 316.10 31.68 275.77 28.08 9.000 2.23 4.34 X^2 0.11 2.88 0.14 2.30 0.01 5.74 11.17 CCG 93.00 12.00 25.00 4.00 78.00 19.00 300.00 231.00 CCG 93.00 13.00 5.00 99.00 19.00 300.00 0.044	TOTAL	24.00	516.00	7.00	731.00	9.00	471.00	1758.00	
X ² 2 0.00 0.57 0.65 0.69 0.28 2.68 4.87 X ² 2 0.01 1.59 1.84 1.95 0.78 7.54 13.71 CCT 98.00 29.00 312.00 37.00 27.00 36.00 360.00 TOTAL 139.00 49.00 439.00 443.00 383.00 39.00 1093.00 Exp. 100.09 35.28 316.10 31.68 27.77 28.08 p-value K ² 2 0.04 1.12 0.05 0.89 0.00 2.33 4.34 X ² 2 0.11 2.88 0.14 2.30 0.11 2.18 0.08383757 X ² 2 0.11 2.88 0.14 2.30 0.00 2.31.00 CCG 93.00 13.00 31.00 5.00 99.00 19.00 300.00 Exp. 30.59 2.99 7.13 1.15 22.77 4.37 0.40838662 X ^A 2 0.86 <th>Exp.</th> <th>17.71</th> <th>380.69</th> <th>5.16</th> <th>539.31</th> <th>6.64</th> <th>347.49</th> <th></th> <th>p-value</th>	Exp.	17.71	380.69	5.16	539.31	6.64	347.49		p-value
X^2 0.01 1.59 1.84 1.95 0.78 7.54 13.71 CCT 98.00 29.00 312.00 37.00 275.00 36.00 300 306.00 CT 41.00 20.00 127.00 7.00 108.00 3.00 306.00 306.00 TOTAL 139.00 49.00 439.00 439.00 440.00 383.00 39.00 1093.00 Exp. 38.91 13.72 122.90 12.32 107.23 10.92 4.34 X^2 0.01 2.88 0.14 2.30 0.01 5.74 11.17 CCG 93.00 12.00 25.00 4.00 78.00 19.00 69.00 300.00 CCG 93.00 12.00 25.00 4.00 78.00 19.00 300.00 90.00 300.00 90.00 300.00 90.00 300.00 90.00 300.00 90.00 300.00 90.00 300.00 90.00 300.00 90.00	Exp.	6.29	135.31	1.84	191.69	2.36	123.51		0.002298114
X^2 0.01 1.59 1.84 1.95 0.78 7.54 13.71 CCT 98.00 29.00 312.00 37.00 275.00 36.00 300 306.00 CT 41.00 20.00 127.00 7.00 108.00 3.00 306.00 306.00 TOTAL 139.00 49.00 439.00 439.00 440.00 383.00 39.00 1093.00 Exp. 38.91 13.72 122.90 12.32 107.23 10.92 4.34 X^2 0.01 2.88 0.14 2.30 0.01 5.74 11.17 CCG 93.00 12.00 25.00 4.00 78.00 19.00 69.00 300.00 CCG 93.00 12.00 25.00 4.00 78.00 19.00 300.00 90.00 300.00 90.00 300.00 90.00 300.00 90.00 300.00 90.00 300.00 90.00 300.00 90.00 300.00 90.00	X^2	0 00						4 97	
CCT 98.00 29.00 312.00 37.00 275.00 36.00 306.00 CCT 41.00 20.00 127.00 7.00 108.00 3.00 39.00 1093.00 TOTAL 139.00 49.00 439.00 44.00 383.00 39.00 1093.00 Exp. 100.09 35.28 316.10 31.68 275.77 28.08 0.093.00 X^2 0.04 1.12 0.05 0.89 0.00 2.23 4.34 X^2 0.11 2.88 0.14 2.30 0.01 5.74 11.17 CCG 93.00 12.00 25.00 4.00 78.00 19.00 300.00 TOTAL 133.00 13.00 31.00 5.00 99.00 19.00 300.00 Exp. 102.41 10.01 2.87 3.85 76.23 14.63 0.040836662 X^2 2.89 1.32 0.18 0.02 0.14 4.37 0.040836662 </th <th></th> <th>0.00</th> <th>0.57</th> <th>0.65</th> <th>0.69</th> <th>0.28</th> <th>2.68</th> <th>4.0/</th> <th></th>		0.00	0.57	0.65	0.69	0.28	2.68	4.0/	
CCT 41.00 20.00 127.00 7.00 108.00 3.00 306.00 TOTAL 139.00 49.00 430.00 44.00 383.00 30.00 1093.00 Exp. 100.09 35.28 315.10 31.68 275.77 28.08 P-value Exp. 38.91 13.72 122.90 12.32 107.23 10.92 0.008383757 X^2 0.04 1.12 0.05 0.89 0.00 2.33 4.34 X^2 0.11 2.88 0.14 2.30 0.01 5.74 11.17 CCG 93.00 12.00 25.00 4.00 78.00 19.00 300.00 TOTAL 133.00 13.00 5.00 99.00 19.00 300.00 P-value Exp. 102.41 10.01 23.87 3.85 76.23 14.63 P-value Exp. 36.59 2.99 7.13 1.15 22.77 4.37 8.93 <th< th=""><th>¥^7</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th<>	¥^7								
CCT 41.00 20.00 127.00 7.00 108.00 3.00 306.00 TOTAL 139.00 49.00 430.00 44.00 383.00 30.00 1093.00 Exp. 100.09 35.28 315.10 31.68 275.77 28.08 P-value Exp. 38.91 13.72 122.90 12.32 107.23 10.92 0.008383757 X^2 0.04 1.12 0.05 0.89 0.00 2.33 4.34 X^2 0.11 2.88 0.14 2.30 0.01 5.74 11.17 CCG 93.00 12.00 25.00 4.00 78.00 19.00 300.00 TOTAL 133.00 13.00 5.00 99.00 19.00 300.00 P-value Exp. 102.41 10.01 23.87 3.85 76.23 14.63 P-value Exp. 36.59 2.99 7.13 1.15 22.77 4.37 8.93 <th< th=""><th>X^2</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>ł</th></th<>	X^2								ł
TOTAL 139.00 49.00 439.00 44.00 383.00 39.00 1093.00 Exp. 100.09 35.28 316.10 31.68 275.77 28.08 p-value Exp. 38.91 13.72 122.90 12.32 107.23 10.92 0.092 X^2 0.04 1.12 0.05 0.89 0.00 2.23 4.34 X^2 0.11 2.80 0.14 2.30 0.01 5.74 11.17 CCG 93.00 12.00 25.00 4.00 78.00 19.00 231.00 69.00 CCG 40.00 1.00 5.00 99.00 19.00 300.00 90.00 Exp. 30.59 2.99 7.13 1.15 22.77 4.37 0 0.040836662 X^2 0.86 0.40 0.05 0.01 0.04 1.31 2.67 4.37 8.93 CAT 43.00 368.00 217.00 245.00 555.00		0.01	1.59	1.84	1.95	0.78	7.54	13.71	ł
Exp. 100.09 35.28 316.10 31.68 275.77 28.08 p-value Exp. 38.91 13.72 122.90 12.32 107.23 10.92 0.003383757 X^2 0.04 1.12 0.05 0.89 0.00 2.23 4.34 X^2 0.11 2.88 0.14 2.30 0.01 5.74 11.17 CCG 93.00 12.00 25.00 4.00 78.00 19.00 300.00 GCG 40.00 1.00 6.00 1.00 21.00 6.90 300.00 TOTAL 133.00 13.00 31.00 5.00 99.00 19.00 300.00 Exp. 102.41 10.01 23.87 3.85 76.23 14.63 0.0400.00 X^2 0.86 0.40 0.05 0.01 0.04 1.31 2.67 X^2 2.89 1.32 0.18 0.02 0.14 4.37 8.93 CAT <td< th=""><th>ССТ</th><th>0.01</th><th>1.59 29.00</th><th>1.84 312.00</th><th>1.95 37.00</th><th>0.78</th><th>7.54</th><th>13.71 787.00</th><th>† 1</th></td<>	ССТ	0.01	1.59 29.00	1.84 312.00	1.95 37.00	0.78	7.54	13.71 787.00	† 1
Exp. 100.09 35.28 316.10 31.68 275.77 28.08 p-value Exp. 38.91 13.72 122.90 12.32 107.23 10.92 4.34 X^2 0.04 1.12 0.05 0.89 0.00 2.33 4.34 X^2 0.11 2.88 0.14 2.30 0.01 5.74 11.17 CCG 93.00 12.00 25.00 4.00 78.00 19.00 300.00 CCG 40.00 1.00 5.00 99.00 19.00 300.00 TOTAL 133.00 13.00 31.00 5.00 99.00 19.00 300.00 Exp. 102.41 10.01 23.87 3.85 76.23 14.63 p-value Exp. 30.59 2.99 7.13 1.15 22.77 4.37 8.93 X^2 0.86 0.40 0.05 0.01 0.44 4.37 8.93 CAT 43.00 368	ССТ	0.01	1.59 29.00	1.84 312.00	1.95 37.00	0.78	7.54	13.71 787.00	<u> </u>
Exp. 38.91 13.72 122.90 12.32 107.23 10.92 0.0003383757 X^2 0.04 1.12 0.05 0.89 0.00 2.23 4.34 X^2 0.11 2.88 0.14 2.30 0.01 5.74 11.17 CC6 93.00 12.00 25.00 4.00 78.00 19.00 69.00 CC6 40.00 1.00 21.00 0.01 231.00 69.00 TOTAL 133.00 13.00 31.00 5.00 99.00 19.00 300.00 9-value Exp. 30.59 2.99 7.13 1.15 22.77 4.37 9.00 0.040836662 X^2 0.86 0.40 0.05 0.01 0.04 1.31 2.67 X^2 2.89 1.32 0.18 0.02 0.14 4.37 8.93 CAT 43.00 512.00 289.00 308.00 739.00 94.00 203.00 Exp. 67.10 377.52 213.09 227.10 544.89 69.31 1	CCT CCT	0.01 98.00 41.00	1.59 29.00 20.00	1.84 312.00 127.00	1.95 37.00 7.00	0.78 275.00 108.00	7.54 36.00 3.00	13.71 787.00 306.00	<u> </u>
X^2 0.04 1.12 0.05 0.89 0.00 2.23 4.34 X^2 0.11 2.88 0.14 2.30 0.01 5.74 11.17 CCG 93.00 12.00 25.00 4.00 78.00 19.00 231.00 CCG 40.00 1.00 6.00 1.00 21.00 0.00 300.00 TOTAL 133.00 13.00 31.00 5.00 99.00 19.00 231.00 Exp. 102.41 10.01 23.87 3.85 76.23 14.63 p-value X^2 0.86 0.40 0.05 0.01 0.04 1.31 2.67 X^2 2.89 1.32 0.18 0.02 0.14 4.37 8.93 CAT 43.00 344.00 72.00 63.00 184.00 23.00 534.00 CAT 48.00 144.00 75.91 80.90 194.11 24.69 10.51 K*2 8.65 0.24 0.07 1.41 0.19 0.04 10.51 K*2 </th <th>CCT CCT TOTAL</th> <th>0.01 98.00 41.00 139.00</th> <th>1.59 29.00 20.00 49.00</th> <th>1.84 312.00 127.00 439.00</th> <th>1.95 37.00 7.00 44.00</th> <th>0.78 275.00 108.00 383.00</th> <th>7.54 36.00 3.00 39.00</th> <th>13.71 787.00 306.00</th> <th>D-AJNe</th>	CCT CCT TOTAL	0.01 98.00 41.00 139.00	1.59 29.00 20.00 49.00	1.84 312.00 127.00 439.00	1.95 37.00 7.00 44.00	0.78 275.00 108.00 383.00	7.54 36.00 3.00 39.00	13.71 787.00 306.00	D-AJNe
X^2 0.11 2.88 0.14 2.30 0.01 5.74 11.17 CCG 93.00 12.00 25.00 4.00 78.00 19.00 231.00 CCG 40.00 1.00 6.00 1.00 21.00 0.00 300.00 TOTAL 133.00 13.00 31.00 5.00 99.00 19.00 300.00 Exp. 102.41 10.01 23.87 3.85 76.23 14.63 p-value Kx2 0.86 0.40 0.05 0.01 0.04 1.31 2.67 X^2 0.86 0.40 0.05 0.01 0.04 1.31 2.67 X^2 0.86 0.40 0.21.00 245.00 555.00 71.00 1499.00 CAT 43.00 368.00 217.00 245.00 555.00 71.00 1499.00 CAT 43.00 364.00 203.00 534.00 2033.00 534.00 Exp. 67.10 377.52 213.09 227.10 544.89 69.31 1.25314E-07	CCT CCT TOTAL Exp.	0.01 98.00 41.00 139.00 100.09	1.59 29.00 20.00 49.00 35.28	1.84 312.00 127.00 439.00 316.10	1.95 37.00 7.00 44.00 31.68	0.78 275.00 108.00 383.00 275.77	7.54 36.00 3.00 39.00 28.08	13.71 787.00 306.00	
CCG 93.00 12.00 25.00 4.00 78.00 19.00 231.00 CCG 40.00 1.00 6.00 1.00 21.00 0.00 69.00 TOTAL 133.00 13.00 31.00 5.00 99.00 19.00 300.00 Exp. 102.41 10.01 23.87 3.85 76.23 14.63 p-value 0.422 0.86 0.40 0.05 0.01 0.04 1.31 2.67 X^2 0.86 0.40 0.05 0.01 0.44 4.37 8.93 CAT 43.00 368.00 217.00 245.00 555.00 71.00 1499.00 CAT 43.00 368.00 217.00 245.00 53.00 23.00 203.00 Exp. 67.10 377.52 213.09 227.10 544.89 69.31 p-value Exp. 23.90 134.48 75.91 80.90 194.11 24.69 1.25314E-07 <	CCT CCT TOTAL Exp. Exp.	0.01 98.00 41.00 139.00 100.09 38.91	1.59 29.00 20.00 49.00 35.28 13.72	1.84 312.00 127.00 439.00 316.10 122.90	1.95 37.00 7.00 44.00 31.68 12.32	0.78 275.00 108.00 383.00 275.77 107.23	7.54 36.00 3.00 39.00 28.08 10.92	13.71 787.00 306.00 1093.00	
CCG 40.00 1.00 6.00 1.00 21.00 0.00 69.00 TOTAL 133.00 13.00 31.00 5.00 99.00 19.00 300.00 Exp. 102.41 10.01 23.87 3.85 76.23 14.63 p-value Kp. 30.59 2.99 7.13 1.15 22.77 4.37 0.040836662 X^2 0.86 0.40 0.05 0.01 0.04 1.31 2.67 X^2 0.86 0.40 0.05 0.01 0.04 1.499.00 534.00 CAT 48.00 144.00 72.00 63.00 184.00 23.00 534.00 Exp. 23.90	CCT CCT TOTAL Exp. Exp. X^2	0.01 98.00 41.00 139.00 100.09 38.91 0.04	1.59 29.00 20.00 49.00 35.28 13.72 1.12	1.84 312.00 127.00 439.00 316.10 122.90 0.05	1.95 37.00 7.00 44.00 31.68 12.32 0.89	0.78 275.00 108.00 383.00 275.77 107.23 0.00	7.54 36.00 3.00 39.00 28.08 10.92 2.23	13.71 787.00 306.00 1093.00 4.34	
CCG 40.00 1.00 6.00 1.00 21.00 0.00 69.00 TOTAL 133.00 13.00 31.00 5.00 99.00 19.00 300.00 Exp. 102.41 10.01 23.87 3.85 76.23 14.63 p-value Kp. 30.59 2.99 7.13 1.15 22.77 4.37 0.040836662 X^2 0.86 0.40 0.05 0.01 0.04 1.31 2.67 X^2 0.86 0.40 0.05 0.01 0.04 1.499.00 534.00 CAT 48.00 144.00 72.00 63.00 184.00 23.00 534.00 Exp. 23.90	CCT CCT TOTAL Exp. Exp. X^2	0.01 98.00 41.00 139.00 100.09 38.91 0.04	1.59 29.00 20.00 49.00 35.28 13.72 1.12	1.84 312.00 127.00 439.00 316.10 122.90 0.05	1.95 37.00 7.00 44.00 31.68 12.32 0.89	0.78 275.00 108.00 383.00 275.77 107.23 0.00	7.54 36.00 3.00 39.00 28.08 10.92 2.23	13.71 787.00 306.00 1093.00 4.34	
CCG 40.00 1.00 6.00 1.00 21.00 0.00 69.00 TOTAL 133.00 13.00 31.00 5.00 99.00 19.00 300.00 Exp. 102.41 10.01 23.87 3.85 76.23 14.63 p-value Kp. 30.59 2.99 7.13 1.15 22.77 4.37 0.040836662 X^2 0.86 0.40 0.05 0.01 0.04 1.31 2.67 X^2 0.86 0.40 0.05 0.01 0.04 1.499.00 534.00 CAT 48.00 144.00 72.00 63.00 184.00 23.00 534.00 Exp. 23.90	CCT CCT TOTAL Exp. Exp. X^2 X^2	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01	7.54 36.00 3.00 28.08 10.92 2.23 5.74	13.71 787.00 306.00 1093.00 4.34 11.17	
TOTAL 133.00 13.00 31.00 5.00 99.00 19.00 300.00 Exp. 102.41 10.01 23.87 3.85 76.23 14.63 p-value Exp. 30.59 2.99 7.13 1.15 22.77 4.37 0.040836662 X^2 0.86 0.40 0.05 0.01 0.04 1.31 2.67 X^2 2.89 1.32 0.18 0.02 0.14 4.37 8.93 CAT 43.00 368.00 217.00 245.00 555.00 71.00 1499.00 CAT 43.00 144.00 72.00 63.00 184.00 23.00 534.00 Exp. 67.10 377.52 213.09 227.10 544.89 69.31 1.25314E-07 X^2 24.29 0.67 0.20 3.96 0.53 0.12 29.77 X^2 24.29 0.67 1.41 0.19 0.04 10.61 1.25314E-07 X	CCT CCT TOTAL Exp. Exp. X^2 X^2	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01	7.54 36.00 3.00 28.08 10.92 2.23 5.74	13.71 787.00 306.00 1093.00 4.34 11.17	
Exp. 102.41 10.01 23.87 3.85 76.23 14.63 p-value Exp. 30.59 2.99 7.13 1.15 22.77 4.37 0.040836662 X^2 0.86 0.40 0.05 0.01 0.04 1.31 2.67 X^2 2.89 1.32 0.18 0.02 0.14 4.37 8.93 CAT 43.00 368.00 217.00 245.00 555.00 71.00 1499.00 CAT 48.00 144.00 72.00 63.00 184.00 23.00 534.00 CAT 48.00 134.48 75.91 80.90 194.11 24.69 1.25314E-07 X^2 8.65 0.24 0.07 1.41 0.19 0.04 10.61 X^2 8.65 0.24 0.07 1.41 0.19 0.64 16.61 X^2 2.429 0.67 0.20 3.96 0.53 0.12 29.77 CTA	CCT CCT TOTAL Exp. Exp. X^2 X^2 X^2 CCG	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00	7.54 36.00 3.00 28.08 10.92 2.23 5.74 19.00	13.71 787.00 306.00 1093.00 4.34 11.17 231.00	
Exp. 30.59 2.99 7.13 1.15 22.77 4.37 0.040836662 X^2 0.86 0.40 0.05 0.01 0.04 1.31 2.67 X^2 2.89 1.32 0.18 0.02 0.14 4.37 8.93 CAT 43.00 368.00 217.00 245.00 555.00 71.00 1499.00 CAT 48.00 144.00 72.00 63.00 184.00 23.00 534.00 2033.00 Exp. 67.10 377.52 213.09 227.10 544.89 69.31 p-value Exp. 23.90 134.48 75.91 80.90 194.11 24.69 12.5314E-07 X^2 8.65 0.24 0.07 1.41 0.19 0.04 10.61 X^2 8.65 0.24 0.07 1.41 0.19 0.04 10.61 X^2 24.29 0.67 0.20 3.96 0.53 0.12 29.77 CTA 212.00 194.00 4.00 25.00 3.00 47.00	CCT CCT TOTAL Exp. X^2 X^2 CCG CCG	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00	7.54 36.00 3.00 28.08 10.92 2.23 5.74 19.00 0.00	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00	
X^2 0.86 0.40 0.05 0.01 0.04 1.31 2.67 X^2 2.89 1.32 0.18 0.02 0.14 4.37 8.93 CAT 43.00 368.00 217.00 245.00 555.00 71.00 1499.00 CAT 43.00 144.00 72.00 63.00 184.00 23.00 534.00 CAT 48.00 144.00 72.00 63.00 184.00 2033.00 534.00 TOTAL 91.00 512.00 289.00 308.00 739.00 94.00 2033.00 Exp. 67.10 377.52 213.09 227.10 544.89 69.31 p-value X^2 8.65 0.24 0.07 1.41 0.19 0.04 10.61 1.25314E-07 X^2 24.29 0.67 0.20 3.96 0.53 0.12 29.77 CTA 212.00 194.00 4.00 55.00 3.00 47.00 165.00 CTA 222.06 186.31 3.79 62.10 3.03	CCT CCT TOTAL Exp. X^2 X^2 CCG CCG TOTAL	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 1.00 13.00	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00	0.008383757
X^2 2.89 1.32 0.18 0.02 0.14 4.37 8.93 CAT 43.00 368.00 217.00 245.00 555.00 71.00 1499.00 CAT 48.00 144.00 72.00 63.00 184.00 23.00 534.00 CAT 48.00 144.00 72.00 63.00 184.00 23.00 534.00 CAT 48.00 144.00 72.00 63.00 184.00 23.00 534.00 OTAL 91.00 512.00 289.00 308.00 739.00 94.00 2033.00 Exp. 67.10 377.52 213.09 227.10 544.89 69.31 Exp. 23.90 134.48 75.91 80.90 194.11 24.69 1.25314E-07 X^2 8.65 0.24 0.07 1.41 0.19 0.04 10.61 X^2 24.29 0.67 0.20 3.96 0.53 0.12 29.77 CTA <	CCT CCT TOTAL Exp. X^2 X^2 CCG CCG CCG TOTAL Exp.	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00	0.008383757 p-value
CAT 43.00 368.00 217.00 245.00 555.00 71.00 1499.00 CAT 48.00 144.00 72.00 63.00 184.00 23.00 534.00 TOTAL 91.00 512.00 289.00 308.00 739.00 94.00 2033.00 Exp. 67.10 377.52 213.09 227.10 544.89 69.31 p-value Exp. 23.90 134.48 75.91 80.90 194.11 24.69 1.25314E-07 X^2 8.65 0.24 0.07 1.41 0.19 0.04 10.61 X^2 24.29 0.67 0.20 3.96 0.53 0.12 29.77 CTA 212.00 194.00 4.00 27.00 1.00 2.00 165.00 CTA 82.00 52.00 1.00 2.00 165.00 680.00 CTA 212.00 194.00 5.00 82.00 4.00 49.00 680.00 CTA	CCT CCT TOTAL Exp. Exp. X^2 X^2 CCG CCG TOTAL Exp. Exp. Exp. Exp. Exp.	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00	0.008383757 p-value
CAT 43.00 368.00 217.00 245.00 555.00 71.00 1499.00 CAT 48.00 144.00 72.00 63.00 184.00 23.00 534.00 TOTAL 91.00 512.00 289.00 308.00 739.00 94.00 2033.00 Exp. 67.10 377.52 213.09 227.10 544.89 69.31 p-value Exp. 23.90 134.48 75.91 80.90 194.11 24.69 1.25314E-07 X^2 8.65 0.24 0.07 1.41 0.19 0.04 10.61 X^2 24.29 0.67 0.20 3.96 0.53 0.12 29.77 CTA 212.00 194.00 4.00 27.00 1.00 2.00 165.00 CTA 82.00 52.00 1.00 2.00 165.00 680.00 CTA 212.00 194.00 5.00 82.00 4.00 49.00 680.00 CTA	CCT CCT TOTAL Exp. X^2 X^2 CCG CCG CCG TOTAL Exp. Exp. X^2	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00	0.008383757 p-value
CAT 48.00 144.00 72.00 63.00 184.00 23.00 534.00 TOTAL 91.00 512.00 289.00 308.00 739.00 94.00 2033.00 Exp. 67.10 377.52 213.09 227.10 544.89 69.31 p-value Exp. 23.90 134.48 75.91 80.90 194.11 24.69 1.25314E-07 X^2 8.65 0.24 0.07 1.41 0.19 0.04 10.61 X^2 8.65 0.24 0.07 1.41 0.19 0.04 10.61 CTA 212.00 194.00 4.00 55.00 3.00 47.00 515.00 CTA 212.00 194.00 4.00 27.00 1.00 2.00 165.00 CTA 212.00 194.00 4.00 55.00 3.00 47.00 680.00 CTA 222.06 186.31 3.79 62.10 3.03 37.11 9.00 680.00 CTA 222.66 186.31 3.79 62.10 3.03 37.	CCT CCT TOTAL Exp. X^2 X^2 CCG CCG CCG TOTAL Exp. Exp. X^2	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67	0.008383757 p-value
CAT 48.00 144.00 72.00 63.00 184.00 23.00 534.00 TOTAL 91.00 512.00 289.00 308.00 739.00 94.00 2033.00 Exp. 67.10 377.52 213.09 227.10 544.89 69.31 p-value Exp. 23.90 134.48 75.91 80.90 194.11 24.69 1.25314E-07 X^2 8.65 0.24 0.07 1.41 0.19 0.04 10.61 X^2 8.65 0.24 0.07 1.41 0.19 0.04 10.61 CTA 212.00 194.00 4.00 55.00 3.00 47.00 515.00 CTA 212.00 194.00 4.00 27.00 1.00 2.00 165.00 CTA 212.00 194.00 4.00 55.00 3.00 47.00 680.00 CTA 222.06 186.31 3.79 62.10 3.03 37.11 9.00 680.00 CTA 222.66 186.31 3.79 62.10 3.03 37.	CCT CCT TOTAL Exp. X^2 X^2 CCG CCG CCG TOTAL Exp. Exp. X^2	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67	0.008383757 p-value
TOTAL 91.00 512.00 289.00 308.00 739.00 94.00 2033.00 Exp. 67.10 377.52 213.09 227.10 544.89 69.31 p-value Exp. 23.90 134.48 75.91 80.90 194.11 24.69 10.61 X^2 8.65 0.24 0.07 1.41 0.19 0.04 10.61 X^2 24.29 0.67 0.20 3.96 0.53 0.12 29.77 CTA 212.00 194.00 4.00 55.00 3.00 47.00 515.00 CTA 212.00 194.00 4.00 55.00 3.00 47.00 515.00 CTA 212.00 194.00 4.00 27.00 1.00 2.00 680.00 TOTAL 294.00 246.00 5.00 82.00 4.00 49.00 680.00 Exp. 222.66 186.31 3.79 62.10 3.03 37.11 0.003385636*	CCT CCT TOTAL Exp. Exp. X^2 X^2 CCG CCG TOTAL Exp. X^2 X^2 Xx2 Xx2 Xx2 Xx2 Xx2 Xx2	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14	7.54 36.00 3.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93	0.008383757 p-value
Exp. 67.10 377.52 213.09 227.10 544.89 69.31 p-value Exp. 23.90 134.48 75.91 80.90 194.11 24.69 1.25314E-07 X^2 8.65 0.24 0.07 1.41 0.19 0.04 10.61 X^2 24.29 0.67 0.20 3.96 0.53 0.12 29.77 CTA 212.00 194.00 4.00 55.00 3.00 47.00 515.00 CTA 224.00 246.00 5.00 82.00 4.00 55.00 3.00 47.00 680.00 CTAL 294.00 246.00 5.00 82.00 4.00 55.00 3.03 37.11 Exp. 222.66 186.31 3.79 62.10 3.03 37.11 9.00.003385636* Exp. 71.34 59.69 1.21 19.90 0.97 11.89 0.003385636* X^2 0.51 0.32 0.01 0.81 0.00	CCT CCT TOTAL Exp. Exp. X^2 X^2 CCG CCG CCG Exp. Exp. Exp. X^2	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00	7.54 36.00 3.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00	0.008383757 p-value
Exp. 23.90 134.48 75.91 80.90 194.11 24.69 1.25314E-07 X^2 8.65 0.24 0.07 1.41 0.19 0.04 10.61 X^2 24.29 0.67 0.20 3.96 0.53 0.12 29.77 CTA 212.00 194.00 4.00 55.00 3.00 47.00 165.00 CTA 82.00 52.00 1.00 27.00 1.00 2.00 165.00 CTAL 294.00 246.00 5.00 82.00 4.00 9.00 680.00 Exp. 222.66 186.31 3.79 62.10 3.03 37.11 9.003385636* X^2 0.51 0.32 0.01 0.81 0.00 2.64 4.29	CCT CCT TOTAL Exp. Exp. X^2 X^2 CCG CCG CCG CCG Exp. Exp. X^2 X^2	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 48.00	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00	0.008383757 p-value
X^2 8.65 0.24 0.07 1.41 0.19 0.04 10.61 X^2 24.29 0.67 0.20 3.96 0.53 0.12 29.77 CTA 212.00 194.00 4.00 55.00 3.00 47.00 515.00 CTA 22.00 52.00 1.00 27.00 1.00 2.00 680.00 CTAL 294.00 246.00 5.00 82.00 4.00 49.00 680.00 Exp. 222.66 186.31 3.79 62.10 3.03 37.11 p-value Exp. 71.34 59.69 1.21 19.90 0.97 11.89 0.003385636* X^2 0.51 0.32 0.01 0.81 0.00 2.64 4.29	CCT CCT TOTAL Exp. Exp. X^2 X^2 CCG CCG TOTAL Exp. Exp. X^2 X^2 CCG CCG TOTAL Exp. X^2 X^2 CAT CAT TOTAL	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 48.00 91.00	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00 512.00	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00 289.00	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00 308.00	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00 739.00	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00 94.00	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00	0.008383757 p-value 0.040836662
X^2 8.65 0.24 0.07 1.41 0.19 0.04 10.61 X^2 24.29 0.67 0.20 3.96 0.53 0.12 29.77 CTA 212.00 194.00 4.00 55.00 3.00 47.00 515.00 CTA 22.00 52.00 1.00 27.00 1.00 2.00 680.00 CTAL 294.00 246.00 5.00 82.00 4.00 49.00 680.00 Exp. 222.66 186.31 3.79 62.10 3.03 37.11 p-value Exp. 71.34 59.69 1.21 19.90 0.97 11.89 0.003385636* X^2 0.51 0.32 0.01 0.81 0.00 2.64 4.29	CCT CCT TOTAL Exp. Exp. X^2 X^2 CCG CCG TOTAL Exp. Exp. X^2 X^2 CCG CCG TOTAL Exp. X^2 X^2 CAT CAT TOTAL	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 48.00 91.00	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00 512.00	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00 289.00	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00 308.00	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00 739.00	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00 94.00	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00	0.008383757 p-value 0.040836662 p-value
X^2 24.29 0.67 0.20 3.96 0.53 0.12 29.77 CTA 212.00 194.00 4.00 55.00 3.00 47.00 515.00 CTA 222.00 194.00 4.00 27.00 1.00 2.00 165.00 CTA 222.06 186.31 3.79 62.10 3.03 37.11 p-value Exp. 71.34 59.69 1.21 19.90 0.97 11.89 0.003385636* X^2 0.51 0.32 0.01 0.81 0.00 2.64 4.29	CCT CCT TOTAL Exp. X^2 X^2 CCG CCG TOTAL Exp. X^2 X^2 CCG CGT TOTAL Exp. X^2 X^2 CAT CAT TOTAL Exp.	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 48.00 91.00 67.10	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00 512.00 377.52	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00 289.00 213.09	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00 308.00 227.10	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00 739.00 544.89	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00 94.00 69.31	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00	0.008383757 p-value 0.040836662 p-value
CTA 212.00 194.00 4.00 55.00 3.00 47.00 515.00 CTA 82.00 52.00 1.00 27.00 1.00 2.00 165.00 TOTAL 294.00 246.00 5.00 82.00 4.00 49.00 680.00 Exp. 222.66 186.31 3.79 62.10 3.03 37.11 p-value Exp. 71.34 59.69 1.21 19.90 0.97 11.89 0.003385636* X^2 0.51 0.32 0.01 0.81 0.00 2.64 4.29	CCT CCT TOTAL Exp. X^2 X^2 CCG CCG CCG CCG CCG CCG X^2 X^2 X^2 X^2 X^2 X^2 CAT CAT TOTAL Exp. Exp. Exp.	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 48.00 91.00 67.10 23.90	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00 512.00 377.52 134.48	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00 289.00 213.09 75.91	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00 308.00 227.10 80.90	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00 739.00 544.89 194.11	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00 94.00 69.31 24.69	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00 2033.00	0.008383757 p-value 0.040836662 p-value
CTA 82.00 52.00 1.00 27.00 1.00 2.00 165.00 TOTAL 294.00 246.00 5.00 82.00 4.00 49.00 680.00 Exp. 222.66 186.31 3.79 62.10 3.03 37.11 p-value Exp. 71.34 59.69 1.21 19.90 0.97 11.89 0.003385636* X^2 0.51 0.32 0.01 0.81 0.00 2.64 4.29	CCT CCT TOTAL Exp. Exp. X^2 X^2 CCG CCG CCG CCG X^2 X^22 X^2 CAT CAT CAT Exp. Exp. X^2	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 48.00 91.00 67.10 23.90 8.65	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00 512.00 377.52 134.48 0.24	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00 289.00 289.00 213.09 75.91 0.07	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00 308.00 227.10 80.90 1.41	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00 739.00 544.89 194.11 0.19	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00 94.00 69.31 24.69 0.04	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00 2033.00 10.61	0.008383757 p-value 0.040836662 p-value
CTA 82.00 52.00 1.00 27.00 1.00 2.00 165.00 TOTAL 294.00 246.00 5.00 82.00 4.00 49.00 680.00 Exp. 222.66 186.31 3.79 62.10 3.03 37.11 p-value Exp. 71.34 59.69 1.21 19.90 0.97 11.89 0.003385636* X^2 0.51 0.32 0.01 0.81 0.00 2.64 4.29	CCT CCT TOTAL Exp. Exp. X^2 X^2 CCG CCG CCG CCG X^2 X^22 X^2 CAT CAT CAT Exp. Exp. X^2	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 48.00 91.00 67.10 23.90 8.65	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00 512.00 377.52 134.48 0.24	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00 289.00 289.00 213.09 75.91 0.07	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00 308.00 227.10 80.90 1.41	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00 739.00 544.89 194.11 0.19	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00 94.00 69.31 24.69 0.04	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00 2033.00 10.61	0.008383757 p-value 0.040836662 p-value
TOTAL 294.00 246.00 5.00 82.00 4.00 49.00 680.00 Exp. 222.66 186.31 3.79 62.10 3.03 37.11 p-value Exp. 71.34 59.69 1.21 19.90 0.97 11.89 0.003385636* X^2 0.51 0.32 0.01 0.81 0.00 2.64 4.29	CCT CCT TOTAL Exp. Exp. X^2 X^2 CCG CCG CCG CCG X*2 X*2 CCG CCG CAT CAT CAT Exp. Exp. X^2 X^2	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 48.00 91.00 67.10 23.90 8.65 24.29	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00 512.00 377.52 134.48 0.24 0.67	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00 289.00 213.09 75.91 0.07 0.20	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00 308.00 227.10 80.90 1.41 3.96	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00 739.00 544.89 194.11 0.19 0.53	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00 94.00 69.31 24.69 0.04 0.12	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00 2033.00 10.61 29.77	0.008383757 p-value 0.040836662 p-value
Exp. 222.66 186.31 3.79 62.10 3.03 37.11 p-value Exp. 71.34 59.69 1.21 19.90 0.97 11.89 0.003385636* X^2 0.51 0.32 0.01 0.81 0.00 2.64 4.29	CCT CCT TOTAL Exp. X^2 X^2 CCG CCG TOTAL Exp. X^2 X^2 CCG CCG CCG CCG TOTAL Exp. X^2 CAT CAT TOTAL Exp. X^2 X^2 X^2 CAT	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 48.00 91.00 67.10 23.90 8.65 24.29 212.00	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00 512.00 377.52 134.48 0.24 0.67 194.00	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00 289.00 213.09 75.91 0.07 0.20 4.00	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00 308.00 227.10 80.90 1.41 3.96	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00 739.00 544.89 194.11 0.19 0.53 3.00	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00 94.00 69.31 24.69 0.04 0.12 47.00	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00 2033.00 10.61 29.77 515.00	0.008383757 p-value 0.040836662 p-value
Exp. 222.66 186.31 3.79 62.10 3.03 37.11 p-value Exp. 71.34 59.69 1.21 19.90 0.97 11.89 0.003385636* X^2 0.51 0.32 0.01 0.81 0.00 2.64 4.29	CCT CCT TOTAL Exp. X^2 X^2 CCG CCG TOTAL Exp. X^2 X^2 CCG CCG CCG CCG TOTAL Exp. X^2 CAT CAT TOTAL Exp. X^2 X^2 X^2 CAT	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 48.00 91.00 67.10 23.90 8.65 24.29 212.00	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00 512.00 377.52 134.48 0.24 0.67 194.00	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00 289.00 213.09 75.91 0.07 0.20 4.00	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00 308.00 227.10 80.90 1.41 3.96	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00 739.00 544.89 194.11 0.19 0.53 3.00	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00 94.00 69.31 24.69 0.04 0.12 47.00	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00 2033.00 10.61 29.77 515.00 165.00	0.008383757 p-value 0.040836662 p-value
Exp. 71.34 59.69 1.21 19.90 0.97 11.89 0.003385636* X^2 0.51 0.32 0.01 0.81 0.00 2.64 4.29	CCT CCT TOTAL Exp. X^2 X^2 CCG CCG CCG TOTAL Exp. Exp. X^2 X^2 CCG CGTAL Exp. X^2 X^2 X^2 X^2 CAT CAT Exp. Exp. X^2 X^2 CAT CTA	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 48.00 91.00 67.10 23.90 8.65 24.29 212.00 82.00	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00 512.00 377.52 134.48 0.24 0.67 194.00 52.00	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00 289.00 213.09 75.91 0.07 0.20 4.00 1.00	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00 308.00 227.10 80.99 1.41 3.96 55.00 27.00	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00 739.00 544.89 194.11 0.19 0.53 3.00 1.00	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00 94.00 69.31 24.69 0.04 0.12 47.00 2.00	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00 2033.00 10.61 29.77 515.00 165.00	0.008383757 p-value 0.040836662 p-value
X^2 0.51 0.32 0.01 0.81 0.00 2.64 4.29	CCT CCT TOTAL Exp. X*2 X*2 CCG CCG CCG CCG TOTAL Exp. X*2 X*2 CCG CGT TOTAL Exp. X*2 X*2 CAT CAT CAT Exp. X*2 X*2 CAT CTA CTA CTA CTA CTA	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 48.00 91.00 67.10 23.90 8.65 24.29 212.00 82.00 294.00	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00 512.00 377.52 134.48 0.24 0.67 194.00 52.00 246.00	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00 289.00 213.09 75.91 0.07 0.20 4.00 1.00 5.00	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00 308.00 227.10 80.99 1.41 3.96 55.00 27.00 82.00	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00 739.00 544.89 194.11 0.19 0.53 3.00 1.00 4.00	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00 94.00 69.31 24.69 0.04 0.12 47.00 2.00 49.00	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00 2033.00 10.61 29.77 515.00 165.00	0.008383757 p-value 0.040836662 p-value 1.25314E-07
	CCT CCT TOTAL Exp. X*2 X*2 CCG CCG CCG CCG CCG CCG X*2 X*2 X*2 X*2 X*2 CAT CAT CAT Exp. Exp. Exp. X*2 CAT CAT <th>0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 48.00 91.00 67.10 23.90 8.65 24.29 212.00 82.00 294.00 222.66</th> <th>1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00 512.00 377.52 134.48 0.24 0.67 194.00 52.00 246.00 186.31</th> <th>1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00 289.00 213.09 75.91 0.07 0.20 4.00 1.00 5.00 3.79</th> <th>1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00 308.00 227.10 80.90 1.41 3.96 55.00 27.00 82.00 62.10</th> <th>0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00 739.00 544.89 194.11 0.19 0.53 3.00 1.00 4.00 3.03</th> <th>7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00 94.00 69.31 24.69 0.04 0.12 47.00 2.00 49.00 37.11</th> <th>13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00 2033.00 10.61 29.77 515.00 165.00</th> <th>0.008383757 p-value 0.040836662 p-value 1.25314E-07 p-value</th>	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 48.00 91.00 67.10 23.90 8.65 24.29 212.00 82.00 294.00 222.66	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00 512.00 377.52 134.48 0.24 0.67 194.00 52.00 246.00 186.31	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00 289.00 213.09 75.91 0.07 0.20 4.00 1.00 5.00 3.79	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00 308.00 227.10 80.90 1.41 3.96 55.00 27.00 82.00 62.10	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00 739.00 544.89 194.11 0.19 0.53 3.00 1.00 4.00 3.03	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00 94.00 69.31 24.69 0.04 0.12 47.00 2.00 49.00 37.11	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00 2033.00 10.61 29.77 515.00 165.00	0.008383757 p-value 0.040836662 p-value 1.25314E-07 p-value
X^2 1.59 0.99 0.04 2.54 0.00 8.23 13.38	CCT CCT TOTAL Exp. X*2 X*2 CCG CCG CCG CCG CCG CCG X*2 X*2 X*2 X*2 X*2 CAT CAT CAT CAT Exp. Exp. X*2 CAT CTA CTA CTA	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 43.00 43.00 91.00 67.10 23.90 8.65 24.29 212.00 82.00 294.00 222.66 71.34	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00 512.00 377.52 134.48 0.24 0.67 194.00 52.00 246.00 186.31 59.69	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00 289.00 213.09 75.91 0.07 0.20 4.00 1.00 5.00 3.79 1.21	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00 308.00 227.10 80.90 1.41 3.96 55.00 27.00 82.00 62.10 19.90	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00 739.00 544.89 194.11 0.19 0.53 	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00 94.00 69.31 24.69 0.04 0.12 47.00 2.00 49.00 37.11 11.89	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00 2033.00 10.61 29.77 515.00 165.00 680.00	0.008383757 p-value 0.040836662 p-value 1.25314E-07 p-value
	CCT CCT TOTAL Exp. X^2 X^2 CCG CCG TOTAL Exp. X^2 X^2 CCG CCG CCG TOTAL Exp. X^2 X^2 CAT CTA CTA CTA CTA CTA CTA <	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 43.00 43.00 91.00 67.10 23.90 8.65 24.29 212.00 82.00 294.00 222.66 71.34 0.51	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00 512.00 377.52 134.48 0.24 0.67 194.00 52.00 246.00 186.31 59.69 0.32	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00 289.00 213.09 75.91 0.07 0.20 4.00 1.00 5.00 3.79 1.21 0.01	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00 308.00 227.10 80.90 1.41 3.96 55.00 27.00 82.00 62.10 19.90 0.81	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00 739.00 544.89 194.11 0.19 0.53 3.00 1.00 4.00 3.03 0.97 0.00	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00 94.00 69.31 24.69 0.04 0.12 47.00 2.00 49.00 37.11 11.89 2.64	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00 2033.00 10.61 29.77 515.00 165.00 680.00 4.29	0.008383757 p-value 0.040836662 p-value 1.25314E-07 p-value
	CCT CCT TOTAL Exp. X^2 X^2 CCG CCG TOTAL Exp. X^2 X^2 CCG CCG CCG TOTAL Exp. X^2 X^2 CAT CTA CTA CTA CTA CTA CTA <	0.01 98.00 41.00 139.00 100.09 38.91 0.04 0.11 93.00 40.00 133.00 102.41 30.59 0.86 2.89 43.00 43.00 43.00 91.00 67.10 23.90 8.65 24.29 212.00 82.00 294.00 222.66 71.34 0.51	1.59 29.00 20.00 49.00 35.28 13.72 1.12 2.88 12.00 1.00 13.00 10.01 2.99 0.40 1.32 368.00 144.00 512.00 377.52 134.48 0.24 0.67 194.00 52.00 246.00 186.31 59.69 0.32	1.84 312.00 127.00 439.00 316.10 122.90 0.05 0.14 25.00 6.00 31.00 23.87 7.13 0.05 0.18 217.00 72.00 289.00 213.09 75.91 0.07 0.20 4.00 1.00 5.00 3.79 1.21 0.01	1.95 37.00 7.00 44.00 31.68 12.32 0.89 2.30 4.00 1.00 5.00 3.85 1.15 0.01 0.02 245.00 63.00 308.00 227.10 80.90 1.41 3.96 55.00 27.00 82.00 62.10 19.90 0.81	0.78 275.00 108.00 383.00 275.77 107.23 0.00 0.01 78.00 21.00 99.00 76.23 22.77 0.04 0.14 555.00 184.00 739.00 544.89 194.11 0.19 0.53 3.00 1.00 4.00 3.03 0.97 0.00	7.54 36.00 3.00 39.00 28.08 10.92 2.23 5.74 19.00 0.00 19.00 14.63 4.37 1.31 4.37 71.00 23.00 94.00 69.31 24.69 0.04 0.12 47.00 2.00 49.00 37.11 11.89 2.64	13.71 787.00 306.00 1093.00 4.34 11.17 231.00 69.00 300.00 2.67 8.93 1499.00 534.00 2033.00 10.61 29.77 515.00 165.00 680.00 4.29	0.008383757 p-value 0.040836662 p-value 1.25314E-07 p-value

Characterizing patterns in	DNA sequence trace data	through informatics tools

C1T 123.00 13.00 145.00 75.00 73.00 75.00 75.00 75.00 75.00 75.00 75.00 75.00 75.00 75.00 75.00 77.00 75.00 77.00 <th< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th<>									
CTT 99.00 8.00 4.00 1.00 59.00 41.00 214.00 214.00 5p. 201.14 13.50 10.40 201.04 315.00 77.00 0.0830537* 5p. 201.04 13.50 10.44 51.63 31.63 34.63 4.60 0.08351637* 7.2 1.08 1.72 0.82 5.31 0.09 2.33 10.95 7.2 0.86 1.72 0.82 5.31 0.09 2.33 10.95 7.2 0.80 1.72 0.80 1.74 0.80 1.64 1.75 0.75	CTT	282 00	11 00	19 00	0 00	145 00	76 00	533 00	T
TOTAL 380.66 13.66 23.66 1.66 203.66 113.68 727.60 727.60 5p. 123.14 13.55 13.41 2.14 13.56 13.61 34.52									
Ep. 271.14 23.58 16.41 2.14 144.84 64.81 Preside 6.0893697 X2 0.44 0.48 0.41 2.14 0.00 0.31 1.05 0.86 53.16 34.09 4.40 0.009 0.009 0.33 10.55 C1C 0.09 0.20 2.09 523.09 3.09 44.60 75.60 0.09 52.50 101.65 101.60									
Fr.p. 108.86 5.44 6.55 0.86 58.16 14.96 0.80 0.93 4.40 X2 0.44 0.48 0.41 2.14 0.90 2.31 0.90 2.31 10.95 X2 0.44 0.48 0.41 2.16 4.69 75.96 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>747.00</td> <td></td>								747.00	
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CTC 0.90 174.09 0.90 15.00 25.00 2.50 0.27 0.00 <			-		-				
TOTAL 1.80 237.80 6.80 782.80 8.90 61.80 180.80 P=value 5xp. 0.75 1.77.16 4.43 524.76 2.244 45.50 9 13 9 13 9 13 9 13 9 13 9 14 9 14 13 9 14 13 9 14 13 9 14 13 13 13 </td <td></td> <td>1.00</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		1.00							
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Exp. 0.23 59, 84 1.51 177, 24 0.76 15, 40 0.22844531* X*2 0.69 0.63 1.38 0.02 0.75 0.80 1.77 X*2 0.75 0.88 4.88 0.86 8.75 0.81 5.23 Cf6 1.48 0.80 2.08 0.80 0.80 0.80 5.23 Cf7 1.68 0.77 27.85 1.55 0.25 0.25 0.25 0.216 Exp. 1.77 0.75 1.56 0.75 0.25 0.25 0.25 0.216 K*2 0.14 0.97 1.36 0.45 0.75 0.15 0.25 0.216 CAS 0.90 0.80 1.77 0.13 0.25 0.25 0.216 TY1 0.90 0.80 1.90 236.60 77.90 112.80 2.16 CAS 0.25 0.25 0.27 0.25 0.25 0.28 0.80 0.80	TOTAL	1.00	237.00	6.00	702.00	3.00	61.00	1010.00	
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X*2 0.09 0.03 1.38 0.02 0.25 0.00 1.77 X*2 0.25 0.08 4.080 0.06 0.76 0.01 5.33 Cf6 422.00 1.080 2.4.60 2.00 0.06 0.75 0.01 5.33 Cf6 422.00 1.080 2.4.60 2.00 0.02 0.00 1.06 0.00 1.06 0.00 1.06 0.00 1.06 0.00	Exp.	0.25	59.84	1.51	177.24	0.76	15.40		0.220444513*
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CTG 452.08 2.08 0.09 0.09 499.00 CTG 144.09 0.09 2.09 0.09 0.09 0.09 499.00 645.09 CTG 144.09 0.09 2.09 0.09 0.09 0.09 6.00 6.60 645.00 Exp 127.17 0.23 1.15 0.15 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.21 0.21483235* X2 0.10 0.09 0.09 1.09 66.09 27.09 113.09 231.09	X^2								
CTG 144.00 0.00 2.00 0.00 0.00 0.00 6.00 6.00 Exp. 137.17 0.25 0.15 0.45 0.25 0.23 p-value X2 0.10 0.07 1.36 0.13 0.25 0.25 0.25 2.16 C66 0.09 0.09 0.09 0.09 1.36 0.13 0.25 0.25 2.16 C66 0.09 0.09 0.09 1.09 6.00 7.70 11.09 231.09 231.09 T07AL 0.90 0.09 1.09 0.25 0.25 0.27 0.21 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td>									1
CTG 144.00 0.00 2.00 0.00 0.00 0.00 6.00 6.00 Exp. 137.17 0.25 0.15 0.45 0.25 0.23 p-value X2 0.10 0.07 1.36 0.13 0.25 0.25 0.25 2.16 C66 0.09 0.09 0.09 0.09 1.36 0.13 0.25 0.25 2.16 C66 0.09 0.09 0.09 1.09 6.00 7.70 11.09 231.09 231.09 T07AL 0.90 0.09 1.09 0.25 0.25 0.27 0.21 </td <td>CTG</td> <td>462 00</td> <td>1 00</td> <td>34 00</td> <td>2 00</td> <td>0 00</td> <td>0 00</td> <td>499 00</td> <td></td>	CTG	462 00	1 00	34 00	2 00	0 00	0 00	499 00	
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Exp. 0.25 0.25 0.73 173.09 56.47 322.71 0 0-value X^2 0.25 0.25 0.73 0.65 0.74 0.66 2.68 X^2 0.25 0.25 0.73 0.65 0.74 0.66 2.68 X^2 0.25 0.25 2.02 0.13 2.04 0.16 4.85 C6A 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 Exp. N/A N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A N/A X^2 N/A X^2 N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/	CAG	0.00	0.00	1.00	60.00		113.00	201.00	
Exp. 0.25 0.25 0.27 62.91 20.33 117.29 0.312788018* X^2 0.25 0.25 2.02 0.13 2.04 0.16 4.85 X^2 0.25 0.25 2.02 0.13 2.04 0.16 4.85 C6A 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 TOTAL 0.09 0.00 0	TOTAL	0.00	0.00	1.00	236.00	77.00	440.00	754.00	
Exp. 0.25 0.25 0.27 62.91 20.33 117.29 0 0.312788018* X^2 0.25 0.25 0.73 0.05 0.74 0.06 0.00	Exp.	0.25	0.25	0.73	173.09	56.47	322.71		p-value
X^2 0.25 0.25 0.73 0.65 0.74 0.66 2.08 CGA 0.25 0.25 2.02 0.13 2.04 0.16 4.85 CGA 0.00 <th< td=""><td></td><td>0.25</td><td>0.25</td><td>0.27</td><td>62.91</td><td>20.53</td><td>117.29</td><td></td><td></td></th<>		0.25	0.25	0.27	62.91	20.53	117.29		
X^2 0.25 0.25 2.02 0.13 2.04 0.16 4.85 CGA 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 TOTAL 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 ESD N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A CGG 1.00 1.00 1.00 1.00 1.00 1.100 1.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00								2.08	
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CGA 0.00									
CGA 0.00	CGA	0 00	0 00	0 00	0 00	0 00	0 00	0 00	1
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X ² N/A N/A N/A N/A N/A N/A N/A N/A N/A CGG 1.00 0.00 110.00 1.00 1.00 0.00 113.00 CGG 1.00 0.00 1.00 1.00 0.00 113.00 TOTAL 2.00 0.00 2.00 0.00 154.00 0.630549383* K ² 0.13 0.25 108.60 0.73 2.20 0.25 0.630549383* K ² 0.15 0.25 0.02 0.10 0.666 0.25 1.42 X ⁴ 2 0.14 0.25 0.02 0.10 0.666 0.25 1.42 X ⁴ 2 0.14 0.25 0.05 0.27 1.81 0.25 3.03 CGC 1.00 1.00 1.00 42.00 0.00 1.14.00 55.00 TOTAL 10.00 2.00 13.00 0.00 1.25 5.53 5 K ² 2 0.75 0.7									
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TOTAL 2.00 0.00 144.00 1.00 3.00 0.00 154.00 Exp. 1.47 0.25 108.60 0.73 2.20 0.25 0 0.530 0.25 0.25 0.25 0.25 0.25 0.25 0.27 0.80 0.25 1.42 0.3093 0.25 0.27 1.81 0.25 1.42 0.3093 0.25 1.42 0.3093 0.25 1.42 0.3093 0.25 1.42 0.25 1.42 0.26 1.00									
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Exp. 0.53 0.25 39.40 0.27 0.80 0.25 0.630549383* X^2 0.15 0.25 0.02 0.10 0.66 0.25 1.42 X^2 0.41 0.25 0.02 0.10 0.66 0.25 3.03 C 0 0 0.66 0.25 3.03 0 CGC 0.00 1.00 1.00 42.00 0.00 1.00 55.00 TOTAL 10.00 2.00 138.00 0.00 17.00 169.00 15.00 Exp. 3.25 0.65 0.65 44.91 0.25 5.53 7 5.3538E-05* X^2 6.75 0.19 0.19 0.19 0.25 3.71 18.51 Cf 86.00 15.00 93.00 89.00 30.00 17.00 89.00 GT 86.00 15.00 93.00 89.00 10.00 2.00 89.00 Cf 86.00 15.00	TOTAL	2.00	0.00	148.00	1.00	3.00	0.00	154.00	
X^2 0.15 0.25 0.02 0.10 0.66 0.25 1.42 X^2 0.41 0.25 0.05 0.27 1.81 0.25 3.03 CGC 0.00 1.00 1.00 96.00 0.00 16.00 114.00 CGC 10.00 1.00 1.00 42.00 0.00 1.00 155.00 TOTAL 10.00 2.00 2.00 138.00 0.00 1.70 155.00 Syn_ 6.75 1.35 1.35 93.09 0.25 1.147 p-value X^2 6.75 0.65 0.65 44.91 0.25 5.53 X^2 13.98 0.19 0.19 0.19 0.25 1.79 9.06 X^2 13.98 0.19 0.19 0.19 0.25 3.71 18.51 TOTAL 133.00 20.00 98.00 119.00 5.00 13.00 20.00 99.00 K^2 2.79 0.0	Exp.	1.47	0.25	108.60	0.73	2.20	0.25		p-value
X^2 0.41 0.25 0.05 0.27 1.81 0.25 3.03 CGC 0.00 1.00 96.00 0.00 16.00 114.00 CGC 1.00 1.00 42.00 0.00 1.00 55.00 TOTAL 10.00 2.00 1.35 1.35 93.09 0.25 11.47 Exp. 6.75 1.35 93.09 0.25 11.47 5.3538E-05* X^2 6.75 0.09 0.09 0.09 0.25 1.79 9.06 X^2 6.75 0.99 0.09 0.09 0.25 1.71 8.51 CGT 86.00 15.00 93.00 89.00 20.00 89.00 TOTAL 133.98 0.19 0.19 0.25 3.71 18.51 CGT 86.00 15.00 93.00 39.00 39.00 394.00 Exp. 102.96 15.48 75.86 92.12 3.87 14.71 9.00	Exp.	0.53	0.25	39.40	0.27	0.80	0.25		0.630549383*
CGC 0.00 1.00 1.00 96.00 0.00 16.00 114.00 CGC 10.00 1.00 1.00 42.00 0.00 1.00 114.00 TOTAL 10.00 2.00 2.00 138.00 0.00 1.00 169.00 Exp. 6.75 1.35 1.35 93.09 0.25 11.47 p-value SX^2 6.75 0.69 0.09 0.09 0.25 1.79 9.06 X^2 13.98 0.19 0.19 0.25 3.71 18.51 CGT 86.00 15.00 93.00 89.00 1.00 309.00 394.00 TOTAL 133.00 20.00 98.00 119.00 5.00 19.00 394.00 Exp. 102.96 15.48 75.86 92.12 3.87 14.71 p-value X^2 2.79 0.02 3.87 0.11 0.33 0.36 7.47 X^2 9.57 0.05 <td>X^2</td> <td>0.15</td> <td>0.25</td> <td>0.02</td> <td>0.10</td> <td>0.66</td> <td>0.25</td> <td>1.42</td> <td></td>	X^2	0.15	0.25	0.02	0.10	0.66	0.25	1.42	
CGC 10.00 1.00 42.00 0.00 1.00 55.00 TOTAL 10.00 2.00 2.00 138.00 0.00 17.00 169.00 Exp. 3.25 0.65 0.65 44.91 0.25 5.53 X^2 6.75 0.99 0.99 0.99 0.25 1.79 9.06 X^2 13.98 0.19 0.19 0.25 3.71 18.51 CGT 86.00 15.00 93.00 89.00 5.00 17.00 305.00 CGT 47.00 5.00 9.00 9.00 9.00 394.00 Exp. 30.04 4.52 22.14 2.88 1.13 4.29 X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.60 TAA 6.00 82.00 100.00 3.00 30.30 30.36 7.47 X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.	X^2	0.41	0.25	0.05	0.27	1.81	0.25	3.03	
CGC 10.00 1.00 42.00 0.00 1.00 55.00 TOTAL 10.00 2.00 2.00 138.00 0.00 17.00 169.00 Exp. 3.25 0.65 0.65 44.91 0.25 5.53 X^2 6.75 0.99 0.99 0.99 0.25 1.79 9.06 X^2 13.98 0.19 0.19 0.25 3.71 18.51 CGT 86.00 15.00 93.00 89.00 5.00 17.00 305.00 CGT 47.00 5.00 9.00 9.00 9.00 394.00 Exp. 30.04 4.52 22.14 2.88 1.13 4.29 X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.60 TAA 6.00 82.00 100.00 3.00 30.30 30.36 7.47 X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.									•
CGC 10.00 1.00 42.00 0.00 1.00 55.00 TOTAL 10.00 2.00 2.00 138.00 0.00 17.00 169.00 Exp. 3.25 0.65 0.65 44.91 0.25 5.53 X^2 6.75 0.99 0.99 0.99 0.25 1.79 9.06 X^2 13.98 0.19 0.19 0.25 3.71 18.51 CGT 86.00 15.00 93.00 89.00 5.00 17.00 305.00 CGT 47.00 5.00 9.00 9.00 9.00 394.00 Exp. 30.04 4.52 22.14 2.88 1.13 4.29 X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.60 TAA 6.00 82.00 100.00 3.00 30.30 30.36 7.47 X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.	CGC	0.00	1.00	1.00	96.00	0.00	16.00	114.00	
TOTAL 10.00 2.00 2.00 138.00 0.00 17.00 169.00 Exp. 6.75 1.35 93.09 0.25 11.47 p-value Sx2 0.65 0.65 44.91 0.25 5.53 p-value X^2 6.75 0.09 0.09 0.25 1.79 9.06 X^2 13.98 0.19 0.19 0.25 3.71 18.51 CGT 86.00 15.00 93.00 89.00 17.00 305.00 89.00 CGT 47.00 5.00 5.00 30.00 0.00 2.00 394.00 Exp. 102.96 15.48 75.86 92.12 3.87 14.71 p-value K^2 2.79 0.02 3.87 0.11 0.33 0.36 7.47 X^2 2.57 0.02 3.87 0.11 0.33 0.36 512.00 KA2 2.79 0.02 3.87 0.11 0.33									
Exp. 6.75 1.35 1.35 93.09 0.25 11.47 p-value Exp. 3.25 0.65 0.65 44.91 0.25 5.53 5.53 X^2 6.75 0.09 0.09 0.09 0.25 1.79 9.06 X^2 13.98 0.19 0.19 0.19 0.25 3.71 18.51 CGT 86.00 15.00 93.00 89.00 5.00 17.00 305.00 CGT 47.00 5.00 93.00 89.00 5.00 17.00 305.00 TOTAL 133.00 20.00 98.00 119.00 5.00 19.00 394.00 Exp. 100.96 15.48 75.86 92.12 3.87 14.71 P-value X^2 2.79 0.02 3.87 0.11 0.33 0.36 7.47 X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.60 TAA 6.00									
Exp. 3.25 0.65 0.65 44.91 0.25 5.53 X^2 6.75 0.09 0.09 0.09 0.25 1.79 9.06 X^2 13.98 0.19 0.19 0.19 0.25 3.71 18.51 CGT 86.00 15.00 93.00 89.00 5.00 17.00 305.00 CGT 47.00 5.00 5.00 30.00 0.09 2.00 89.00 TOTAL 133.00 20.00 98.00 119.00 5.00 17.00 305.00 89.00 Exp. 102.96 15.48 75.86 92.12 3.87 14.71 9.06 X^2 9.57 0.02 3.87 0.11 0.33 0.36 7.47 X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.60 TAA 6.00 82.00 6.00 376.00 16.00 26.00 512.00 154.00 TAA 1.00 12.00 0.00 472.02 0.38 1.98 14.34 5.93505E								_00.00	p-value
X^2 6.75 0.09 0.09 0.09 0.25 1.79 9.06 X^2 13.98 0.19 0.19 0.19 0.25 3.71 18.51 CGT 86.00 15.00 93.00 89.00 5.00 17.00 305.00 CGT 47.00 5.00 5.00 30.00 0.00 2.00 89.00 TOTAL 133.00 20.00 98.00 119.00 5.00 19.00 394.00 Exp. 102.96 15.48 75.86 92.12 3.87 14.71 P-value X^2 9.57 0.02 3.87 0.11 0.33 0.36 7.47 X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.60 TAA 6.00 82.00 6.00 376.00 16.00 26.00 512.00 TAA 1.62 21.74 1.39 110.53 4.39 14.34 5.93505E-10* X^2 0.24 4.36 1.39 0.66 0.44 32.74 39.82 X									
X^2 13.98 0.19 0.19 0.19 0.25 3.71 18.51 CGT 86.00 15.00 93.00 89.00 5.00 17.00 805.00 CGT 47.00 5.00 5.00 30.00 0.00 2.00 89.00 TOTAL 133.00 20.00 98.00 119.00 5.00 19.00 394.00 Exp. 30.04 4.52 22.14 26.88 1.13 4.29 p-value X^2 2.79 0.02 3.87 0.11 0.33 0.36 7.47 X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.60 TAA 6.00 82.00 6.00 376.00 16.00 26.00 154.00 TAA 1.00 12.00 0.00 102.00 3.00 36.00 25.00 TAA 0.07 1.31 0.42 0.20 3.13 9.25 5.95 5.93505E-10* TAA 6.00 59.00 13.00 27.00 36.00 27.40 39.82								9 96	J.JJJJUL-0J
CGT 86.00 15.00 93.00 89.00 5.00 17.00 305.00 CGT 47.00 5.00 30.00 0.00 2.00 89.00 TOTAL 133.00 20.00 98.00 119.00 5.00 394.00 Exp. 102.96 15.48 75.86 92.12 3.87 14.71 3.63629E-06* X^2 2.79 0.02 3.87 0.11 0.33 0.36 7.47 X^2 2.79 0.02 3.87 0.11 0.33 0.36 7.47 X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.60 X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.60 TOTAL 7.00 9.00 6.00 376.00 16.00 26.00 512.00 TAA 1.00 12.00 0.00 102.00 3.00 36.00 552.00 Exp. 5.38 72.26 4.61 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ł</td>									ł
CGT 47.00 5.00 5.00 30.00 0.00 2.00 89.00 TOTAL 133.00 20.00 98.00 119.00 5.00 19.00 394.00 Exp. 102.96 15.48 75.86 92.12 3.87 14.71 p-value Exp. 30.04 4.52 22.14 26.88 1.13 4.29 3.63629E-06* X^2 2.79 0.02 3.87 0.11 0.33 0.36 7.47 X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.60 TAA 6.00 82.00 6.00 376.00 16.00 26.00 512.00 TAA 1.00 12.00 0.00 102.00 3.00 36.00 154.00 Exp. 5.38 72.26 4.61 367.47 14.61 47.66 p-value X^2 0.07 1.31 0.42 0.20 0.13 9.85 11.98 X^2 0.07 1.31 0.42 0.20 0.13 9.85 11.98	A 4	13.30	0.15	0.19	0.15	0.25	5.71	10.31	I
CGT 47.00 5.00 5.00 30.00 0.00 2.00 89.00 TOTAL 133.00 20.00 98.00 119.00 5.00 19.00 394.00 Exp. 102.96 15.48 75.86 92.12 3.87 14.71 p-value Exp. 30.04 4.52 22.14 26.88 1.13 4.29 3.63629E-06* X^2 2.79 0.02 3.87 0.11 0.33 0.36 7.47 X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.60 TAA 6.00 82.00 6.00 376.00 16.00 26.00 512.00 TAA 1.00 12.00 0.00 102.00 3.00 36.00 154.00 Exp. 5.38 72.26 4.61 367.47 14.61 47.66 p-value X^2 0.07 1.31 0.42 0.20 0.13 9.85 11.98 X^2 0.07 1.31 0.42 0.20 0.13 9.85 11.98	CCT	06.00	15.00	02.02	00.00	F 00	17.00		1
TOTAL 133.00 20.00 98.00 119.00 5.00 19.00 394.00 Exp. 102.96 15.48 75.86 92.12 3.87 14.71									
Exp. 102.96 15.48 75.86 92.12 3.87 14.71 p-value Exp. 30.04 4.52 22.14 26.88 1.13 4.29 3.63629E-06* X^2 2.79 0.02 3.87 0.11 0.33 0.36 7.47 X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.60 X^2 9.57 0.05 13.27 0.36 1.60 26.00 512.00 TAA 6.00 82.00 6.00 376.00 16.00 26.00 512.00 TAA 1.00 12.00 0.00 102.00 3.00 36.00 154.00 Exp. 5.38 72.26 4.61 367.47 14.61 47.66 p-value System 1.62 21.74 1.39 110.53 4.39 14.34 5.93505E-10* X^2 0.07 1.31 0.42 0.20 0.13 9.85 11.98 3.93.82									
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X^2 2.79 0.02 3.87 0.11 0.33 0.36 7.47 X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.60 TAA 6.00 82.00 6.00 376.00 16.00 26.00 512.00 TAA 0.00 12.00 0.00 102.00 3.00 36.00 154.00 TOTAL 7.00 94.00 6.00 478.00 19.00 62.00 666.00 Exp. 5.38 72.26 4.61 367.47 14.61 47.66 p-value X^2 0.07 1.31 0.42 0.20 0.13 9.85 11.98 X^2 0.24 4.36 1.39 0.66 0.44 32.74 39.82 TAC 878.00 152.00 408.00 37.00 9.00 8.00 578.00 TAC 335.00 59.00 130.00 37.00 9.00 8.00 201.00 201.00 Exp. </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>									
X^2 9.57 0.05 13.27 0.36 1.13 1.22 25.60 TAA 6.00 82.00 6.00 376.00 16.00 26.00 512.00 TAA 1.00 12.00 0.00 102.00 3.00 360 154.00 TOTAL 7.00 94.00 6.00 478.00 19.00 62.00 666.00 Exp. 5.38 72.26 4.61 367.47 14.61 47.66 p-value X^2 0.07 1.31 0.42 0.20 0.13 9.85 11.98 X^2 0.24 4.36 1.39 0.66 0.44 32.74 39.82 TAC 878.00 152.00 408.00 88.00 26.00 71.00 578.00 TAC 878.00 152.00 408.00 37.00 9.00 8.00 578.00 TOTAL 1213.00 211.00 538.00 125.00 35.00 79.00 201.00 Exp. 894.46 155.59 396.72 92.17 25.81 58.25 p-value									3.63629E-06*
TAA 6.00 82.00 6.00 376.00 16.00 26.00 512.00 TAA 1.00 12.00 0.00 102.00 3.00 36.00 154.00 TOTAL 7.00 94.00 6.00 478.00 19.00 62.00 666.00 Exp. 5.38 72.26 4.61 367.47 14.61 47.66 p-value Exp. 1.62 21.74 1.39 110.53 4.39 14.34 5.93505E-10* X^2 0.07 1.31 0.42 0.20 0.13 9.85 11.98 X^2 0.24 4.36 1.39 0.66 0.44 32.74 39.82 TAC 878.00 152.00 408.00 88.00 26.00 71.00 1623.00 TAC 335.00 59.00 130.00 37.00 9.00 8.00 578.00 TAC 878.00 151.00 538.00 125.00 35.00 79.00 2201.00 Exp		2.79	0.02	3.87	0.11	0.33	0.36		
TAA 6.00 82.00 6.00 376.00 16.00 26.00 512.00 TAA 1.00 12.00 0.00 102.00 3.00 36.00 154.00 TOTAL 7.00 94.00 6.00 478.00 19.00 62.00 666.00 Exp. 5.38 72.26 4.61 367.47 14.61 47.66 p-value Exp. 1.62 21.74 1.39 110.53 4.39 14.34 5.93505E-10* X^2 0.07 1.31 0.42 0.20 0.13 9.85 11.98 X^2 0.24 4.36 1.39 0.66 0.44 32.74 39.82 TAC 878.00 152.00 408.00 88.00 26.00 71.00 1623.00 TAC 335.00 59.00 130.00 37.00 9.00 8.00 578.00 TAC 878.00 151.00 538.00 125.00 35.00 79.00 2201.00 Exp	X^2	9.57	0.05	13.27	0.36	1.13	1.22	25.60	
TAA 1.00 12.00 0.00 102.00 3.00 36.00 154.00 TOTAL 7.00 94.00 6.00 478.00 19.00 62.00 666.00 Exp. 5.38 72.26 4.61 367.47 14.61 47.66 p-value Exp. 1.62 21.74 1.39 110.53 4.39 14.34 5.93505E-10* X^2 0.07 1.31 0.42 0.20 0.13 9.85 11.98 X^2 0.07 1.31 0.42 0.20 0.13 9.85 11.98 X^2 0.35.00 152.00 408.00 88.00 26.00 71.00 1623.00 TAC 878.00 152.00 408.00 37.00 9.00 8.00 20.00 578.00 TOTAL 1213.00 211.00 538.00 125.00 35.00 79.00 201.00 Exp. 894.46 155.59 396.72 92.17 25.81 58.25 p-value									-
TAA 1.00 12.00 0.00 102.00 3.00 36.00 154.00 TOTAL 7.00 94.00 6.00 478.00 19.00 62.00 666.00 Exp. 5.38 72.26 4.61 367.47 14.61 47.66 p-value Exp. 1.62 21.74 1.39 110.53 4.39 14.34 5.93505E-10* X^2 0.07 1.31 0.42 0.20 0.13 9.85 11.98 X^2 0.07 1.31 0.42 0.20 0.13 9.85 11.98 X^2 0.35.00 152.00 408.00 88.00 26.00 71.00 1623.00 TAC 878.00 152.00 408.00 37.00 9.00 8.00 20.00 578.00 TOTAL 1213.00 211.00 538.00 125.00 35.00 79.00 201.00 Exp. 894.46 155.59 396.72 92.17 25.81 58.25 p-value	TAA	6.00	82.00	6.00	376.00	16.00	26.00	512.00	1
TOTAL 7.00 94.00 6.00 478.00 19.00 62.00 666.00 Exp. 5.38 72.26 4.61 367.47 14.61 47.66 p-value Exp. 1.62 21.74 1.39 110.53 4.39 14.34 5.93505E-10* X^2 0.07 1.31 0.42 0.20 0.13 9.85 11.98 X^2 0.24 4.36 1.39 0.66 0.44 32.74 39.82 TAC 878.00 152.00 408.00 88.00 26.00 71.00 1623.00 TAC 335.00 59.00 130.00 37.00 9.00 8.00 578.00 TOTAL 1213.00 211.00 538.00 125.00 35.00 79.00 201.00 Exp. 894.46 155.59 396.72 92.17 25.81 58.25 p-value									
Exp. 5.38 72.26 4.61 367.47 14.61 47.66 p-value Exp. 1.62 21.74 1.39 110.53 4.39 14.34 5.93505E-10* X^2 0.07 1.31 0.42 0.20 0.13 9.85 11.98 X^2 0.24 4.36 1.39 0.66 0.44 32.74 39.82 TAC 878.00 152.00 408.00 88.00 26.00 71.00 1623.00 TAC 335.00 59.00 130.00 37.00 9.00 8.00 578.00 TOTAL 1213.00 211.00 538.00 125.00 35.00 79.00 201.00 Exp. 894.46 155.59 396.72 92.17 25.81 58.25 p-value									
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X^2 0.07 1.31 0.42 0.20 0.13 9.85 11.98 X^2 0.24 4.36 1.39 0.66 0.44 32.74 39.82 TAC 878.00 152.00 408.00 88.00 26.00 71.00 1623.00 TAC 335.00 59.00 130.00 37.00 9.00 8.00 578.00 TOTAL 1213.00 211.00 538.00 125.00 35.00 79.00 201.00 Exp. 894.46 155.59 396.72 92.17 25.81 58.25 p-value									
X^2 0.24 4.36 1.39 0.66 0.44 32.74 39.82 TAC 878.00 152.00 408.00 88.00 26.00 71.00 1623.00 TAC 335.00 59.00 130.00 37.00 9.00 8.00 578.00 TOTAL 1213.00 211.00 538.00 125.00 35.00 79.00 201.00 Exp. 894.46 155.59 396.72 92.17 25.81 58.25 p-value								11 98	5.555552 10
TAC 878.00 152.00 408.00 88.00 26.00 71.00 1623.00 TAC 335.00 59.00 130.00 37.00 9.00 8.00 578.00 TOTAL 1213.00 211.00 538.00 125.00 35.00 79.00 2201.00 Exp. 894.46 155.59 396.72 92.17 25.81 58.25 p-value									ł
TAC 335.00 59.00 130.00 37.00 9.00 8.00 578.00 TOTAL 1213.00 211.00 538.00 125.00 35.00 79.00 2201.00 Exp. 894.46 155.59 396.72 92.17 25.81 58.25 p-value	A 2	0.24	4.30	1.39	0.00	0.44	32.74	33.02	I
TAC 335.00 59.00 130.00 37.00 9.00 8.00 578.00 TOTAL 1213.00 211.00 538.00 125.00 35.00 79.00 2201.00 Exp. 894.46 155.59 396.72 92.17 25.81 58.25 p-value	TAC	070.00	152.00	400.00	00.00	26.00	71.00	1633 00	1
TOTAL 1213.00 211.00 538.00 125.00 35.00 79.00 2201.00 Exp. 894.46 155.59 396.72 92.17 25.81 58.25 p-value									
Exp. 894.46 155.59 396.72 92.17 25.81 58.25 p-value									
								2201.00	
Exp. 318.54 55.41 141.28 32.83 9.19 20.75 0.015386859									
	Exp.	318.54	55.41	141.28	32.83	9.19	20.75		0.015386859

Appendices

X^2 X^2								
						2 74		7
X^2	0.30	0.08	0.32	0.19	0.00	2.79	3.69	1
	0.85	0.23	0.90	0.53	0.00	7.83	10.35	
								-
TCA	9.00	1.00	210.00	83.00	608.00	44.00	955.00	1
ТСА	1.00	3.00	19.00	26.00	320.00	7.00	376.00	
TOTAL	10.00	4.00	229.00	109.00	928.00	51.00	1331.00	
Exp.	7.18	2.87	164.31	78.21	665.85	36.59		p-value
Exp.	2.82	1.13	64.69	30.79	262.15	14.41		8.99632E-15
X^2	0.46	1.22	12.71	0.29	5.03	1.50	21.21	
X^2	1.18	3.09	32.27	0.75	12.76	3.81	53.86	1
~ 2	1.10	5.05	52.27	0.75	12.70	5.01	33.00	1
ТСС	28.00	84.00	175.00	29.00	259.00	16.00	591.00	
ТСС	6.00	29.00	73.00	16.00	73.00	5.00	202.00	
TOTAL	34.00	113.00	248.00	45.00	332.00	21.00	793.00	
Exp.	25.34	84.22	184.83	33.54	247.43	15.65		p-value
Exp.	8.66	28.78	63.17	11.46	84.57	5.35		0.172686462
							4 07	0.172000402
X^2	0.28	0.00	0.52	0.61	0.54	0.01	1.97	
X^2	0.82	0.00	1.53	1.80	1.58	0.02	5.75	
								_
тст	5.00	0.00	287.00	6.00	163.00	1.00	462.00	1
ТСТ	1.00	0.00	68.00	0.00	36.00	0.00	105.00	
TOTAL	6.00	0.00	355.00	6.00	199.00	1.00	567.00	
							907.00	
Exp.	4.89	0.25	289.26	4.89	162.15	0.81		p-value
Exp.	1.11	0.25	65.74	1.11	36.85	0.25		0.908547618*
X^2	0.00	0.25	0.02	0.25	0.00	0.04	Θ.57	
X^2	0.01	0.25	0.08	1.11	0.02	0.25	1.72	1
	0.01	5.25	0.00		0.02	5.25		4
тсс	0.00	0.00	2 00	1 00	01 00	06.00	101 00	1
TCG	0.00	0.00	3.00	1.00	91.00	96.00	191.00	
TCG	1.00	0.00	1.00	0.00	67.00	6.00	75.00	
TOTAL	1.00	0.00	4.00	1.00	158.00	102.00	266.00	
Exp.	0.72	0.25	2.87	0.72	113.45	73.24		p-value
Exp.	0.28	0.25	1.13	0.28	44.55	28.76		2.5424E-08*
X^2	0.72	0.25	0.01	0.11	4.44	7.07	12.60	2151212 00
								-
X^2	1.83	0.25	0.01	0.28	11.31	18.01	31.70	J
		r	1	n		-		-
TAT	63.00	89.00	201.00	69.00	198.00	11.00	631.00	
TAT	36.00	35.00	110.00	29.00	17.00	1.00	228.00	
TOTAL	99.00	124.00	311.00	98.00	215.00	12.00	859.00	
Exp.	72.72	91.09	228.45	71.99	157.93	8.81		p-value
Exp.	26.28	32.91	82.55	26.01	57.07	3.19		2.71471E-11
							45 40	2.714711-11
X^2	1.30	0.05	3.30	0.12	10.16	0.54	15.48	1
X^2	3.60				28.13	1.50	42.83	
		0.13	9.13	0.34	20.13	1.50	42.03	
		0.13	9.13	0.34	20.15	1.50	42.03	1
TTA							592.00]
TTA TTA	153.00	41.00	221.00	45.00	41.00	91.00	592.00]
TTA	153.00 21.00	41.00 9.00	221.00 108.00	45.00 5.00	41.00 22.00	91.00 26.00	592.00 191.00	
TTA TOTAL	153.00 21.00 174.00	41.00 9.00 50.00	221.00 108.00 329.00	45.00 5.00 50.00	41.00 22.00 63.00	91.00 26.00 117.00	592.00	
TTA TOTAL Exp.	153.00 21.00 174.00 131.56	41.00 9.00 50.00 37.80	221.00 108.00 329.00 248.75	45.00 5.00 50.00 37.80	41.00 22.00 63.00 47.63	91.00 26.00 117.00 88.46	592.00 191.00	p-value
TTA TOTAL	153.00 21.00 174.00	41.00 9.00 50.00	221.00 108.00 329.00	45.00 5.00 50.00	41.00 22.00 63.00	91.00 26.00 117.00	592.00 191.00	p-value 4.08815E-07
TTA TOTAL Exp.	153.00 21.00 174.00 131.56	41.00 9.00 50.00 37.80	221.00 108.00 329.00 248.75	45.00 5.00 50.00 37.80	41.00 22.00 63.00 47.63	91.00 26.00 117.00 88.46	592.00 191.00	
TTA TOTAL Exp. Exp.	153.00 21.00 174.00 131.56 42.44	41.00 9.00 50.00 37.80 12.20	221.00 108.00 329.00 248.75 80.25	45.00 5.00 50.00 37.80 12.20	41.00 22.00 63.00 47.63 15.37	91.00 26.00 117.00 88.46 28.54	592.00 191.00 783.00	
TTA TOTAL Exp. X^2	153.00 21.00 174.00 131.56 42.44 3.50	41.00 9.00 50.00 37.80 12.20 0.27	221.00 108.00 329.00 248.75 80.25 3.09	45.00 5.00 50.00 37.80 12.20 1.37	41.00 22.00 63.00 47.63 15.37 0.92	91.00 26.00 117.00 88.46 28.54 0.07	592.00 191.00 783.00 9.23	
TTA TOTAL Exp. Exp. X^2 X^2	153.00 21.00 174.00 131.56 42.44 3.50 10.83	41.00 9.00 50.00 37.80 12.20 0.27 0.84	221.00 108.00 329.00 248.75 80.25 3.09 9.59	45.00 5.00 50.00 37.80 12.20 1.37 4.25	41.00 22.00 63.00 47.63 15.37 0.92 2.86	91.00 26.00 117.00 88.46 28.54 0.07 0.23	592.00 191.00 783.00 9.23 28.60	
TTA TOTAL Exp. Exp. X^2 X^2 TTT	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00	45.00 5.00 37.80 12.20 1.37 4.25 139.00	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00	592.00 191.00 783.00 9.23 28.60 464.00	
TTA TOTAL Exp. Exp. X^2 X^2 TTT TTT	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00	592.00 191.00 783.00 9.23 28.60 464.00 139.00	
TTA TOTAL Exp. Exp. X^2 X^2 TTT TTT TOTAL	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00	592.00 191.00 783.00 9.23 28.60 464.00	4.08815E-07
TTA TOTAL Exp. Exp. X^2 X^2 TTT TTT TOTAL Exp.	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95	592.00 191.00 783.00 9.23 28.60 464.00 139.00	4.08815E-07
TTA TOTAL Exp. Exp. X^2 X^2 TTT TTT TOTAL	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00	592.00 191.00 783.00 9.23 28.60 464.00 139.00	4.08815E-07
TTA TOTAL Exp. Exp. X^2 X^2 TTT TTT TOTAL Exp.	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95	592.00 191.00 783.00 9.23 28.60 464.00 139.00	4.08815E-07
TTA TOTAL Exp. Exp. X^2 X^2 TTT TTT TOTAL Exp. Exp. X^2	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47	41.00 22.00 63.00 47.63 115.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97	4.08815E-07
TTA TOTAL Exp. Exp. X^2 X^2 TTT TTT TOTAL Exp. Exp. Exp. Exp. Exp. Exp. Exp. Exp.	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00	4.08815E-07
TTA TOTAL Exp. Exp. X^2 X*2 TTT TTT TOTAL Exp. Exp. X*2 X*2	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03 3.44	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11	45.00 5.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13	4.08815E-07
TTA TOTAL Exp. Exp. X^2 X^2 TTT TTT TOTAL Exp. Exp. X^2 X*2 TTT TTT TTT X*2 X*2 X*2 X*2 X*2 TTC	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03 3.44 3.00	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64 78.00	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00	4.08815E-07
TTA TOTAL Exp. Exp. X^2 X^2 TTT TTT TOTAL Exp. Exp. X^2 X*2 TTT TTT TTT TOTAL Exp. X*2 X*2 TTC TTC	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03 3.44 3.00 1.00	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64 78.00 24.00	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00 148.00	4.08815E-07
TTA TOTAL Exp. Exp. X^2 X^2 TTT TTT TOTAL Exp. Exp. X^2 X*2 TTT TTT TTT TOTAL Exp. X*2 X*2 TTC TTC TOTAL	153.00 21.00 174.00 131.56 42.44 3.50 10.83 20.00 131.00 100.80 30.20 1.03 3.44 3.00 1.00 4.00	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64 78.00 24.00 102.00	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00 0.00	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00 265.00	41.00 22.00 63.00 47.63 115.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00 2.00	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00 241.00	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00	4.08815E-07 p-value 8.64189E-46*
TTA TOTAL Exp. Exp. X^2 X^2 TTT TTT TOTAL Exp. Exp. X^2 X*2 TTT TTT TTT TOTAL Exp. X*2 X*2 TTC TTC	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03 3.44 3.00 1.00	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64 78.00 24.00	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00 148.00	4.08815E-07
TTA TOTAL Exp. Exp. X^2 X^2 TTT TTT TOTAL Exp. Exp. X^2 X*2 TTT TTT TTT TOTAL Exp. X*2 X*2 TTC TTC TOTAL	153.00 21.00 174.00 131.56 42.44 3.50 10.83 20.00 131.00 100.80 30.20 1.03 3.44 3.00 1.00 4.00	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64 78.00 24.00 102.00	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00 0.00	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00 265.00	41.00 22.00 63.00 47.63 115.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00 2.00	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00 241.00	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00 148.00	4.08815E-07 p-value 8.64189E-46*
TTA TOTAL Exp. Exp. X^2 X*2 TTT TTT TOTAL Exp. Exp. X*2 TTT TTC TTC TOTAL Exp. Exp. Exp. Exp.	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03 3.44 3.00 1.00 4.00 3.04 0.96	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64 78.00 24.00 102.00 77.41 24.59	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00 0.00 0.00 0.25 0.25	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00 265.00 201.12 63.88	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00 2.00 1.52 0.48	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00 241.00 182.91 58.09	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00 148.00 614.00	4.08815E-07 p-value 8.64189E-46* p-value
TTA TOTAL Exp. Exp. X^2 X^2 TTT TTT TOTAL Exp. Exp. X^2 X^2 TTC TTC TTC TOTAL Exp. Exp. Exp. X^2 X^2	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03 3.44 3.00 1.00 4.00 3.04 0.96 0.00	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64 78.00 24.00 102.00 77.41 24.59 0.00	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00 0.00 0.25 0.25 0.25	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00 265.00 201.12 63.88 0.05	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00 2.00 0.00 2.00 1.52 0.48 0.15	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00 241.00 182.91 58.09 0.02	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00 148.00 614.00 0.48	4.08815E-07 p-value 8.64189E-46* p-value
TTA TOTAL Exp. Exp. X^2 X*2 TTT TTT TOTAL Exp. Exp. X*2 TTT TTC TTC TOTAL Exp. Exp. Exp. Exp.	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03 3.44 3.00 1.00 4.00 3.04 0.96	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64 78.00 24.00 102.00 77.41 24.59	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00 0.00 0.00 0.25 0.25	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00 265.00 201.12 63.88	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00 2.00 1.52 0.48	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00 241.00 182.91 58.09	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00 148.00 614.00	4.08815E-07 p-value 8.64189E-46* p-value
TTA TOTAL Exp. Exp. X*2 X*2 TTT TTT TOTAL Exp. X*2 X*2 TTT TTT TTT TTT TTC TTC TTC TTC Exp. Exp. Exp. Exp. X*2	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03 3.44 3.00 1.00 4.00 3.04 0.96 0.00	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64 78.00 24.00 102.00 77.41 24.59 0.00 0.01	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00 0.25 0.25 0.25	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00 265.00 201.12 63.88 0.05 0.15	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00 2.00 1.52 0.48 0.15 0.48	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00 241.00 182.91 58.09 0.02 0.08	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 603.00 50.97 170.13 466.00 148.00 614.00 614.00	4.08815E-07 p-value 8.64189E-46* p-value
TTA TOTAL Exp. Exp. X^2 X*2 TTT TTT TOTAL Exp. Exp. X*2 X*2 TTT TTT TTT TTC TTC TTC TTC TTC TTC X*2 X*2 X*2 X*2 TTG	153.00 21.00 174.00 131.56 42.44 3.50 10.83 20.00 131.00 100.80 30.20 1.03 3.44 3.00 1.00 4.00 3.04 0.96 0.00 0.00 239.00	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64 78.00 24.00 102.00 77.41 24.59 0.00 0.01	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00 265.00 201.12 63.88 0.05 0.15 0.00	41.00 22.00 63.00 47.63 115.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00 2.00 1.52 0.48 0.15 0.48 0.00	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00 241.00 182.91 58.09 0.02 0.08	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00 148.00 614.00 0.48 0.98 473.00	4.08815E-07 p-value 8.64189E-46* p-value
TTA TOTAL Exp. Exp. X^2 X^2 TTT TTT TOTAL Exp. X^2 X*2 TTT TTT TTT TOTAL Exp. X*2 TTC TTC TTC TTC TTC X*2 X*2 X*2 TTC TTG TTG TTG TTG	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03 3.02 1.03 3.44 3.00 1.00 4.00 3.04 0.96 0.00 0.00 239.00 67.00	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 110.00 195.00 150.05 44.95 7.68 25.64 78.60 24.00 102.00 77.41 24.59 0.00 0.01 .00 0.00	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00 265.00 201.12 63.88 0.05 0.15 0.00 0.00 0.00	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00 2.00 1.52 0.48 0.15 0.48 0.15 0.48	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00 241.00 182.91 58.09 0.02 0.08	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00 148.00 614.00 0.48 0.98 473.00 181.00	4.08815E-07 p-value 8.64189E-46* p-value
TTA TOTAL Exp. Exp. X^2 X*2 TTT TTT TOTAL Exp. Exp. X*2 X*2 TTT TTT TTT TTC TTC TTC TTC TTC TTC X*2 X*2 X*2 X*2 TTG	153.00 21.00 174.00 131.56 42.44 3.50 10.83 20.00 131.00 100.80 30.20 1.03 3.44 3.00 1.00 4.00 3.04 0.96 0.00 0.00 239.00	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64 78.00 24.00 102.00 77.41 24.59 0.00 0.01	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00 265.00 201.12 63.88 0.05 0.15 0.00	41.00 22.00 63.00 47.63 115.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00 2.00 1.52 0.48 0.15 0.48 0.00	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00 241.00 182.91 58.09 0.02 0.08	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00 148.00 614.00 0.48 0.98 473.00	4.08815E-07 p-value 8.64189E-46* p-value
TTA TOTAL Exp. Exp. X^2 X^2 TTT TTT TTT TOTAL Exp. Exp. X^2 X^2 TTC TTC TOTAL Exp. Exp. X^2 X^2 TTC TTTC TOTAL Exp. X^2 TTC TTG TOTAL	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03 3.02 1.03 3.44 3.00 1.00 4.00 3.04 0.96 0.00 0.00 239.00 67.00	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 110.00 195.00 150.05 44.95 7.68 25.64 78.60 24.00 102.00 77.41 24.59 0.00 0.01 .00 0.00	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00 265.00 201.12 63.88 0.05 0.15 0.00 0.00 0.00	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00 2.00 1.52 0.48 0.15 0.48 0.15 0.48	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00 241.00 182.91 58.09 0.02 0.08	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00 148.00 614.00 0.48 0.98 473.00 181.00	4.08815E-07 p-value 8.64189E-46* p-value
TTA TOTAL Exp. Exp. X^2 X*2 TTT TTC TTC TTC TOTAL Exp. Exp. X*2 X*2 TTG TTG TTG TTG TOTAL Exp.	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03 3.44 3.00 1.00 4.00 3.04 0.96 0.00 0.00 239.00 67.00 306.00 221.31	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64 78.00 24.00 102.00 77.41 24.59 0.00 0.01 1.00 0.00 1.00 0.72	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00 0.00 0.00 0.25 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00 265.00 201.12 63.88 0.05 0.15 0.00 0.00 0.00 0.00 0.25	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00 2.00 0.00 1.52 0.48 0.15 0.48 0.15 0.48	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00 241.00 182.91 58.09 0.02 0.08 0.00 0.00 0.00 0.00 0.00	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00 148.00 614.00 0.48 0.98 473.00 181.00	4.08815E-07 p-value 8.64189E-46* 0.966048267* p-value
TTA TOTAL Exp. Exp. X*2 X*2 TTT TTC TTC TOTAL Exp. Exp. X*2 TTG TTG TTG TTG TTG TTGL Exp. Exp.	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03 3.44 3.00 1.00 4.00 3.04 0.96 0.00 0.00 0.00 239.00 67.00 306.00 221.31 84.69	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64 78.00 24.00 102.00 77.41 24.59 0.00 0.01 1.00 0.00 1.00 0.72 0.28	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00 0.00 0.00 0.25 0.2	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00 265.00 201.12 63.88 0.05 0.15 0.00 0.00 0.00 0.00 0.25 0.25	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00 2.00 0.00 2.00 1.52 0.48 0.15 0.48 0.15 0.48 0.15 0.48	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00 241.00 182.91 58.09 0.02 0.08 0.00 0.00 0.00 0.00 0.00 0.25 0.25	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00 148.00 614.00 0.48 0.98 473.00 181.00 654.00	4.08815E-07 p-value 8.64189E-46* p-value 0.966048267*
TTA TOTAL Exp. Exp. X*2 X*2 TTT TTT TOTAL Exp. X*2 X*2 TTT TTT TTT TTT TTT TTC TTC TTC TTC TTC TTC TTC TTG TTG TTGAL Exp. Exp. X*2	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03 3.44 3.00 1.00 4.00 3.04 0.96 0.00 0.00 239.00 67.00 306.00 221.31 84.69 1.41	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64 78.00 24.00 102.00 77.41 24.59 0.00 0.01 1.00 0.00 1.00 0.72 0.28 0.11	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00 0.25 0.2	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00 265.00 201.12 63.88 0.05 0.15 0.00 0.00 0.00 0.25 0.25 0.25	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00 2.00 1.52 0.48 0.15 0.48 0.15 0.48 0.15 0.48	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00 241.00 182.91 58.09 0.02 0.08 0.00 0.00 0.00 0.00 0.25 0.25 0.25	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00 148.00 614.00 0.48 0.98 473.00 181.00 654.00 3.56	4.08815E-07 p-value 8.64189E-46* 0.966048267* p-value p-value
TTA TOTAL Exp. Exp. X*2 X*2 TTT TTC TTC TOTAL Exp. Exp. X*2 TTG TTG TTG TTG TTG TTGL Exp. Exp.	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03 3.44 3.00 1.00 4.00 3.04 0.96 0.00 0.00 0.00 239.00 67.00 306.00 221.31 84.69	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64 78.00 24.00 102.00 77.41 24.59 0.00 0.01 1.00 0.00 1.00 0.72 0.28	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00 0.00 0.00 0.25 0.2	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00 265.00 201.12 63.88 0.05 0.15 0.00 0.00 0.00 0.00 0.25 0.25	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00 2.00 0.00 2.00 1.52 0.48 0.15 0.48 0.15 0.48 0.15 0.48	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00 241.00 182.91 58.09 0.02 0.08 0.00 0.00 0.00 0.00 0.00 0.25 0.25	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00 148.00 614.00 0.48 0.98 473.00 181.00 654.00	4.08815E-07 p-value 8.64189E-46* 0.966048267* p-value
TTA TOTAL Exp. Exp. X^2 X*2 TTT TTC TTC TTC TTC TTC TTC TTC TTC TTC TTG TTG TTG TTG TTG TTG TTG TTG X^2 X*2 X*2	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03 3.44 3.00 1.00 4.00 3.04 0.96 0.00 0.00 0.00 0.00 0.00 0.00 0.00	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 1100 195.00 150.05 44.95 7.68 25.64 78.60 24.00 102.00 77.41 24.59 0.00 0.01 0.01 0.01 0.72 0.28 0.11 0.28	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00 0.00 0.25 0.2	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00 265.00 201.12 63.88 0.05 0.15 0.00 0.00 0.00 0.25 0.25 0.25 0.25	41.00 22.00 63.00 47.63 115.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00 2.00 1.52 0.00 1.52 0.48 0.15 0.48 0.15 0.48 0.15 0.48 0.15 0.25 0.25 0.25	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00 241.00 182.91 58.09 0.02 0.08 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00 148.00 614.00 0.48 0.98 473.00 181.00 654.00 3.56 8.08	4.08815E-07 p-value 8.64189E-46* 0.966048267* p-value
TTA TOTAL Exp. Exp. X*2 X*2 TTT TTT TOTAL Exp. X*2 X*2 TTT TTT TTT TTT TTT TTC TTC TTC TTC TTC TTC TTC TTG TTG TTGAL Exp. Exp. X*2	153.00 21.00 174.00 131.56 42.44 3.50 10.83 111.00 20.00 131.00 100.80 30.20 1.03 3.44 3.00 1.00 4.00 3.04 0.96 0.00 0.00 239.00 67.00 306.00 221.31 84.69 1.41	41.00 9.00 50.00 37.80 12.20 0.27 0.84 184.00 11.00 195.00 150.05 44.95 7.68 25.64 78.00 24.00 102.00 77.41 24.59 0.00 0.01 1.00 0.00 1.00 0.72 0.28 0.11	221.00 108.00 329.00 248.75 80.25 3.09 9.59 5.00 1.00 6.00 4.62 1.38 0.03 0.11 0.00 0.00 0.00 0.25 0.2	45.00 5.00 50.00 37.80 12.20 1.37 4.25 139.00 24.00 163.00 125.43 37.57 1.47 4.90 198.00 67.00 265.00 201.12 63.88 0.05 0.15 0.00 0.00 0.00 0.25 0.25 0.25	41.00 22.00 63.00 47.63 15.37 0.92 2.86 1.00 7.00 8.00 6.16 1.84 4.32 14.42 2.00 0.00 2.00 1.52 0.48 0.15 0.48 0.15 0.48 0.15 0.48	91.00 26.00 117.00 88.46 28.54 0.07 0.23 24.00 76.00 100.00 76.95 23.05 36.43 121.62 185.00 56.00 241.00 182.91 58.09 0.02 0.08 0.00 0.00 0.00 0.00 0.25 0.25 0.25	592.00 191.00 783.00 9.23 28.60 464.00 139.00 603.00 50.97 170.13 466.00 148.00 614.00 0.48 0.98 473.00 181.00 654.00 3.56	4.08815E-07 p-value 8.64189E-46* 0.966048267* p-value

TOTAL 0.00 0.00 33.00 33.00 25.00 0.11 p-value 5x1 0.25								_	
5:p. 0.25 0.25 0.90 38 0.71 64.76 0.373102573* X*2 0.25 0.25 0.25 0.02 2.20 0.80 4.71 X*2 0.25 0.25 0.02 2.20 0.80 4.67 TGA C5.68 T.76 0.25 0.72 0.80 4.67 TGA C5.68 T.76 0.80 0.80 0.80 1.88 0.90 Stop 0.71.10 1.66 0.70.00 0.75 0.75 0.75 0.70 0.90 0.22414227 C1 1.68 0.223 0.90 0.	TOTAL							621.00	
XY2 0.25 0.25 0.25 0.25 0.25 0.26 0.26 0.46 4.67 XA 0.55 0.10 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 <th0.00< th=""> <th0.00< th=""> <th0.00< td="" th<=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th0.00<></th0.00<></th0.00<>									
XY2 0.25 0.25 0.02 3.20 0.69 4.67 TGA 65.60 157.60 3.00 212.80 0.69 1.00 138.69 0.90 0.90 0.00 0.90									0.377102578*
TGA CS.08 3.70.0 3.70.0 3.70.0 3.70.0 3.70.0 4.70.0									_
TGA 28.80 74.00 0.00 67.80 0.00 160.00 160.00 170 <	X^2	0.25	0.25	0.25	0.02	3.20	0.69	4.67	
TGA 28.80 74.00 0.00 67.80 0.00 160.00 160.00 170 <	TCA	65.00	157 00	3 00	212 00	0.00	1 00	438 00	
TOTAL 93.80 231.00 3.60 279.00 0.80 1.00 667.00 p-value 5xp 6.7111 166.69 2.16 80.23 1.21 0.23 1.21									
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Exp. 0.25 71.31 0.25 16.69 0.25 0.25 4.79 X^2 0.25 2.13 0.25 9.08 0.25 4.79 TGC 7.00 59.00 0.60 237.00 6.60 6.00 123.60 TOTAL 11.68 73.30 0.25 0.25 0.25 9.11 X^2 0.41 0.93 3.51 0.25 0.25 1.20 TOTAL 0.90 137.00 2.00 1.00 407.09 TOTAL 0.90 137.00 2.00 1.30 0.25 1.20 TOTAL 0.90 0.92 2.00 2.00 2.00 2.00 2.00 2.00 X^2 0.25 <t< td=""><td></td><td>0.00</td><td>282.00</td><td>0.00</td><td>66.00</td><td>0.00</td><td>0.00</td><td>348.00</td><td></td></t<>		0.00	282.00	0.00	66.00	0.00	0.00	348.00	
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TGC 4.00 34.00 0.00 0.00 0.00 123.00 CTOTAL 11.00 133.00 0.025 0.26 0.27 0.20	X^2	0.25	2.13	0.25	9.08	0.25	0.25	12.21	
TGC 4.00 34.00 0.00 0.00 0.00 123.00 CTOTAL 11.00 133.00 0.025 0.26 0.27 0.20	TCC	7.00	00.00	0.00	227.00	0.00	0.00	242.00	-
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TOTAL 0.00 18.00 0.00 522.00 2.00 544.00 Exp. 0.25 13.4 0.25 390.64 1.50 1.50 0.399630721* X^2 0.25 4.53 0.25 131.46 0.50 0.50 0.399630721* X^2 0.25 2.75 0.25 0.10 0.50 0.49 4.34 GA 0.25 2.75 0.25 0.10 0.50 0.49 4.34 GA 0.25 0.10 0.50 0.49 4.34 0.399630721* TOTAL 125.00 5.00 3.00 4.00 78.00 66.00 28.00									
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CAA 99.00 5.00 3.00 4.00 49.00 58.00 709.00 GAA 35.00 0.00 0.00 29.00 10.00 74.00 283.00 TOTAL 125.00 5.00 3.00 4.00 78.00 68.00 283.00 TOTAL 125.00 5.00 3.00 4.00 78.00 50.22 0.00 283.00 K^2 0.06 0.46 0.28 0.37 1.29 1.21 3.66 X^2 0.16 1.31 0.78 1.05 3.63 3.40 10.34 GAC 0.00 1.00 2.00 2.00 84.00 199.00 157.00 444.00 0.250 GAC 0.025 0.33 0.22 0.09 0.01 0.02 0.23 1.63 K*2 0.25 1.44 1.44 60.35 142.98 112.80 0.59124216* K*2 0.25 0.31 0.22 0.93 0.62 1.63 <td>X^2</td> <td>0.25</td> <td>0.93</td> <td>0.25</td> <td>0.03</td> <td>0.17</td> <td>0.16</td> <td>1.79</td> <td></td>	X^2	0.25	0.93	0.25	0.03	0.17	0.16	1.79	
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GAC 0.00 1.00 2.00 58.00 142.00 116.00 319.00 GAC 0.00 1.00 0.00 26.00 57.00 41.00 125.00 TOTAL 0.00 2.00 2.00 84.00 199.00 157.00 444.00 Exp. 0.25 1.44 1.44 60.35 142.98 112.80 0.444.00 X^2 0.25 0.13 0.22 0.09 0.01 0.09 0.79 X^2 0.25 0.34 0.56 0.23 0.02 0.23 1.63 CCA 142.00 108.00 37.00 94.00 90.00 104.00 763.00 TOTAL 175.00 145.00 50.00 130.00 123.00 140.00 763.00 Exp. 131.88 109.27 37.68 97.97 92.69 105.59 0.504545459 X^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2									-
GAC 0.00 1.00 0.00 26.00 57.00 41.00 125.00 TOTAL 0.00 2.00 2.00 84.00 199.00 157.00 444.00 Exp. 0.25 0.1.44 1.44 60.35 142.98 112.80 P-value X^2 0.25 0.13 0.22 0.09 0.01 0.09 0.79 X^2 0.25 0.34 0.56 0.23 0.02 0.23 1.63 X^2 0.25 0.34 0.56 94.00 90.00 104.00 575.00 GCA 142.00 108.00 37.00 94.00 90.00 104.00 763.00 Exp. 131.88 109.27 37.68 97.97 92.69 105.50 P-value X^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2 2.37 0.05 0.04 0.49 0.24 0.07 3.25 X^2 2.37 <td>× 2</td> <td>0.10</td> <td>1.51</td> <td>0.78</td> <td>1.05</td> <td>5.05</td> <td>5.40</td> <td>10.54</td> <td></td>	× 2	0.10	1.51	0.78	1.05	5.05	5.40	10.54	
GAC 0.00 1.00 0.00 26.00 57.00 41.00 125.00 TOTAL 0.00 2.00 2.00 84.00 199.00 157.00 444.00 Exp. 0.25 0.1.44 1.44 60.35 142.98 112.80 P-value X^2 0.25 0.13 0.22 0.09 0.01 0.09 0.79 X^2 0.25 0.34 0.56 0.23 0.02 0.23 1.63 X^2 0.25 0.34 0.56 94.00 90.00 104.00 575.00 GCA 142.00 108.00 37.00 94.00 90.00 104.00 763.00 Exp. 131.88 109.27 37.68 97.97 92.69 105.50 P-value X^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2 2.37 0.05 0.04 0.49 0.24 0.07 3.25 X^2 2.37 <td>GAC</td> <td>0 00</td> <td>1 00</td> <td>2 00</td> <td>58 00</td> <td>142 00</td> <td>116 00</td> <td>319 00</td> <td></td>	GAC	0 00	1 00	2 00	58 00	142 00	116 00	319 00	
TOTAL 0.00 2.00 2.00 84.00 199.00 157.00 444.00 Exp. 0.25 1.44 1.44 60.35 142.98 112.80 p-value X^2 0.25 0.13 0.22 0.09 0.01 0.09 0.79 X^2 0.25 0.34 0.56 02.3 0.02 0.23 1.63 X^2 0.25 0.34 0.56 0.23 0.02 0.23 1.63 Constraine 0.02 0.23 0.02 0.23 1.63 Constraine 0.00 104.00 575.00 188.00 755.00 GCA 142.00 108.00 37.00 94.00 90.00 104.00 755.00 GCA 131.88 109.27 37.68 97.97 92.69 105.50 9 9 0.07 3.25 X^2 0.78 0.01 0.04 0.49 0.24 0.07 3.25 X^2 2.37 0.05 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>									
Exp. 0.25 1.44 1.44 60.35 142.98 112.80 p-value Exp. 0.25 0.56 0.56 23.65 56.02 44.20 0.859124216* X^2 0.25 0.34 0.56 0.23 0.02 0.23 1.63 X^2 0.25 0.34 0.56 0.23 0.02 0.23 1.63 GCA 142.00 108.00 37.00 13.00 36.00 33.00 36.00 188.00 TOTAL 175.00 145.00 50.00 130.00 123.00 140.00 763.00 Exp. 13.188 109.27 37.68 97.97 92.69 105.50 0.504545459 X^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2 2.37 0.04 0.49 0.24 0.07 3.25 CCC 297.00 16.00 31.00 4.00 115.00 1.00 159.00 GCC	TOTAL						157.00		
X^2 0.25 0.13 0.22 0.09 0.01 0.09 0.79 X^2 0.25 0.34 0.56 0.23 0.02 0.23 1.63 GCA 142.00 108.00 37.00 94.00 90.00 104.00 575.00 GCA 33.00 37.00 13.00 36.00 33.00 36.00 188.00 TOTAL 175.00 145.00 50.00 130.00 123.00 140.00 763.00 Exp. 131.88 109.27 37.68 97.97 92.69 105.50 p-value K^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2 2.37 0.05 0.04 0.49 0.24 0.07 3.25 CCC 209.00 66.00 31.00 4.00 115.00 1.00 159.00 159.00 159.00 159.00 159.00 159.00 159.00 159.00 159.00 159.00 159.00 159.00 159.00 159.00 159.00 159.00 159.00 159.00 10	Exp.	0.25	1.44	1.44	60.35	142.98	112.80		p-value
X^2 0.25 0.34 0.56 0.23 0.02 0.23 1.63 GCA 142.00 108.00 37.00 13.00 36.00 36.00 104.00 575.00 GCA 33.00 37.00 13.00 36.00 33.00 36.00 188.00 TOTAL 175.00 145.00 50.00 130.00 123.00 140.00 763.00 Exp. 131.88 109.27 37.68 97.97 92.69 105.50 p-value K^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2 0.78 0.01 0.01 0.16 0.82 0.07 3.25 GCC 209.00 66.00 31.00 4.00 115.00 1.00 426.00 159.00 TOTAL 306.00 82.00 34.00 4.00 156.00 3.00 585.00	Exp.		0.56	0.56		56.02		<u> </u>	
GCA 142.00 108.00 37.00 94.00 90.00 104.00 575.00 GCA 33.00 37.00 13.00 36.00 33.00 36.00 188.00 TOTAL 175.00 145.00 50.00 130.00 123.00 140.00 763.00 Exp. 131.88 109.27 37.68 97.97 92.69 105.50 p-value X^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2 2.37 0.05 0.04 0.49 0.24 0.07 3.25 GCC 299.00 66.00 3.00 4.00 156.00 3.00 585.00 TOTAL 306.00 82.00 34.00 4.00 156.00 3.00 585.00 TOTAL 306.00 82.00 34.00 4.00 156.00 3.00 585.00 Exp.									
GCA 33.00 37.00 13.00 36.00 33.00 36.00 188.00 TOTAL 175.00 145.00 50.00 130.00 123.00 140.00 763.00 Exp. 131.88 109.27 37.68 97.97 92.69 105.50 p-value K2p. 43.12 35.73 12.32 32.03 30.31 34.50 0.504545459 X^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2 0.79 0.05 0.04 0.49 0.24 0.07 3.25 C 0.05 3.00 0.00 115.00 1.00 426.00 159.00 585.00 Exp. 222.83 59.71 24.76 2.91 113.60 2.18 0.009146875*	X^2	0.25	0.34	0.56	0.23	0.02	0.23	1.63	
GCA 33.00 37.00 13.00 36.00 33.00 36.00 188.00 TOTAL 175.00 145.00 50.00 130.00 123.00 140.00 763.00 Exp. 131.88 109.27 37.68 97.97 92.69 105.50 p-value K2p. 43.12 35.73 12.32 32.03 30.31 34.50 0.504545459 X^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2 0.79 0.05 0.04 0.49 0.24 0.07 3.25 C 0.05 3.00 0.00 115.00 1.00 426.00 159.00 585.00 Exp. 222.83 59.71 24.76 2.91 113.60 2.18 0.009146875*									
TOTAL 175.00 145.00 50.00 130.00 123.00 140.00 763.00 Exp. 131.88 109.27 37.68 97.97 92.69 105.50 p-value K^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 K^2 2.37 0.05 0.04 0.49 0.24 0.07 3.25 GCC 209.00 66.00 31.00 4.00 115.00 1.00 426.00 159.00 GCC 97.00 16.00 3.00 0.00 4.100 2.00 159.00 585.00 Exp. 222.83 59.71 24.76 2.91 113.60 2.18 p-value GCT 0.86 0.66 1.57 0.41 0.02 0.64 4.16 X^2 0.30 0.77 4.21 1.09 42.40 0.82 0.009146875* K^2 0.86 0.66 1.57 0.41 0.02 0.64 4.16									
Exp. 131.88 109.27 37.68 97.97 92.69 105.50 p-value Exp. 43.12 35.73 12.32 32.03 30.31 34.50 0.504545459 X^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2 2.37 0.05 0.04 0.49 0.24 0.07 3.25 GCC 209.00 66.00 31.00 4.00 115.00 1.00 426.00 GCC 97.00 16.00 3.00 0.00 41.00 2.00 159.00 TOTAL 306.00 82.00 34.00 4.00 156.00 3.00 585.00 Exp. 222.83 59.71 24.76 2.91 113.60 2.18 0.009146875* X^2 0.86 0.66 1.57 0.41 0.02 0.64 4.16 K^2 2.30 1.77 4.21 1.09 9.05 1.72 11.14 C <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>									
Exp. 43.12 35.73 12.32 32.03 30.31 34.50 0.504545459 X^2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X^2 2.37 0.05 0.04 0.49 0.24 0.07 3.25 GCC 209.00 66.00 31.00 4.00 115.00 1.00 426.00 GCC 97.00 16.00 3.00 0.00 41.00 2.00 159.00 TOTAL 306.00 82.00 34.00 4.00 156.00 3.00 585.00 Exp. 222.83 59.71 24.76 2.91 113.60 2.18 p-value K^2 0.86 0.66 1.57 0.41 0.02 0.64 4.16 X^2 2.30 1.77 4.21 1.09 0.05 1.72 11.14 GCT 0.00 0.00 32.00 7.00 78.00 100.00 79.00 GCT 0.00 0.00 32.00 7.00 78.00 100.00 296.00 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>/63.00</td><td></td></t<>								/63.00	
X ² 2 0.78 0.01 0.01 0.16 0.08 0.02 1.06 X ² 2 2.37 0.05 0.04 0.49 0.24 0.07 3.25 GCC 209.00 66.00 31.00 4.00 115.00 1.00 426.00 GCC 97.00 16.00 3.00 0.00 41.00 2.00 159.00 GCC 97.00 16.00 3.00 0.00 426.00 159.00 GCC 97.00 16.00 3.00 4.00 156.00 3.00 585.00 TOTAL 306.00 82.00 34.00 4.00 156.00 3.00 585.00 Exp. 222.83 59.71 24.76 2.91 113.60 2.18 p-value K^2 0.86 0.66 1.57 0.41 0.02 0.64 4.16 X^2 2.30 1.77 4.21 1.09 0.05 1.72 11.14 CT 0.00 0.00								4	
X^2 2.37 0.05 0.04 0.49 0.24 0.07 3.25 GCC 209.00 66.00 31.00 4.00 115.00 1.00 426.00 GCC 97.00 16.00 3.00 0.00 41.00 2.00 159.00 TOTAL 306.00 82.00 34.00 4.00 156.00 3.00 585.00 Exp. 222.83 59.71 24.76 2.91 113.60 2.18 p-value K^2 0.86 0.66 1.57 0.41 0.02 0.64 4.16 X^2 2.30 1.77 4.21 1.09 0.05 1.72 11.14 GCT 0.00 0.00 32.00 7.00 78.00 100.00 217.00 GCT 0.00 0.00 33.00 11.00 118.00 134.00 296.00 Exp. 0.25 0.25 24.19 8.06 86.51 98.24 p-value GCT 0.25 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1.96</td> <td>0.504545459</td>								1.96	0.504545459
GCC 209.00 66.00 31.00 4.00 115.00 1.00 426.00 GCC 97.00 16.00 3.00 0.00 41.00 2.00 159.00 TOTAL 306.00 82.00 34.00 4.00 156.00 3.00 585.00 Exp. 222.83 59.71 24.76 2.91 113.60 2.18 p-value K^2 0.86 0.66 1.57 0.41 0.02 0.64 4.16 X^2 2.30 1.77 4.21 1.09 0.05 1.72 11.14 GCT 0.00 0.00 32.00 7.00 78.00 100.00 79.00 GCT 0.00 0.00 1.00 4.00 40.00 34.00 296.00 TOTAL 0.00 0.00 1.00 11.00 118.00 134.00 296.00 GCT 0.25 0.25 24.19 8.06 86.51 98.24 0.02140450* Exp. <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>+</td></td<>									+
GCC 97.00 16.00 3.00 0.00 41.00 2.00 159.00 TOTAL 306.00 82.00 34.00 4.00 156.00 3.00 585.00 Exp. 222.83 59.71 24.76 2.91 113.60 2.18 p-value K^2 0.86 0.66 1.57 0.41 0.02 0.64 4.16 X^2 0.86 0.66 1.57 0.41 0.02 0.64 4.16 CCT 0.00 0.00 32.00 7.00 78.00 100.00 217.00 GCT 0.00 0.00 1.00 4.00 44.00 34.00 296.00 GCT 0.00 0.00 32.00 7.00 78.00 100.00 217.00 GCT 0.00 0.00 33.00 11.00 118.00 34.00 296.00 GCT 0.00 0.025 24.19 8.06 86.51 98.24 P-value Exp. 0.25 </td <td>A 4</td> <td>2.37</td> <td>0.05</td> <td>0.04</td> <td>0.45</td> <td>0.24</td> <td>0.07</td> <td>3.23</td> <td>_</td>	A 4	2.37	0.05	0.04	0.45	0.24	0.07	3.23	_
GCC 97.00 16.00 3.00 0.00 41.00 2.00 159.00 TOTAL 306.00 82.00 34.00 4.00 156.00 3.00 585.00 Exp. 222.83 59.71 24.76 2.91 113.60 2.18 p-value K^2 0.86 0.66 1.57 0.41 0.02 0.64 4.16 X^2 0.86 0.66 1.57 0.41 0.02 0.64 4.16 CCT 0.00 0.00 32.00 7.00 78.00 100.00 217.00 GCT 0.00 0.00 1.00 4.00 44.00 34.00 296.00 GCT 0.00 0.00 32.00 7.00 78.00 100.00 217.00 GCT 0.00 0.00 33.00 11.00 118.00 34.00 296.00 GCT 0.00 0.025 24.19 8.06 86.51 98.24 P-value Exp. 0.25 </td <td>GCC</td> <td>209 00</td> <td>66 00</td> <td>31 00</td> <td>4,00</td> <td>115 00</td> <td>1.00</td> <td>426 00</td> <td>1</td>	GCC	209 00	66 00	31 00	4,00	115 00	1.00	426 00	1
TOTAL 306.00 82.00 34.00 4.00 156.00 3.00 585.00 Exp. 222.83 59.71 24.76 2.91 113.60 2.18 p-value Exp. 83.17 22.29 9.24 1.09 42.40 0.82 0.009146875* X^2 0.86 0.66 1.57 0.41 0.02 0.64 4.16 X^2 2.30 1.77 4.21 1.09 0.05 1.72 11.14 C C C C C C C C GCT 0.00 0.00 33.00 11.00 40.00 34.00 79.00 GCT 0.00 0.00 33.00 11.00 118.00 134.00 296.00 Exp. 0.25 0.25 24.19 8.06 86.51 98.24 p-value CT 0.25 0.25 8.81 2.94 31.49 93.76 0.021404569* X^2 0.25 0									
Exp. 222.83 59.71 24.76 2.91 113.60 2.18 p-value Exp. 83.17 22.29 9.24 1.09 42.40 0.82 0.009146875* X^2 0.86 0.66 1.57 0.41 0.02 0.64 4.16 X^2 2.30 1.77 4.21 1.09 0.05 1.72 11.14 Constrained 0.00 32.00 7.00 78.00 100.00 217.00 GCT 0.00 0.00 1.00 4.00 40.00 34.00 79.00 TOTAL 0.00 0.25 24.19 8.06 86.51 98.24 296.00 Exp. 0.25 0.25 24.19 8.06 86.51 98.24 0.021404569* X^2 0.25 0.25 8.81 2.94 31.49 35.76 0.021404569*									
Exp. 83.17 22.29 9.24 1.09 42.40 0.82 0.009146875* X^2 0.86 0.66 1.57 0.41 0.02 0.64 4.16 X^2 2.30 1.77 4.21 1.09 0.05 1.72 11.14 GCT 0.00 0.00 32.00 7.00 78.00 100.00 79.00 GCT 0.00 0.00 1.00 4.00 40.00 34.00 79.00 TOTAL 0.00 0.25 24.19 8.06 86.51 98.24 Exp. 0.25 0.25 24.19 8.06 86.51 98.24 X^2 0.25 0.25 2.52 0.14 0.84 0.03 4.03									p-value
X^2 0.86 0.66 1.57 0.41 0.02 0.64 4.16 X^2 2.30 1.77 4.21 1.09 0.05 1.72 11.14 CCT 0.00 0.00 32.00 7.00 78.00 100.00 217.00 GCT 0.00 0.00 1.00 4.00 40.00 34.00 79.00 GCT 0.00 0.00 33.00 11.00 118.00 134.00 296.00 TOTAL 0.025 0.255 24.19 8.06 86.51 98.24 p-value Exp. 0.255 0.255 8.81 2.94 31.49 35.76 0.021404569* X^2 0.25 0.25 2.52 0.14 0.84 0.03 4.03								1	
GCT 0.00 0.00 32.00 7.00 78.00 100.00 217.00 GCT 0.00 0.00 1.00 4.00 40.00 34.00 79.00 TOTAL 0.00 0.00 33.00 11.00 118.00 134.00 296.00 Exp. 0.25 0.25 24.19 8.06 86.51 98.24 p-value Exp. 0.25 0.25 8.81 2.94 31.49 35.76 0.021404569* X^2 0.25 0.25 2.52 0.14 0.84 0.03 4.03		0.86	0.66	1.57	0.41	0.02	0.64	4.16	
GCT 0.00 0.00 1.00 4.00 40.00 34.00 79.00 TOTAL 0.00 0.00 33.00 11.00 118.00 134.00 296.00 Exp. 0.25 0.25 24.19 8.06 86.51 98.24 p-value K^2 0.25 0.25 8.81 2.94 31.49 35.76 0.021404569*	X^2	2.30				0.05	1.72	11.14	
GCT 0.00 0.00 1.00 4.00 40.00 34.00 79.00 TOTAL 0.00 0.00 33.00 11.00 118.00 134.00 296.00 Exp. 0.25 0.25 24.19 8.06 86.51 98.24 p-value K^2 0.25 0.25 8.81 2.94 31.49 35.76 0.021404569*									-
TOTAL 0.00 0.00 33.00 11.00 118.00 134.00 296.00 Exp. 0.25 0.25 24.19 8.06 86.51 98.24 p-value Exp. 0.25 0.25 8.81 2.94 31.49 35.76 0.021404569* X^2 0.25 0.25 2.52 0.14 0.84 0.03 4.03									
Exp. 0.25 0.25 24.19 8.06 86.51 98.24 Exp. 0.25 0.25 8.81 2.94 31.49 35.76 0.021404569* X^2 0.25 0.25 2.52 0.14 0.84 0.03 4.03									
Exp. 0.25 0.25 8.81 2.94 31.49 35.76 0.021404569* X^2 0.25 0.25 2.52 0.14 0.84 0.03 4.03								296.00	
X ² 0.25 0.25 2.52 0.14 0.84 0.03 4.03								4	
									0.021404569*
X^2 0.25 0.25 6.92 0.39 2.30 0.09 10.19									4
	X^2	0.25	0.25	6.92	0.39	2.30	0.09	10.19	

Characterizing patterns in DNA sequence trace data through informatics tools

GCG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1
GCG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Exp.	N/A	N/A	N/A	N/A	N/A	N/A	0.00	p-value
Exp.	N/A	N/A	N/A	N/A	N/A	N/A		N/A
X^2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11/73
X^2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
~ 2	1177	11/1	1177	1177	1177	1177	17.7	1
GAT	0.00	145.00	0.00	147.00	0.00	17.00	309.00	1
GAT	0.00	63.00	0.00	54.00	0.00	6.00	123.00	
TOTAL	0.00	208.00	0.00	201.00	0.00	23.00	432.00	
Exp.	0.25	148.78	0.25	143.77	0.25	16.45		p-value
Exp.	0.25	59.22	0.25	57.23	0.25	6.55		0.985301073*
X^2	0.25	0.10	0.25	0.07	0.25	0.02	0.94	
X^2	0.25	0.24	0.25	0.18	0.25	0.05	1.22	
								1
GTA	329.00	173.00	49.00	176.00	266.00	229.00	1222.00	
GTA	124.00	43.00	24.00	61.00	98.00	92.00	442.00	
TOTAL	453.00	216.00	73.00	237.00	364.00	321.00	1664.00	
Exp.	332.67	158.63	53.61	174.05	267.31	235.73		p-value
Exp.	120.33	57.38	19.39	62.95	96.69	85.27		0.19388313
X^2	0.04	1.30	0.40	0.02	0.01	0.19	1.96	
X^2	0.11	3.60	1.10	0.06	0.02	0.53	5.42	Î
								•
GTT	0.00	0.00	0.00	0.00	90.00	1.00	91.00	1
GTT	0.00	0.00	0.00	0.00	22.00	0.00	22.00	
TOTAL	0.00	0.00	0.00	0.00	112.00	1.00	113.00	
Exp.	0.25	0.25	0.25	0.25	90.19	0.81		p-value
Exp.	0.25	0.25	0.25	0.25	21.81	0.25		0.999971899*
X^2	0.25	0.25	0.25	0.25	0.00	0.05	1.05	
X^2	0.25	0.25	0.25	0.25	0.00	0.25	1.25	1
								-
GTC	85.00	73.00	1.00	12.00	0.00	37.00	208.00	
GTC	22.00	10.00	9.00	4.00	3.00	24.00	72.00	
TOTAL	107.00	83.00	10.00	16.00	3.00	61.00	280.00	
Exp.	79.49	61.66	7.43	11.89	2.23	45.31		p-value
Exp.	27.51	21.34	2.57	4.11	0.77	15.69		9.78592E-09*
X^2	0.38	2.09	5.56	0.00	2.23	1.53	11.79	
X^2	1.11	6.03	16.07	0.00	6.44	4.41	34.05	
								-
GTG	1.00	0.00	5.00	1.00	2.00	3.00	12.00	
GTG		0 00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.00	0.00					
TOTAL	1.00	0.00	5.00	1.00	2.00	3.00	12.00	
Exp.	1.00 N/A	0.00 N/A	5.00 N/A	1.00 N/A	N/A	N/A	12.00	p-value
Exp. Exp.	1.00 N/A N/A	0.00 N/A N/A	5.00 N/A N/A	1.00 <mark>N/A</mark> N/A	N/A N/A	N/A N/A		p-value N/A
Exp. Exp. X^2	1.00 N/A N/A N/A	0.00 N/A N/A N/A	5.00 N/A N/A N/A	1.00 N/A N/A N/A	N/A N/A N/A	N/A N/A N/A	N/A	
Exp. Exp.	1.00 N/A N/A	0.00 N/A N/A	5.00 N/A N/A	1.00 <mark>N/A</mark> N/A	N/A N/A	N/A N/A		
Exp. Exp. X^2 X^2	1.00 N/A N/A N/A N/A	0.00 N/A N/A N/A N/A	5.00 N/A N/A N/A N/A	1.00 N/A N/A N/A N/A	N/A N/A N/A N/A	N/A N/A N/A N/A	N/A N/A	
Exp. Exp. X^2 X^2 GAG	1.00 N/A N/A N/A N/A 0.00	0.00 N/A N/A N/A N/A 0.00	5.00 N/A N/A N/A N/A 0.00	1.00 N/A N/A N/A N/A 5.00	N/A N/A N/A N/A 0.00	N/A N/A N/A N/A	N/A N/A 5.00	
Exp. Exp. X^2 X^2 GAG GAG	1.00 N/A N/A N/A 0.00 0.00	0.00 N/A N/A N/A N/A 0.00 0.00	5.00 N/A N/A N/A N/A 0.00 0.00	1.00 N/A N/A N/A N/A 5.00 0.00	N/A N/A N/A N/A 0.00 0.00	N/A N/A N/A N/A 0.00 0.00	N/A N/A 5.00 0.00	
Exp. Exp. X^2 X^2 GAG GAG TOTAL	1.00 N/A N/A N/A 0.00 0.00 0.00	0.00 N/A N/A N/A N/A 0.00 0.00 0.00	5.00 N/A N/A N/A 0.00 0.00 0.00	1.00 N/A N/A N/A 5.00 0.00 5.00	N/A N/A N/A 0.00 0.00 0.00	N/A N/A N/A 0.00 0.00 0.00	N/A N/A 5.00	N/A
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp.	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 N/A	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A	1.00 N/A N/A N/A 5.00 0.00 5.00 N/A	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A	N/A N/A 5.00 0.00	N/A p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp.	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 N/A N/A	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A	N/A N/A 5.00 0.00 5.00	N/A
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.00 N/A N/A	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 0.00 5.00 N/A N/A N/A	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A	N/A N/A 5.00 0.00 5.00 N/A	N/A p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp.	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 N/A N/A	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A	N/A N/A 5.00 0.00 5.00	N/A p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. Exp. X^2 X^2	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 N/A N/A N/A	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A	N/A N/A 5.00 0.00 5.00 N/A N/A	N/A p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X^2 X^2 GGA	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 193.00	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 1.00	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 N/A N/A N/A N/A N/A 0.00	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 48.00	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 13.00	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00	N/A p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X^2 X^2 GGA GGA	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A 193.00 66.00	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 1.00	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 1.00 0.00	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 N/A N/A N/A N/A N/A N/A 0.00 0.00	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 22.00	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A 13.00 5.00	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00	N/A p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X^2 X^2 GGA GGA GGA TOTAL	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A 193.00 66.00 259.00	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 2.00 1.00 5.00	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 1.00 0.00 1.00	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 N/A N/A N/A N/A N/A N/A 0.00 0.00 0.00	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 48.00 22.00 70.00	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 13.00 5.00 18.00	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00	N/A p-value N/A
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X^2 X^2 GGA GGA GGA TOTAL Exp.	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 193.00 66.00 259.00 190.03	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A 0.00 1.00 5.00 3.67	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 1.00 0.00 1.00 0.73	1.00 N/A N/A N/A S.00 0.00 5.00 N/A N/A N/A N/A N/A N/A O.00 0.00 0.00 0.00 0.00	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 22.00 70.00 51.36	N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 13.00 5.00 18.00 13.21	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00	N/A p-value N/A p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X^2 X^2 GGA GGA GGA GGA TOTAL Exp. Exp. Exp.	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 193.00 66.00 259.00 190.03 68.97	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 0.00	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 0.00 0.00 1.00 0.73 0.27	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 N/A N/A N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.00 0.25 0.25	N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 22.00 70.00 51.36 18.64	N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 13.00 5.00 18.00 13.21 4.79	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00 353.00	N/A p-value N/A
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X^2 X^2 GGA GGA GGA TOTAL Exp. Exp. Exp. X^2 X^2	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 193.00 66.00 259.00 190.03 68.97 0.05	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A 1.00 5.00 3.67 1.33 0.03	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 0.00 1.00 0.73 0.27 0.10	1.00 N/A N/A N/A S.00 0.00 5.00 N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.25 0.25 0.25	N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A 22.00 70.00 51.36 18.64 0.22	N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 13.00 5.00 18.00 13.21 4.79 0.00	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00 353.00 0.65	N/A p-value N/A p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X^2 X^2 GGA GGA GGA GGA TOTAL Exp. Exp. Exp.	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 193.00 66.00 259.00 190.03 68.97	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 0.00 0.00 1.00 0.73 0.27	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 N/A N/A N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.00 0.25 0.25	N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 22.00 70.00 51.36 18.64	N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 13.00 5.00 18.00 13.21 4.79	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00 353.00	N/A p-value N/A p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X^2 X^2 GGA GGA GGA GGA TOTAL Exp. Exp. Exp. X^2 X^2	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 193.00 66.00 259.00 190.03 68.97 0.05 0.13	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 1.00 1.00 5.00 3.67 1.33 0.03 0.08	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 0.00 0.00 1.00 0.00 1.00 0.73 0.27 0.10 0.27	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.25 0.25 0.25 0.25	N/A N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 22.00 70.00 51.36 18.64 0.22 0.61	N/A N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A 13.00 5.00 18.00 13.21 4.79 0.00 0.01	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00 353.00 0.65 1.34	N/A p-value N/A p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X^2 X^2 GGA GGA GGA GGA TOTAL Exp. Exp. X^2 X^2 X^2 Z CGGA GGG	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 193.00 66.00 259.00 190.03 68.97 0.05 0.13	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 1.00 5.00 3.67 1.33 0.03 0.08 29.00	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 1.00 0.00 1.00 0.00 1.00 0.27 0.10 0.27	1.00 N/A N/A N/A S.00 0.00 5.00 N/A N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25	N/A N/A N/A N/A O.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 22.00 70.00 51.36 18.64 0.22 0.61	N/A N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A 13.00 5.00 18.00 13.21 4.79 0.00 0.01	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00 353.00 0.65 1.34 241.00	N/A p-value N/A p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X^2 X^2 GGA GGA GGA GGA TOTAL Exp. Exp. Exp. X^2 X^2 X^2	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 193.00 66.00 259.00 190.03 68.97 0.05 0.13 14.00 1.00	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 1.00 1.00 5.00 3.67 1.33 0.03 0.08 29.00 30.00	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 1.00 0.00 1.00 0.00 1.00 0.27 0.10 0.27	1.00 N/A N/A N/A S.00 0.00 5.00 N/A N/A N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25	N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A N/A 0.22.00 70.00 51.36 18.64 0.22 0.61	N/A N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A 13.00 5.00 13.00 13.21 4.79 0.00 0.01 197.00 62.00	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00 353.00 0.65 1.34 241.00 93.00	N/A p-value N/A p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X^2 X^2 GGA GGA GGA TOTAL Exp. Exp. X^2 X^2 X^2 X^2 CGG GGA GGA TOTAL	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A 193.00 66.00 259.00 190.03 68.97 0.05 0.13 14.00 1.00 15.00	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 1.00 5.00 3.67 1.33 0.03 0.08 29.00 30.00 59.00	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 1.00 0.00 1.00 0.73 0.27 0.10 0.27 0.00 0.00 0.00 0.00	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 N/A N/A N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25	N/A N/A N/A N/A O.00 0.00 0.00 N/A N/A N/A N/A N/A N/A A A 8.00 22.00 70.00 51.36 18.64 0.22 0.61	N/A N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A 13.00 5.00 13.00 13.21 4.79 0.00 0.01 13.21 4.79 0.00 0.01 197.00 62.00 259.00	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00 353.00 0.65 1.34 241.00	N/A p-value N/A p-value 0.914555051*
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X^2 X^2 GGA GGA GGA TOTAL Exp. Exp. X^2 X^2 X^2 CGG GGA GGA TOTAL Exp. Exp. Exp. Exp. Exp. Exp. Exp. Exp.	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 193.00 66.00 259.00 190.03 68.97 0.05 0.13 14.00 1.00 15.00 10.82	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A 0.00 1.00 0.73 0.27 0.10 0.27 0.10 0.27	1.00 N/A N/A N/A S.00 0.00 5.00 N/A N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25	N/A N/A N/A N/A O.00 0.00 0.00 N/A N/A N/A N/A N/A N/A A N/A N/A S C C C C C C C C C C C C C C C C C C	N/A N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 13.00 5.00 13.00 13.21 4.79 0.00 0.01 197.00 62.00 259.00 186.88	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00 353.00 0.65 1.34 241.00 93.00	N/A p-value N/A 0.914555051* p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. X^2 X^2 GGA GGGA GGGA GGGA GGGA GGGA GGGG GGGG GGGG GGGG GGGG TOTAL Exp. Exp. Exp.	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 193.00 66.00 259.00 190.03 68.97 0.05 0.13 14.00 1.00 15.00 10.82 4.18	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A 0.00 1.00 5.00 3.67 1.33 0.03 0.08 29.00 30.00 59.00 42.57 16.43	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 1.00 0.00 1.00 0.00 1.00 0.27 0.10 0.27 0.10 0.27 0.00 0.00 0.00 0.00 0.00 0.00 0.0	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25	N/A N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A A A 8.00 22.00 70.00 51.36 18.64 0.22 0.61 0.00 0.00 0.00 0.00 0.25 0.25	N/A N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A 13.00 5.00 13.21 4.79 0.00 0.01 197.00 62.00 259.00 186.88 72.12	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00 353.00 0.65 1.34 241.00 93.00 334.00	N/A p-value N/A p-value 0.914555051*
Exp. Exp. X^2 X^2 GAG GAG GAG TOTAL Exp. Exp. X^2 X^2 X^2 GGA GGA GGA TOTAL Exp. Exp. X^2 X^2 X^2 X^2 X^2 X^2 X^2 X^2 X^2 X^2	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 193.00 66.00 259.00 190.03 68.97 0.05 0.13 14.00 1.00 15.00 10.82 4.18 0.93	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A 0.00 1.00 5.00 3.67 1.33 0.03 0.08 29.00 30.00 59.00 30.00 59.00 42.57 16.43 4.33	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 0.27 0.10 0.27 0.10 0.27 0.10 0.27 0.25 0.25 0.25	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25	N/A N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A A A 8.00 22.00 70.00 51.36 18.64 0.22 0.61 0.00 0.00 0.00 0.00 0.25 0.25 0.25	N/A N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A 13.00 5.00 13.00 5.00 18.00 13.21 4.79 0.00 0.01 197.00 62.00 259.00 186.88 72.12 0.55	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00 353.00 0.65 1.34 241.00 93.00 334.00 6.41	N/A p-value N/A 0.914555051* p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. X^2 X^2 GGA GGGA GGGA GGGA GGGA GGGA GGGG GGGG GGGG GGGG GGGG TOTAL Exp. Exp. Exp.	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 193.00 66.00 259.00 190.03 68.97 0.05 0.13 14.00 1.00 15.00 10.82 4.18	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A 0.00 1.00 5.00 3.67 1.33 0.03 0.08 29.00 30.00 59.00 42.57 16.43	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 1.00 0.00 1.00 0.00 1.00 0.27 0.10 0.27 0.10 0.27 0.00 0.00 0.00 0.00 0.00 0.00 0.0	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25	N/A N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A A A 8.00 22.00 70.00 51.36 18.64 0.22 0.61 0.00 0.00 0.00 0.00 0.25 0.25	N/A N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A 13.00 5.00 13.21 4.79 0.00 0.01 197.00 62.00 259.00 186.88 72.12	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00 353.00 0.65 1.34 241.00 93.00 334.00	N/A p-value N/A 0.914555051* p-value
Exp. Exp. X^2 X^2 GAG GAG GAG TOTAL Exp. Exp. X^2 X^2 GGA GGA GGA GGA GGA TOTAL Exp. Exp. X^2 X^2 X^2 X^2 X^2 X^2 X^2 X^2	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 193.00 66.00 259.00 190.03 68.97 0.05 0.13 14.00 1.00 15.00 10.82 4.18 0.93 2.42	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 0.03 0.03 0.03 0.03 0.03 0.03 0.00 59.00 42.57 16.43 4.33 11.21	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 1.00 0.00 1.00 0.00 1.00 0.27 0.10 0.27 0.10 0.27 0.25 0.25 0.25 0.25	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 N/A N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 0.00 51.36 18.64 0.22 0.61 0.00 0.00 0.25 0.25 0.25 0.25	N/A N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A 13.00 5.00 18.00 13.21 4.79 0.00 13.21 4.79 0.00 13.21 4.79 0.00 0.01	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00 353.00 0.65 1.34 241.00 93.00 334.00 6.41 15.83	N/A p-value N/A 0.914555051* p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X^2 GGA GGA GGA GGA GGA TOTAL Exp. Exp. X^2 X^2 X^2 X^2 X^2 X^2 X^2 X^2	1.00 N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 193.00 66.00 259.00 190.03 68.97 0.05 0.13 0.13 14.00 1.00 15.00 10.82 4.18 0.93 2.42	0.00 N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 0.03 0.03 0.03 0.03 0.03 0.03 0.00 59.00 42.57 16.43 4.33 11.21 0.00	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 0.00 1.00 0.00 1.00 0.00 1.00 0.27 0.10 0.27 0.10 0.27 0.25 0.25 0.25 0.25	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 N/A N/A N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25	N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 0.00 51.36 18.64 0.22 0.61 0.00 0.00 0.25 0.25 0.25 0.25 2.00	N/A N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A 13.00 5.00 13.21 4.79 0.00 13.21 4.79 0.00 0.01 197.00 62.00 259.00 186.88 72.12 0.55 1.42	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00 353.00 0.65 1.34 241.00 93.00 334.00 334.00 6.41 15.83 2.00	N/A p-value N/A 0.914555051* p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X^2 GGA GGA GGA GGA TOTAL Exp. Exp. X^2 X^2 X^2 X^2 X^2 X^2 X^2 X^2 X^2 X^2	1.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A 193.00 66.00 259.00 190.03 68.97 0.05 0.13 	0.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A 29.00 30.00 59.00 42.57 16.43 4.33 11.21 0.00	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A 0.73 0.27 0.10 0.73 0.27 0.10 0.27 0.10 0.27 0.25 0.25 0.25 0.25	1.00 N/A N/A N/A S.00 0.00 5.00 N/A N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25	N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A N/A 0.00 0.00 51.36 18.64 0.22 0.61 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00	N/A N/A N/A N/A N/A O.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00 353.00 0.65 1.34 241.00 93.00 334.00 334.00 6.41 15.83 2.00 0.00	N/A p-value N/A 0.914555051* p-value
Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X^2 GGA GGA GGA GGA GGA TOTAL Exp. Exp. X^2 X^2 X^2 X^2 X^2 X^2 X^2 X^2	1.00 N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 193.00 66.00 259.00 190.03 68.97 0.05 0.13 0.13 14.00 1.00 15.00 10.82 4.18 0.93 2.42	0.00 N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 0.03 0.03 0.03 0.03 0.03 0.03 0.00 59.00 42.57 16.43 4.33 11.21 0.00	5.00 N/A N/A N/A N/A 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 0.00 1.00 0.00 1.00 0.00 1.00 0.27 0.10 0.27 0.10 0.27 0.25 0.25 0.25 0.25	1.00 N/A N/A N/A N/A 5.00 0.00 5.00 N/A N/A N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25	N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A 0.00 51.36 18.64 0.22 0.61 0.00 0.00 0.25 0.25 0.25 0.25 2.00	N/A N/A N/A N/A N/A 0.00 0.00 0.00 N/A N/A N/A N/A N/A 13.00 5.00 13.21 4.79 0.00 13.21 4.79 0.00 0.01 197.00 62.00 259.00 186.88 72.12 0.55 1.42	N/A N/A 5.00 0.00 5.00 N/A N/A 259.00 94.00 353.00 0.65 1.34 241.00 93.00 334.00 334.00 6.41 15.83 2.00	N/A p-value N/A 0.914555051* p-value

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Exp.	N/A	N/A	N/A	N/A	N/A	N/A		N/A
X^2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
X^2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
GGT	1.00	1.00	15.00	111.00	91.00	40.00	259.00	
GGT	0.00	0.00	2.00	41.00	21.00	39.00	103.00	
TOTAL	1.00	1.00	17.00	152.00	112.00	79.00	362.00	
Exp.	0.72	0.72	12.16	108.75	80.13	56.52		p-value
Exp.	0.28	0.28	4.84	43.25	31.87	22.48		0.000114644*
X^2	0.11	0.11	0.66	0.05	1.47	4.83	7.24	
X^2	0.28	0.28	1.66	0.12	3.71	12.14	18.20	
*Kolmogorov-Sn	nirnov test	performed	and	generally	consistent	with the	Chi	Square test.

Table B. The p-values for the comparison between Laboratory A and Laboratory B for each frame and each of the primers are provided. Any p-value < 7.8125E-4 (0.05/64) is considered statistically significant with an overall $\alpha = 0.05$ for that frame given the null hypothesis that the distribution of patterns is the same. All p-values exceeding 7.8125E-4 are black reversed; the null hypothesis is not rejected. All N/A correspond to no observations for that frame.

Frame A1 B1 C1 D1 AAA 0.80545483 0.801028367* 0.15527684 0.81154751 AAC 0.806126578 0.19948414* 0.37142707 0.211453945* ACC 3.28633E-05 0.066276528* 5.33378E-11 0.7214639442* ACC 0.305553277* 0.349682334 0.931511618* 0.931511618* ACG 0.335535277* 0.3496521* 0.667375479* 0.3444166* ATA 0.3051575* 0.3495753 0.3495753 0.344166* ATT 1.97146*-48 3.44426* 0.60735721*0* 0.349576345* ATG 0.60655719 0.616958144* 1.443221*0*7 0.3657592743* AGG 0.55752*07 0.646953144* 0.123574393* 0.5752576393* AGG 0.31141437* 3.3192*057 0.336759927* 0.3666398* AGG 0.33723169 N/A 0.1406395144* 0.172427395* AGG 0.33723169 N/A 0.3421644* 0.37247955749393* AGG 0.33723169			p-v;	alue	
AAC 0.00163344 0.83187729* 7.8597E-08 0.12143948* ACC 3.28633E-05 0.19648114* 0.37142707 0.34908234 0.21143948* ACC 3.28633E-05 0.04867752* 0.34908234 0.31511618* ACG 0.33516227* 0.34958344 0.1934146* 0.31511618* ATA 0.30815227* 0.34958244 0.1934146* 0.33512167 ATA 0.308156*0 0.78587344 0.193459763 ATC 0.00065719 0.0464995814* 1.43238*05* 0.785721*07* AGG 0.31141438* 3.13192E-05* 0.89759243* 0.63429201* 0.63429201* AGG 0.31141438* 3.13192E-05* 0.89759243* 0.63429207* 0.63429207* 0.63429207* CCAC 0.3273165 N/A 0.110437183 0.338145* 0.93861976* 0.39839572* 0.3124846* CCCC 0.632393655 0.24338555 0.29737574* 0.34218644* 0.93861976* CCAC 0.37273165 N/A 0.41043163 0.4249978* <th>Frame</th> <th>A1</th> <th></th> <th></th> <th>D1</th>	Frame	A1			D1
ACA 0.00024578 0.05074578 5.33786-11 0.787496425 ACT 0.000552211 0.0456757874 0.33786-11 0.787496425 ACG 0.000552211 0.04667175274 0.340980341 0.01146135 AAT 0.001045754 0.01146501 0.707583754 0.1385773 ATT 1.971946-48 3.444266-13 3.57022-22 2.284567-66 ATG 0.000655719 0.00031568 0.793574-99 0.00065476-76 ATG 0.02246363 0.0295740374 0.00031568 0.793574-76 0.020574027 AGG 0.0257528-07 0.040595144 1.44378-05 0.025954207 0.0257420314 AGG 0.057780438 0.79357844 0.0235740931 0.04269542047 0.04205742014 0.023274316 0.14637620207 AGG 0.0257803044 0.0123180445 0.38047721-14 0.031865336 0.0329574027 0.0318656338 AGC 0.0577804338 0.027731659 N/A 0.110433163 0.774273574 AGC 0.063573017 3.832916-05*	AAA	0.805545483	0.021028387*	0.15527684	0.041154751
ACC 3.286381-05 0.963672928* 5.383788-11 0.747496426 ACG 0.9055211 0.948671752* 0.34982834 0.915116185* ACG 0.33553227* 0.914056021* 0.66737479* 0.193439763 0.193439763 ATA 8.309512*06* 0.00213656 0.707587544 0.193439763 0.193439763 ATA 8.309512*06* 0.022346356 0.00239135* 1.183222*07 0.9469536314* ATG 0.00665719 0.44231848* 3.389542*09* 0.166653051* 1.46476E*06 AGG 9.9459243* 0.181568 0.795873844* 1.46476E*06 AGG 9.45722*07* 0.46693814* 1.44232*0*7* 0.24856539 AGC 0.95780438 0.8156628*0 0.921594465539 0.77424735* AGC 0.95780438 0.93144662** 0.81548719* 0.244565398* CCA 0.952336550* 0.921394450* 0.51158155 0.924845978* CCCC 0.90239914 0.7243937534 0.511545484446** 0.938661276** CCCC <t< td=""><td>AAC</td><td>0.001683344</td><td>0.853187729*</td><td>7.8697E-08</td><td>0.173902987*</td></t<>	AAC	0.001683344	0.853187729*	7.8697E-08	0.173902987*
ACT 0.040672732* 0.34962834 0.019536323* ACG 0.335363227* 0.14641466* AAT 0.01046754 0.0114691 0.6737547* 0.1345275* ATT 1.39312* 0.07583754 0.134527* 0.134327 ATT 1.971041* 3.44126* 1.3 3.7921*22 2.22 2.24552* 0.00030155 ATG 0.06665719 0.04053184* 1.44321** 0.359514* 1.44321** 0.369512** 0.77424735* AGG 0.057322*07* 0.04053184* 0.143324** 0.6465398** 0.567502** 0.93759917* 0.36759917* 0.366539** AGG 0.057449512** 0.0844652** 0.813677315** 0.93759917** 0.3134731** 0.9861926** CCA 0.837273167 3.23951*** 0.3134731** 0.9386337* 0.242483978* CCCA 0.0338536* 0.0932574** 0.3134731** 0.9386303** 0.312766** CCCC 0.00338536* 0.34218644* 0.34218644* 0.34218644* 0.34218644** 0.342186** <		0.000246578		0.37142707	0.211463948*
ACG 0.336535227* 0.914055621* 0.66737479* 0.193459763 ATA 0.00104574 0.00104574 0.193459763 0.193459763 ATA 1.308911-06 0.072346356 0.00039195* 1.133221-07 ATC 0.006634051* 0.1034558 0.793573844 1.443232-05* 0.00634051* ATG 0.0054205158 0.793578344 1.443232-05* 0.05574501* 0.46574514* AGG 0.94552421* 0.10155204* 0.0257459374* 0.74224735* AGG 0.95780438 0.793933444* 0.126331653 0.74242735* AGC 0.957230538 0.067445642* 0.81394761* 0.98861975* 0.98861975* AGC 0.957230538 0.067446642* 0.81394761* 0.98861975* 0.98861975* AGC 0.957230538 0.067446642* 0.81394761* 0.98861975* 0.98861975* AGC 0.96373017* 0.931844* 0.12618916* 0.93865976* 0.9218440* CCA 0.96373017* 0.931856* 0.92184449* 0.98861975*					
AAT 0.001045754 0.00146891 0.707583754 0.138322-07 ATA 8.30911-06 0.00231352 1.18322E-07 ATT 1.971041-48 3.44426-13 3.57021-22 2.23455E-06 ATG 0.0665719 0.01231843* 3.35954E-09 0.00030155E ATG 0.665719501* 0.04633144 1.43232E-07 0.5579501* AGA 0.934592443* 0.101552265* 0.63759302* 0.77424735* AGC 0.945930418 0.11555286* 0.63759301* 0.94655930* 0.77424735* AGC 0.947804438 0.12155286* 0.83759302* 0.90142421* 0.92656398* AGC 0.947804438 0.79293944* 0.178391345* 0.960142041* 0.98659951* 0.98619365* CAC 0.93720159 N/A 0.11243165* 0.9861936* 0.92014345* 0.92014241* CCA 0.903373017 2.433316208* 5.4338546* 0.9313445* 0.9213345* CCCC 0.90338556* 2.435316208* 0.543385* 0.21255677* 0.9316637* </td <td></td> <td></td> <td></td> <td></td> <td></td>					
ATA 8.389311-96 0.92336356 0.80939195* 1.183221-07 ATC 0.90965719 0.014231848* 3.389541-99* 0.80634051* ATG 0.90545719 0.014231848* 3.389541-99* 0.80634051* ATG 0.90545719 0.014231848* 3.389541-99* 0.774247395* AGG 0.9374391* 0.1315581 0.774247395* 0.774247395* AGG 0.9374391* 0.1315478 0.13157846* 0.13357892** 0.774247395* AGG 0.9374891* 0.1314457* 0.91855386* 0.887559927* 0.91855392* 0.774247395* AGG 0.9374931* 0.91865393* 0.91865393* 0.91865393* 0.91865393* CCA 0.83722169 N/A 0.110438165 0.4347219* 0.93885856* CCCC 0.60323817 2.33216** 0.932393** 0.5117516 0.93233554* 0.9323856** CCCC 0.603385656* 0.4323557** 0.33421864* 0.3363356** 0.236333556** CCCC 0.603385656* 0.61175165 0.8363					
ATT 1.97104E-48 3.44426E-13 3.3792E-22 2.28456E-06 ATG 0.000655719 0.010231568 0.798378346* 1.46476E-06 AGG 0.005752E-07 0.040631568 0.798378346* 1.46476E-06 AGG 0.05752E-07 0.0406395814* 0.144228-05* 0.57595021* 0.774247395* AGG 0.05752E-07 0.04456428* 0.023574993* 0.0774247395* 0.774247395* AGC 0.054398438 0.79933444* 0.174331345* 0.634626207* 0.93865976* CAC 0.38772167 3.2031E-05* 0.63465176* 0.93861976* 0.93861976* CAC 0.38772167 3.2031E-05* 0.341166440* 0.93861976* 0.91134450* 0.91134450* CCC 0.002338114 0.332351E-05* 0.6343252* 0.91134450* 0.9134467* CCCT 0.00833550* 0.323591E-05* 0.34116640* 0.9383552* 0.233255* CCCT 0.008336530* 5.24768E-66 0.5737E-66 0.233255* 0.12335442* 0.836348444444444444444444444444444444444					
ATC 0.000655719 0.014231848* 3.38354E-09* 0.000634051 ATG 0.057252E-07 0.04693814* 1.043728E-05* 0.02557393* 0.076773436* 1.045728E-05* 0.02557393* 0.75739344* 0.02557393* 0.7573937* 0.7573937* 0.7573937* 0.77472735* AGC 0.93573937* 0.918556398* 0.77472735* 0.02573937* 0.918556398* AGC 0.311414287* 0.002445644* 0.017331315* 0.918656398* CAC 0.387273169 N/A 0.0174351315* 0.91865297* 0.938613255* CAC 0.387273169 N/A 0.0128316* 0.93861325* 0.93861325* CCC 0.002283114 0.22332574* 0.34218648* 0.938660956* 0.22332574* 0.5733316* 0.9123355* CCG 0.002283144* 0.02129742* 1.255076*08 0.93856633* 0.9335566* 0.2432507* 0.938563337* CCG 0.003335636* 5.24768*06 1.376356* 0.6173165* 0.8434444* 0.8383533* 0.83835353* CCG <					
ATC 0.624653924* 0.00031568 0.749578146* 1.44231E-05* 0.5675601* AGA 0.994592443* 0.181552265* 0.629574993* 0.977427395* AGC 0.91751212* 0.9175121* 0.91751391335* 0.917656391* 0.774247395* AGC 0.057360438 0.79939444* 0.17391335* 0.63465020* 0.917656539* AGC 0.057360438 0.907445644* 6.346772=14* 0.63465020* 0.93851255* CAA 0.55333655 0.0007445644* 6.346772=14* 0.806142041* 0.938681235* CCCA 0.002539114 0.227932574* 0.347186048* 0.923355* 0.0203355* CCCT 0.00838355* 2.47681±06 1.573375±06 0.933355* 0.0233355* CCCT 0.00838563* 0.162783656* 0.16319874 0.063337* 0.634244451* CTT 0.00831689* 0.0110402* 1.376162* 0.63431635* 0.2332253* CTT 0.00831689* 0.162783656* 0.162319874 0.063434444 CTT 0.00831689* <td></td> <td></td> <td></td> <td></td> <td></td>					
AAG 9.05752E-07 0.04693814* 1.4423E-05* 0.5776901* AGC 0.31414287* 0.12155286* 0.029574903* 0.57769027* 0.918556398* AGC 0.31414287* 0.179939444* 0.177391345* 0.6346207* 0.918556398* AGT 1.05449E-12* 0.0007455444* 0.1789391444* 0.6346727*14* 0.808412041* CAC 0.387273169 N/A 0.11048163 0.42485978* CCC 0.002289114 0.229232574* 0.342185648* 0.9860966* CCT 0.00238154 0.3129742* 1.25507E-06 0.23325534* CTT 0.003355364* 5.4338-05 0.0175165 0.8335534* CTT 0.00335536* 5.24768E-06 1.37616E-10 5.83328-533* CTG 0.003356534* 0.12783656* 0.16319874 0.063484446* CGG 0.32748018* 0.012783656* 0.16319874 0.063484446* CTT 0.08335634* 0.12783656* 0.16319874 0.063484446* CTG 0.228448138* 0.02177778778					
AGA 0.994592443* 0.121552265* 0.02374993* 0.774247395* AGC 0.131414387* 0.179939444* 0.8759907* 0.774247395* AGC 0.057480438 0.79939444* 0.8759907* 0.974565398* AGC 1.054495*12* 0.007445644* 0.813047719* 0.980612265* CAA 0.538233355 0.00844652* 0.813047719* 0.986819265* CCA 0.002539114 0.287932574* 0.31947719* 0.986819265* CCC 0.00233116*08* 0.287932574* 0.342186048* 0.913355* CCC 0.00838377 2.433511*08* 0.61175165 0.0233355* CCCT 0.008385636* 2.27685* 0.3127808 0.83374 CTT 0.008316697* 0.06119402* 1.375165* 0.0633374 CTG 0.21448328* 0.1573856* 0.1623109874 0.63434444 CTG 0.21448328* 0.1573865* 0.1623109874 0.834384444 CGC 3.4278818* 0.1573865* 0.1663139874 0.834344446					
AGG 0.311414387* 3.13192E-05* 0.87590407* 0.9186539* AGT 1.05449E-12* 0.0007445644* 6.173891345* 0.800142641* CAA 0.582330595 0.0007445644* 6.34677E-14* 0.800142641* CAC 0.387273169 N/A 0.110483163 0.92485978* CCC 0.002392114 0.827932574* 0.34218604* 0.938609265* CCC 0.0033875017 2.43351E-08* 0.54331E-05 0.0219337* CCC 0.00338573017 2.43351E-08* 0.54331E-05* 0.02103337* CCC 0.00338573017 2.43351E-08* 0.54331E-05* 0.02108337* CCT 0.00338573017 2.43351E-08* 0.54331E-05* 0.02108337* CCT 0.00338503* 0.03129742* 1.25507E-08 0.93360337* CTT 0.00338503* 0.03129742* 1.37618E+10					
AGC 0.6345812.3* 0.79933444* 0.73831345* 0.63462027* AGT 1.95449E-12* 0.008446692* 0.813047819* 0.88619265* CAC 0.38273169 N/A 0.110483163 0.42485978* CCA 0.008353017 3.82091E-05 8.093999E-12 0.921384507* CCC 0.003353017 0.237332574* 0.34218648* 0.96680966* CCT 0.00838657 2.43331E-08* 5.54331E-05* 0.023329534* CCT 0.00838653* 5.24768E-06 1.57037E-06 0.93329534* CTA 0.063383636* 5.43316* 0.263329534* 0.663484445* CTG 0.22844451* 0.162783655* 0.163109874 0.663484445* CGG 0.3361694 0.7346154 0.83781593* 0.83781593* 0.853981633* CGG 0.336215* 0.17764505* 0.13109874 0.863484445* 0.87986337* CGG 0.336216* 0.74943178* 0.803981593* 0.806315967* 0.86598661* CGG 0.336251* 0.7273907					
AGT 1.0549E-12* 0.007445644* C.34677E-14* 0.800142041* CAA 0.53230535 0.008446692* 0.813047315* 0.9801276* CCA 0.037723169 N/A 0.110483163 0.42485978* CCC 0.002298114 0.227932574* 0.3218604* 0.921384507* CCC 0.002398175 2.43351E-08* 5.5433E-05 0.021033552* CCC 0.003385636* 5.2.4768E-08 0.9326604* 0.9336537* CTA 0.003385636* 5.2.4768E-06 0.2326534* 0.63129742* 1.25507E-08 0.93360337* CTG 0.12418325* 0.0531141* 0.25647062* 3.5633134* 0.332856* 0.153199740 0.6633484444* CGG 5.3338E-05* N/A 0.16278365* 0.16319974 0.65348762* 3.5562E-15* 0.85044487* CGG 5.3538E-05* N/A 0.16319974* 3.83586E-15* 0.85044487* CGG 5.3538E-05* N/A 0.4031867303* 0.80015957* 0.85044487* CGG 5.3538E-05*					
CAA 0.52330595 0.080446622* 0.13047819* 0.288612265* CA 0.387273169 N/A 0.110483163 0.42455978 CCA 0.0837273167 3.8291E-05 8.09898E-12 0.28455978 CCC 0.08239314 0.287932574* 0.3421864816* 0.98680968* CCT 0.0883857 2.43351E-08* 5.5433E-05* 0.80133552* CAT 1.25314E-07 0.06312974* 0.51175165* 0.083579661* CTT 0.060385637* 5.24768E-06 1.57037E-06 0.33229534* CTT 0.060318507* 0.061110402* 0.16310974* 0.063184762** 3.65232E-05* CTG 0.124438325* 0.05361141* 0.79481545 0.254238505* 0.1242809021* 0.093918037* 0.63144445* CGG 0.53629E-05* N/A 0.42590921* 0.003310072 0.297165881 CGG 0.53629E-10* N/A 0.457782718 0.85380772* CGG 0.53629E-10* 0.297752907 0.003110473 0.96389772* 0.901298445*					
CAC 0.38272169 N/A 0.116483163 0.424859278* CCA 0.603573017 3.82091E-05 8.06995E-12 0.921384507* CCC 0.608383757 2.43351E-08* 5.5433E-05 0.021033552* CCG 0.608383757 2.43551E-08* 5.5433E-05 0.021033552* CCA 0.608383756* 5.24768E-06 1.57037E-06 0.93836333* CTA 0.003385636* 5.24768E-06 1.57037E-06 0.93836333* CTG 0.220444513* 0.65381414* 0.663184446* 0.763837* 0.663184446* CTG 0.220444513* 0.053631141* 0.626347062* 3.58232E-06* 0.7414290927* 0.79451503* 0.85798733* CGG 0.53538E-05* N/A 0.127782718 0.85798733* 0.85798733* CGT 0.363479383* 0.0139454* 3.8958E=15* 0.85798733* CGG 0.5338E-05* N/A 0.497782718 0.9639872* CGG 0.363429172* 0.98798733* 0.9639872* 0.98798733* CGG					
CCA 0.003373017 3.2091E-05 8.0939E-12 0.921384507* CCC 0.002298114 0.287932574* 0.343166048* 0.968800968* CCT 0.008383757 2.13351E-08* 5.5433E-05 0.021033552* CCG 0.00832652* 0.001129742* 1.25507E-08 0.93360337* CTA 0.00832656* 5.24768E-06 1.57037E-06 0.20332953* CTT 0.00891687* 0.001110402* 1.37616E-10 5.0813E-06* CTG 0.220444513* 0.162783656* 0.163109874 0.063484445* CTG 0.220444513* 0.162783656* 0.163109874 0.376661* CGG 0.332789133* 0.0139454* 0.3856E-15* 0.850444487* CGG 0.336292E-06* N/A 0.457782718 0.85748373* CGT 3.63629E-66* N/A 0.40032216* 0.903316972 0.39536131* CGC 5.33381-05* N/A 0.437782718 0.85794373* CGT 3.63629E-10* 0.297752907 0.00314072 0.39536157* <td></td> <td></td> <td></td> <td></td> <td></td>					
CCC 0.002298114 0.287392574* 0.34218604** 0.98680956* CCT 0.06883757 2.43351E-08* 5.5433E-05* 0.0113552* CCG 0.04083662 0.992933* 0.61175165 0.0835756661* CAT 1.25314E-07 0.003128742* 1.25507E-08 0.98369337* CTT 0.09338556* 5.24768E-06 1.57037E-06 0.203329534* CTT 0.093385650* 5.24768E-06 0.15109874 0.063434446* CTG 0.220444513* 0.162783656* 0.16109874 0.63344445* CAG 0.312788018* 0.078162* 0.79481545 0.25423856* CAG 0.32788018* 0.00134944* 3.89586=15* 0.85798733* CGG 5.3338E-05* N/A 0.497782718 0.85798733* CGT 0.36328659 1.56691-05 0.001140743 0.96539874* TAA 5.9338E-05* N/A 0.497782718 0.85798733* CGG 0.727390027* 2.93957E-08* 0.9638977* TAA 5.9638E-10*					
CCT 0.008383757 2.43351E-08* 5.5433E-05 0.021033552 CCG 0.008383757 2.43351E-08* 0.61175165 0.08576601* CAT 1.25314E-07 0.003129742* 1.25307E-08 0.98360337* CTA 0.00831687* 0.00110402* 1.77037E-06 0.20329534* CTT 0.00831687* 0.00110402* 1.75037E-06 0.20329534* CTG 0.21418325* 0.05331141* 0.62347662* 3.58232E-06* CAG 0.7418325* 0.053361141* 0.6324762* 3.58232E-06* CGG 0.630549333* 0.013454* 3.89586E-15* 0.85044447* CGG 0.630549333* 0.013454* 3.89586E-15* 0.85744478778 CGG 0.633505E-10* 0.7249407785* 0.000312016* 0.909155957* TAA 5.93505E-10* 0.27752907 0.00310072 0.297105881 TAC 0.1538659 1.56375E-08* 0.96389772* TCA 8.99632E-15 0.277279002* 2.93572E-08* 0.96389772* TCA					
CCG 0.94935933* 0.61175165 0.985796601* CAT 1.25314E=07 0.003129742* 1.25507E=08 0.98360337* CTA 0.093385036* 5.24768E=06 1.57037E=06 0.20329534* CTT 0.098316897* 0.001110402* 1.37616E=10 5.0813E=06* CTG 0.220444513* 0.162783656* 0.163109874 0.063184446* CTG 0.220444513* 0.162783656* 0.163109874 0.063381503* 0.063381503* CGG 0.312788018* 0.781062* 0.26342165* 0.85794765* 0.85794737* CGG 0.53538E=05* N/A 0.427782718 0.857948737* 0.85794737* CGT 3.63629E=06* 0.729739027* 2.9357E=08* 0.96339772* 0.96339772* TAC 0.172686422 1.5669E=05* 0.001140743 0.96398964* TCC 0.172686422 1.52326E=10* 0.96338772* 0.96338772* TCC 0.172686422 1.27372E=05* 2.12592E=17 0.963386711 TAC 0.9098376* 0.90923					
CAT 1.25314E-07 0.0033129742* 1.25507E-08 0.98360337* CTA 0.003385636* 5.24768E-06 1.57037E-06 0.203329534* CTT 0.008316897* 0.001110402* 1.37616E-10 5.0813E-06* CTG 0.22444513* 0.162783656* 0.163109874 0.063484446* CTG 0.244183785* 0.0536311414* 0.6253470674* 3.58232E-06* CAG 0.312788018* 0.06139454* 3.89386E-15* 0.850444487* CGG 0.636363933* 0.817065519* 0.850444447* 0.85967* CGG 0.636363932* 0.93951657* 0.850444447* 0.85938737* CGC 5.5338E-05* N/A 0.49372718 0.86039567* TAA 5.3538E-10* 0.297752907 0.003310072 0.9395772* TCC 0.13266462 1.68345E-06* 7.64322E-17 0.96639772* TCG 2.5424E-08* N/A 0.736080848* 0.9639772* TCG 0.544476* 0.00232039 0.000666125* 0.9639772* <					
CTA 0.003335636* 5.24768E-06 1.57037E-06 0.203329534* CTT 0.00816897* 0.001110402* 1.37616E-10 5.0813E-06* CTC 0.220444513* 0.15278356* 0.163109874 0.063484444* CTG 0.212780818* 0.053631141* 0.626347062* 3.58232E-06* CGG 0.312780818* 0.0781062* 0.399185033* 0.81706519* CGG 0.63644446* 0.142909021* 0.039815033* 0.81706519* CGG 0.53538E-05* N/A 0.457782718 0.857987337* CGT 3.63629E-10* 0.29772590027* 2.03357E-08* 0.096389772* TAA 5.33536E-10* 0.29775290027* 2.93357E-08* 0.966389772* TCC 0.172686462 1.5669E-05* 0.601140743 0.96698964* TCC 0.176666442 0.83456179* 0.6383772* TCC 0.1767686422 1.5691E-09* 3.80678E-10* 0.6383179* TCC 0.19766664227* 1.2337605 0.6023226E-17* 0.64387078* TT					
CTT 0.008916897* 0.001110402* 1.37616E-10 S.0813E-06* CTG 0.220444513* 0.162783656* 0.163109874 0.063484446* CTG 0.214183285* 0.053631141* 0.626347062* 3.58232E-06* CCGA N/A 0.142909021* 0.033815033* 0.837965195 0.254238506* CGG 0.630549383* 0.00139454* 3.89586E-15* 0.850444487* CGC 5.53338E-05* N/A 0.4457782718 0.857987337* CGT 3.63629E-06* 0.72439027* 0.00032216* 0.0859872* TAA 5.93505E-10* 0.727390627* 2.93957E-08* 0.96699864* TCC 0.172686462 1.5669E-05* 0.00114073 0.96699864* TCG 2.5424E-08* N/A 0.736008048* 0.836821379* TTA 2.71471E-11 3.07764E-05 1.5565E-17 2.03963E-11 TTA 0.96648267* 1.2737E-05* 2.12592E-37 0.04470703* TTG 0.96648267* 1.2737E-05* 2.12592E-37 0.04728874*					
CTC 0.220444513* 0.162783656* 0.163109874 0.063484446* CTG 0.214183285* 0.053631141* 0.626347062* 3.58232E+06* CGG 0.312788018* 0.0129921* 0.039815033* 0.81706519* CGG 0.63549383* 0.00139454* 3.89586E+15* 0.850444487* CGC 5.53338E+05* N/A 0.457782718 0.85798737* CGC 5.63538E+05* N/A 0.457782718 0.8598737* CGT 3.63629E+06* 0.749491785* 0.000310216* 0.000155967* TTAA 5.9353865E-10* 0.277390027* 2.93957E-08* 0.96389772* TCC 0.172586462 1.56345E-06* 7.64322E-17 0.044870703* TCC 0.908547618* 0.00299369* 3.80678E-10 1.50691E-09* TCC 0.948547618* 0.00232037433 0.21726754 TTA 4.08815E-07 0.08237003* 0.02072433 0.21726754 TTA 4.06815E-07 0.082377063* 0.29072433 0.21726754 TTG					
CTG 0.214183285* 0.053631141* 0.62637962* 3.58232E-06* CAG 0.312788018* 0.781062* 0.79481545 0.254238506* CGA N/A 0.142909021* 0.039815033* 0.81545 0.85044447* CGG 5.53538E-05* N/A 0.457782718 0.85044447* 0.850787337* CGT 3.63629E-06* 0.749491785* 0.000302216* 0.000155967* TAA 5.93538E-05* 0.297752907 0.00314072 0.297105881 TCC 0.0172686359 1.5669E-05 0.001140743 0.96389772* TCC 0.172686462 1.63345E-06* 7.64322E-17 0.044870703* TCT 0.96387618* 0.0229369* 3.86678E-10 1.56691E-09* TAT 2.7471E-11 3.07764E-05 1.52526E-17 2.03963E-11 TTA 4.08435E-07 0.00232039 0.002072433 0.291726754 TTC 0.96648457* 1.2737E-05* 2.12592E-36 0.074728074* TTA 2.0948627* 0.002320399 0.000666125*					
CAG 0.312788018* 0.781062* 0.79481545 0.25428506* CGA N/A 0.142909021* 0.039815033* 0.817066519* CGG 0.630549383* 0.00139454* 3.89586E-15* 0.85798737* CGC 5.53538E-05* N/A 0.427782718 0.85798737* CGT 3.63629E-06* 0.749491785* 0.000310072 0.297105881 TAA 5.93505E-10* 0.297752907 0.003310072 0.297105881 TCC 0.172806452 1.68345E-06* 0.00140748 0.96389772* TCC 0.172686462 1.68345E-06* 0.0014078E-10 0.96389772* TCC 0.172686462 1.68335E-06* 0.735088048* 0.83621379* TAT 2.71471E-11 3.07764E-05 1.52526E-17 2.03963E-11 TTA 4.08815E-07 0.082337003 0.02072433 0.297126754 TTG 0.966048267* 1.2737E-05* 2.12592E-27 0.047191801* TTG 0.971437339* 0.002322039 0.00666125* 0.02446119* <					
CGA N/A 0.142909021* 0.039315033* 0.817066519* CGG 0.53538E-05* 0.00139454* 3.8958E-15* 0.850444487* CGC 5.53538E-05* N/A 0.457782718 0.857987337* CGT 3.63629E-06* 0.749491785* 0.000302216* 0.0001140743 0.96598954* TAA 5.93538E-05* 0.297752907 0.00310072 0.297105881 TCC 0.172686462 1.68345E-06* 7.64332E-17 0.044870703* TCC 0.172686462 1.68345E-06* 7.64322E-17 0.044870703* TCC 0.172686462 1.68345E-06* 7.64322E-17 0.044870703* TCG 2.5424E-08* N/A 0.736008048* 0.836811379* TAT 2.71471E-11 3.07764E-05 1.52526-17 2.03963E-11 TTA 4.08315E-07 0.082337003 0.22027243 0.291726754 TTT 8.64189E-46* 0.000881087* 2.15292E-27 0.0447191801* TTG 0.9766048267* 1.2737E-05* 2.12592E-27 0.002146119* <td></td> <td></td> <td></td> <td></td> <td></td>					
CGC 5.53538E-05* N/A 0.457782718 0.857987337* CGT 3.63629E-06* 0.749491785* 0.600302216* 0.297105881 TAA 5.93508E-10* 0.2977952907 0.003310072 0.297105881 TAC 0.015386859 1.5669E-05 0.001140743 0.966998964* TCA 8.99632E-15 0.727390027* 2.93957E-08* 0.964389772* TCC 0.12686452 1.68345E-06* 7.64322E-17 0.044870703* TCG 2.5424E-08* N/A 0.753608048* 0.86821379* TAT 2.141E-11 3.07764E-05 1.52526E-17 2.03963E-11 TTA 4.08815E-07 0.082337003 0.20072433 0.291726754 TTC 0.96648267* 1.2737E-05* 0.047121801* TGG 0.71437393* 0.002322039 0.000666125* 0.047121801* TGG 0.377102578* 0.108353468* 0.80933875* 0.999233686* TGG 0.10371514* 2.17339E-06 5.88995E-05* 0.43286546* TGG 0.9		N/A			
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TAA 5.93505E-10* 0.297752907 0.001310072 0.297105881 TAC 0.015386839 1.5669E-05 0.001140743 0.96592864* TCA 8.99632E-15 0.727390027* 2.93957E-08* 0.96592864* TCC 0.172686462 1.68345E-06* 7.64322E-17 0.044870703* TCT 0.98547618* 0.0029363* 3.80678E-10 1.50691E-09* TCG 2.5424E-08* N/A 0.73608048* 0.83621379* TAT 2.71471E-11 3.07764E-05 1.52526E-17 2.03963E-11 TTA 4.08815E-07 0.082337003 0.020072433 0.291726754 TTC 0.966048267* 1.2737E-05* 2.12592E-27 0.047191801* TTG 0.071437393* 0.002322039 0.000059875* 0.9923368* TGG 0.377102578* 0.108351468* 0.690499151* 0.192119423* TGG 0.377102578* 0.061483282 0.62181951* 0.234658592* GCA 0.987543905* 0.061483282 0.62181951* 0.2345655946*	CGC	5.53538E-05*	N/A		0.857987337*
TAC 0.015386859 1.5669E-05 0.001140743 0.966998964* TCA 8.99632E-15 0.727390027* 2.33957E-08* 0.9638972* TCC 0.172686462 1.68345E-06* 7.64322E-17 0.044870703* TCG 2.5424E-08* N/A 0.736008048* 0.836821379* TAT 2.71471E-11 3.07764E-05 1.52526E-17 2.03963E-11 TTA 4.08815E-07 0.082337003 0.020072433 0.074728074* TTC 0.966048267* 1.2737E-05* 2.12592E-27 0.047191801* TGG 0.377102578* 0.108353468* 0.00038975* 0.999233686* TGG 0.377102578* 0.108353468* 0.000398975* 0.999233686* TGG 0.322424272* 0.087144226 0.099409151* 0.12119423* TGG 0.395318* 0.264539721* 0.89958602* 0.990734443* GAA 0.504545459 0.236261123 0.3898923 0.242388731 GCC 0.99971899* 0.008431232 0.411397128* 0.990734443* GCA 0.55054645* 0.211557491 0.637831307	CGT	3.63629E-06*	0.749491785*	0.000302216*	0.000155967*
TCA 8.99632E-15 0.727390027* 2.93957E-08* 0.96389772* TCC 0.172686462 1.63345E-06* 7.64322E-17 0.044870703* TCT 0.908547618* 0.0029369* 3.80678E-10 1.50691E-09* TCG 2.5424E-08* N/A 0.736008048* 0.836821379* TAT 2.71471E-11 3.07764E-05 1.52526E-17 2.03963E-11 TTA 4.08815E-07 0.082337003 0.020072433 0.291726754 TTT 8.64189E-46* 0.00081087* 2.50269E-36 0.074728074* TTG 0.966048267* 1.2737E-05* 2.12592E-27 0.047191801* TGG 0.37102578* 0.108353468* 0.000389375* 0.99923366* TGG 0.37142578* 0.087144226 0.099409151* 0.192119423* TGC 0.987543905* 0.001843282 0.62181951* 0.234658522* TGT 0.39630721* 1.89014E-06 0.0155385* 3.8237E-06* GAA 0.016353318* 0.264539721* 0.00057767* 0.999734443* <	TAA	5.93505E-10*	0.297752907	0.003310072	0.297105881
TCC 0.172686462 1.68345E-06* 7.64322E-17 0.044870703* TCT 0.908547613* 0.00299369* 3.80678E-10 1.50691E-09* TCG 2.5424E-08* N/A 0.73608048* 0.83621379* TAT 2.71471E-11 3.07764E-05 1.52526E-17 2.03963E-11 TTA 4.08815E-07 0.082337003 0.020072433 0.291726754 TTC 0.96604267* 1.2737E-05* 2.12592E-27 0.047191801* TTG 0.071437393* 0.002322039 0.0006666125* 0.092146119* TGG 0.377102578* 0.108353468* 0.009398975* 0.999233668* TGG 0.010371514* 2.17339E-06 5.88995E-05* 0.435826546* TGC 0.987543905* 0.001843282 0.62181951* 0.234658592* TGT 0.399630721* 1.89014E-06 0.010553318* 3.82337E-06* GAA 0.504545459 0.236261123 0.0855986024* 0.99986273* GCC 0.09146875* N/A 0.128223065 0.35637003*	TAC	0.015386859	1.5669E-05	0.001140743	0.966998964*
TCT 0.908547618* 0.00299369* 3.80678E-10 1.50691E-09* TCG 2.5424E-08* N/A 0.736008048* 0.836821379* TAT 2.71471E-11 3.07764E-05 1.52526E-17 2.03963E-11 TTA 4.08815E-07 0.082337003 0.20072433 0.291726754 TTT 8.64189E-46* 0.000881087* 2.50269E-36 0.074728074* TTG 0.966048267* 1.2737E-05* 2.12592E-27 0.047191801* TAG 0.322424272* 0.087144226 0.000338975* 0.999233686* TGG 0.10371514* 2.17339E-06 5.88995E-05* 0.435826546* TGC 0.987543905* 0.0015533318* 0.264539721* 0.800577676* 0.999734443* GAA 0.015633318* 0.264539721* 0.1085534604* 0.9998273603* 0.24238731 GCC 0.09146875* N/A 0.128223065 0.35637003* 0.242388731 GCC 0.09148875* N/A 0.18223465 0.3637003* 0.60713257491 0.6073831307 GCC </td <td>TCA</td> <td>8.99632E-15</td> <td>0.727390027*</td> <td>2.93957E-08*</td> <td>0.96389772*</td>	TCA	8.99632E-15	0.727390027*	2.93957E-08*	0.96389772*
TCG 2.5424E-08* N/A 0.736008048* 0.836821379* TAT 2.71471E-11 3.07764E-05 1.52526E-17 2.03963E-11 TTA 4.08815E-07 0.082337003 0.020072433 0.291726754 TTT 8.664189E-46* 0.000881087* 2.50269E-36 0.074728074* TTG 0.966048267* 1.2737E-05* 2.12592E-27 0.047191801* TTG 0.071437393* 0.002322039 0.000666125* 0.002146119* TAG 0.377102578* 0.108353468* 0.099409151* 0.192119423* TGG 0.377102578* 0.087144226 0.099409151* 0.192119423* TGG 0.987543905* 0.001843282 0.62181951* 0.234658592* TGT 0.399630721* 1.89014E-06 0.01555385* 3.82337E-06* GAA 0.615633318* 0.264539721* 0.000577676* 0.990734443* GAC 0.89124216* 0.036105683* 0.835986024* 0.9986273* GCA 0.50454545459 0.216261123 0.43757491 0.637831307 </td <td></td> <td></td> <td></td> <td></td> <td></td>					
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TTC0.966048267*1.2737E-05*2.12592E-270.047191801*TTG0.071437393*0.0023220390.000666125*0.002146119*TAG0.377102578*0.108353468*0.000398975*0.999233686*TGA0.322424272*0.0871442260.099409151*0.192119423*TGG0.010371514*2.17339E-065.88995E-05*0.435826546*TGC0.987543905*0.0018432820.62181951*0.234658592*TGT0.399630721*1.89014E-060.01555385*3.82337E-06*GAA0.015633318*0.264539721*0.0000577676*0.999734443*GAC0.859124216*0.036105683*0.855986024*0.99986273*GCC0.009146875*N/A0.1282230650.35637003*GCT0.021404569*0.0116187320.4072214293.46422E-10GCGN/A0.255054645*0.2115574910.637831307GAT0.985301073*0.0084312320.411397128*0.000158686*GTT0.99971899*0.0802872380.00187769*1.43503E-11GTC9.78592E-09*0.000734651*0.416546495*0.000158686*GTGN/A0.0081757234.60639E-05*0.001591149*GAGN/A0.00122539*3.30067E-09*0.104400885*GGCN/A0.00192539*3.30067E-09*0.104400885*GGCN/A0.0031929331.44908E-050.00248417*GGGN/A0.00249555*1.0224596561*0.0246417*GGCN/A <t< td=""><td></td><td></td><td></td><td></td><td></td></t<>					
TTG0.071437393*0.0023220390.000666125*0.002146119*TAG0.377102578*0.108353468*0.000398975*0.999233686*TGA0.322424272*0.0871442260.099409151*0.192119423*TGG0.010371514*2.17339E-065.88995E-05*0.435826546*TGC0.987543905*0.0018432820.62181951*0.234658592*TGT0.399630721*1.89014E-060.01555385*3.82337E-06*GAA0.015633318*0.264539721*0.0000577676*0.999734443*GAC0.859124216*0.036105683*0.855986024*0.99986273*GCA0.05145454590.2362611230.389899230.242388731GCC0.00116187320.4072214293.46422E-10GCGN/A0.1282230650.35637003*GCT0.99971899*0.00084312320.411397128*0.007719256*GTA0.193883130.0096897781.7453E-230.000158686*GTC9.78592E-09*0.000734651*0.416546495*0.0001582864*GAGN/A0.001022539*3.30067E-09*0.104400885*GGA0.914555051*0.0031929331.44908E-050.00248417*GGCN/A0.0031929331.44908E-05*0.00248417*GGCN/A0.00279675*0.224596561*0.816549782*0.00248417*GGCN/A0.062701476*0.17480285*2.51252E-05GGT0.000114644*0.2039932880.180395055*1.02674E-10					
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GGT 0.000114644* 0.203993288 0.180395055* 1.02674E-10					
					1.02674E-10

*Kolmogorov-Smirnov test performed and generally consistent with the Chi Square test.

Appendix IV — Comparison of Frames to Different Primers

The following table is an example of the processed data using the bioinformatics tools to statistically evaluate each of the 64 frames using a 2 x 6 Chi Square analysis comparing the results from data from different primers produced in the same laboratory. These results demonstrate that the pattern distributions obtained from the different primers are not equivalent. Comparisons were made between Primers A1 and C1; Primers B1 and D1; and Primers A1 and B1.

	A	В	С	D	E	F	TOTAL	
AAA	71.00	31.00	76.00	0.00	58.00	29.00	265.00	
AAA	31.00	5.00	94.00	2.00	21.00	25.00	178.00	
TOTAL	102.00	36.00	170.00	2.00	79.00	54.00	443.00	
Exp.	61.02	21.53	101.69	1.20	47.26	32.30		p-value
Exp.	40.98	14.47	68.31	0.80	31.74	21.70		1.20022E-07
X^2	1.63	4.16	6.49	1.20	2.44	0.34	16.26	
X^2	2.43	6.19	9.66	1.78	3.64	0.50	24.21	
AAC	92.00	74.00	152.00	15.00	76.00	11.00	420.00	
AAC	116.00	1.00	26.00	0.00	87.00	4.00	234.00	
TOTAL	208.00	75.00	178.00	15.00	163.00	15.00	654.00	
Exp.	133.58	48.17	114.31	9.63	104.68	9.63		p-value
Exp.	74.42	26.83	63.69	5.37	58.32	5.37		1.40989E-28
X^2	12.94	13.86	12.43	2.99	7.86	0.19	50.27	
X^2	23.23	24.87	22.30	5.37	14.10	0.35	90.22	
								•
ACA	87.00	134.00	114.00	131.00	8.00	55.00	529.00	
ACA	31.00	166.00	1.00	122.00	32.00	27.00	379.00	
TOTAL	118.00	300.00	115.00	253.00	40.00	82.00	908.00	
Exp.	68.75	174.78	67.00	147.40	23.30	47.77		p-value
Exp.	49.25	125.22	48.00	105.60	16.70	34.23		2.00702E-29
X^2	4.85	9.51	32.97	1.82	10.05	1.09	60.30	
X^2	6.76	13.28	46.02	2.55	14.03	1.53	84.17	
								-
ACC	126.00	142.00	153.00	81.00	128.00	77.00	707.00	
ACC	77.00	41.00	13.00	28.00	8.00	34.00	201.00	
TOTAL	203.00	183.00	166.00	109.00	136.00	111.00	908.00	
Exp.	158.06	142.49	129.25	84.87	105.89	86.43		p-value
Exp.	44.94	40.51	36.75	24.13	30.11	24.57		7.72392E-15
X^2	6.50	0.00	4.36	0.18	4.61	1.03	16.69	
X^2	22.88	0.01	15.35	0.62	16.23	3.62	58.7 0	
ACT	172.00	26.00	8.00	37.00	42.00	0.00	285.00	
ACT	13.00	14.00	18.00	49.00	0.00	4.00	98.00	
TOTAL	185.00	40.00	26.00	86.00	42.00	4.00	383.00	
Exp.	137.66	29.77	19.35	63.99	31.25	2.98		p-value
Exp.	47.34	10.23	6.65	22.01	10.75	1.02		9.3124E-27
X^2	8.56	0.48	6.66	11.39	3.70	2.98	33.75	
X^2	24.91	1.38	19.35	33.12	10.75	8.66	98.17	
ACG	1.00	40.00	0.00	0.00	0.00	0.00	41.00	
ACG	0.00	1.00	0.00	60.00	0.00	27.00	88.00	
TOTAL	1.00	41.00	0.00	60.00	0.00	27.00	129.00	
Exp.	0.32	13.03	0.25	19.07	0.25	8.58		p-value
Exp.	0.68	27.97	0.25	40.93	0.25	18.42		3.4923E-25*
X^2	1.46	55.82	0.25	19.07	0.25	8.58	85.43	
X^2	0.68	26.00	0.25	8.88	0.25	4.00	40.07	
AAT	5.00	42.00	46.00	31.00	54.00	16.00	194.00	
AAT	8.00	40.00	2.00	32.00	81.00	140.00	303.00	

Table A. 2 x 6 Chi-square analysis comparing the results from Primer A1 to Primer C1.

TOTAL	13.00	82.00	48.00	63.00	135.00	156.00	497.00	1
							497.00	
Exp.	5.07	32.01	18.74	24.59	52.70	60.89		p-value
Exp.	7.93	49.99	29.26	38.41	82.30	95.11		9.02911E-26
X^2	0.00	3.12	39.67	1.67	0.03	33.10	77.59	
X^2	0.00	2.00	25.40	1.07	0.02	21.19	49.68	
ATA	68.00	34.00	49.00	5.00	139.00	27.00	322.00	1
ATA	70.00	10.00	71.00	11.00	34.00	22.00	218.00	
TOTAL	138.00	44.00	120.00	16.00	173.00	49.00	540.00	
Exp.	82.29	26.24	71.56	9.54	103.16	29.22		p-value
Exp.	55.71	17.76	48.44	6.46	69.84	19.78		6.74572E-13
X^2	2.48	2.30	7.11	2.16	12.45	0.17	26.67	
X^2	3.66	3.39	10.50	3.19	18.39	0.25	39.39	
~ -	5.00	5.55	10.50	5.15	10.33	0.25	55.55	1
A T T	22.00	00.00	6.00	22.00	7.00	112 00	200.00	1
ATT	23.00	99.00	6.00	32.00	7.00	113.00	280.00	
ATT	30.00	10.00	53.00	4.00	156.00	96.00	349.00	
TOTAL	53.00	109.00	59.00	36.00	163.00	209.00	629.00	
Exp.	23.59	48.52	26.26	16.03	72.56	93.04		p-value
Exp.	29.41	60.48	32.74	19.97	90.44	115.96		1.99252E-55
X^2	0.01	52.51	15.63	15.92	59.23	4.28	147.61	
X^2	0.01	42.13	12.54	12.78	47.52	3.44	118.42	
XZ	0.01	42.15	12.54	12.70	47.52	5.44	110.42	1
								1
ATC	38.00	74.00	7.00	118.00	0.00	56.00	293.00	
ATC	1.00	6.00	0.00	81.00	0.00	62.00	150.00	
TOTAL	39.00	80.00	7.00	199.00	0.00	118.00	443.00	
Exp.	25.79	52.91	4.63	131.62	0.25	78.05		p-value
	13.21	27.09	2.37	67.38	0.25	39.95	1	2.65293E-13
Exp.							22.22	2.032356-13
X^2	5.78	8.40	1.21	1.41	0.25	6.23	23.28	
X^2	11.28	16.42	2.37	2.75	0.25	12.16	45.23	
								_
ATG	86.00	1.00	102.00	0.00	2.00	0.00	191.00	1
ATG	79.00	1.00	35.00	0.00	0.00	0.00	115.00	
TOTAL	165.00	2.00	137.00	0.00	2.00	0.00	306.00	
							300.00	
Exp.	102.99	1.25	85.51	0.25	1.25	0.25		p-value
Exp.	62.01	0.75	51.49	0.25	0.75	0.25		0.004046262*
X^2	2.80	0.05	3.18	0.25	0.45	0.25	6.98	
X^2	4.66	0.08	5.28	0.25	0.75	0.25	11.27	
AAG	25.00	63.00	6.00	75.00	44.00	2.00	215.00	1
AAG	8.00	4.00	13.00	17.00	4.00	8.00	54.00	
TOTAL	33.00	67.00	19.00	92.00	48.00	10.00	269.00	
Exp.	26.38	53.55	15.19	73.53	38.36	7.99		p-value
Exp.	6.62	13.45	3.81	18.47	9.64	2.01		2.91673E-12
X^2	0.07	1.67	5.56	0.03	0.83	4.49	12.65	
X^2	0.29	6.64	22.12	0.12	3.30	17.89	50.35	
~ 2	0.25	0.04	22.12	0.12	5.50	17.05	50.55	1
101	0.00	0.00	61.00	0.00	0.00	0.00	C1 00	1
AGA	0.00	0.00	61.00	0.00	0.00	0.00	61.00	
AGA	9.00	0.00	91.00	0.00	0.00	2.00	102.00	
TOTAL	9.00	0.00	152.00	0.00	0.00	2.00	163.00	
Exp.	3.37	0.25	56.88	0.25	0.25	0.75		p-value
Exp.	5.63	0.25	95.12	0.25	0.25	1.25		0.216618383*
X^2	3.37	0.25	0.30	0.25	0.25	0.75	5.16	
X^2 X^2							3.39	1
A 2	2.01	0.25	0.18	0.25	0.25	0.45	3.39	I
			_	1	-			
AGG	1.00	1.00	24.00	0.00	37.00	0.00	63.00	
AGG	9.00	0.00	49.00	0.00	0.00	0.00	58.00	
TOTAL	10.00	1.00	73.00	0.00	37.00	0.00	121.00	
Exp.	5.21	0.52	38.01	0.25	19.26	0.25		p-value
Exp.	4.79	0.48	34.99	0.25	17.74	0.25	1	3.61857E-10*
x^2			5.16				25.62	J.010J/L-10.
	2 40			0.25	16.33	0.25	25.83	
	3.40	0.44						
X^2 X^2	3.40 3.69	0.44 0.48	5.61	0.25	17.74	0.25	28.01	
					17.74		28.01	
X^2	3.69	0.48	5.61	0.25		0.25	28.01 250.00]
X^2 AGC	3.69 47.00	0.48	5.61 91.00	0.25	71.00	0.25	250.00	
X^2 AGC AGC	3.69 47.00 0.00	0.48 3.00 0.00	5.61 91.00 84.00	0.25 6.00 2.00	71.00 37.00	0.25 32.00 42.00	250.00 165.00	
X ² AGC AGC TOTAL	3.69 47.00 0.00 47.00	0.48 3.00 0.00 3.00	5.61 91.00 84.00 175.00	0.25 6.00 2.00 8.00	71.00 37.00 108.00	0.25 32.00 42.00 74.00	250.00	
X^2 AGC AGC TOTAL Exp.	3.69 47.00 0.00 47.00 28.31	0.48 3.00 0.00 3.00 1.81	5.61 91.00 84.00 175.00 105.42	0.25 6.00 2.00 8.00 4.82	71.00 37.00 108.00 65.06	0.25 32.00 42.00 74.00 44.58	250.00 165.00	p-value
X^2 AGC AGC TOTAL Exp. Exp.	3.69 47.00 0.00 47.00 28.31 18.69	0.48 3.00 0.00 3.00 1.81 1.19	5.61 91.00 84.00 175.00 105.42 69.58	0.25 6.00 2.00 8.00 4.82 3.18	71.00 37.00 108.00 65.06 42.94	0.25 32.00 42.00 74.00 44.58 29.42	250.00 165.00 415.00	p-value 2.24005E-09*
X^2 AGC AGC TOTAL Exp.	3.69 47.00 0.00 47.00 28.31	0.48 3.00 0.00 3.00 1.81	5.61 91.00 84.00 175.00 105.42	0.25 6.00 2.00 8.00 4.82	71.00 37.00 108.00 65.06	0.25 32.00 42.00 74.00 44.58	250.00 165.00	
X^2 AGC AGC TOTAL Exp. Exp. X^2	3.69 47.00 47.00 28.31 18.69 12.33	0.48 3.00 0.00 3.00 1.81 1.19 0.79	5.61 91.00 84.00 175.00 105.42 69.58 1.97	0.25 6.00 2.00 8.00 4.82 3.18 0.29	71.00 37.00 108.00 65.06 42.94 0.54	0.25 32.00 42.00 74.00 44.58 29.42 3.55	250.00 165.00 415.00 19.47	
X^2 AGC AGC TOTAL Exp. Exp.	3.69 47.00 0.00 47.00 28.31 18.69	0.48 3.00 0.00 3.00 1.81 1.19	5.61 91.00 84.00 175.00 105.42 69.58	0.25 6.00 2.00 8.00 4.82 3.18	71.00 37.00 108.00 65.06 42.94	0.25 32.00 42.00 74.00 44.58 29.42	250.00 165.00 415.00	
X^2 AGC AGC TOTAL Exp. Exp. X^2 X^2 X^2	3.69 47.00 0.00 47.00 28.31 18.69 12.33 18.69	0.48 3.00 0.00 3.00 1.81 1.19 0.79 1.19	5.61 91.00 84.00 175.00 105.42 69.58 1.97 2.99	0.25 6.00 2.00 8.00 4.82 3.18 0.29 0.44	71.00 37.00 108.00 65.06 42.94 0.54 0.82	0.25 32.00 42.00 74.00 44.58 29.42 3.55 5.38	250.00 165.00 415.00 19.47 29.51	
X^2 AGC AGC TOTAL Exp. X^2 X^2 AGT	3.69 47.00 0.00 47.00 28.31 18.69 12.33 18.69 56.00	0.48 3.00 0.00 1.81 1.19 0.79 1.19 4.00	5.61 91.00 84.00 175.00 105.42 69.58 1.97 2.99 28.00	0.25 6.00 2.00 8.00 4.82 3.18 0.29 0.44 1.00	71.00 37.00 108.00 65.06 42.94 0.54 0.82 105.00	0.25 32.00 42.00 74.00 44.58 29.42 3.55 5.38 15.00	250.00 165.00 415.00 19.47 29.51 209.00	
X^2 AGC AGC TOTAL Exp. X^2 X^2 AGT	3.69 47.00 0.00 47.00 28.31 18.69 12.33 18.69 56.00 2.00	0.48 3.00 0.00 1.81 1.19 0.79 1.19 4.00 10.00	5.61 91.00 84.00 175.00 105.42 69.58 1.97 2.99 28.00 6.00	0.25 6.00 2.00 8.00 4.82 3.18 0.29 0.44 1.00 12.00	71.00 37.00 108.00 65.06 42.94 0.54 0.82 105.00 37.00	0.25 32.00 42.00 74.00 44.58 29.42 3.55 5.38 15.00 1.00	250.00 165.00 415.00 19.47 29.51 209.00 68.00	
X^2 AGC AGC TOTAL Exp. X^2 X^2 AGT	3.69 47.00 0.00 47.00 28.31 18.69 12.33 18.69 56.00	0.48 3.00 0.00 1.81 1.19 0.79 1.19 4.00	5.61 91.00 84.00 175.00 105.42 69.58 1.97 2.99 28.00 6.00 34.00	0.25 6.00 2.00 8.00 4.82 3.18 0.29 0.44 1.00	71.00 37.00 108.00 65.06 42.94 0.54 0.82 105.00	0.25 32.00 42.00 74.00 44.58 29.42 3.55 5.38 15.00 1.00 16.00	250.00 165.00 415.00 19.47 29.51 209.00	
X^2 AGC AGC TOTAL Exp. X^2 X^2 AGT AGT TOTAL	3.69 47.00 0.00 47.00 28.31 18.69 12.33 18.69 56.00 2.00	0.48 3.00 0.00 1.81 1.19 0.79 1.19 4.00 10.00	5.61 91.00 84.00 175.00 105.42 69.58 1.97 2.99 28.00 6.00	0.25 6.00 2.00 8.00 4.82 3.18 0.29 0.44 1.00 12.00	71.00 37.00 108.00 65.06 42.94 0.54 0.82 105.00 37.00	0.25 32.00 42.00 74.00 44.58 29.42 3.55 5.38 15.00 1.00	250.00 165.00 415.00 19.47 29.51 209.00 68.00	
X^2 AGC AGC TOTAL Exp. X^2 X^2 AGT AGT TOTAL	3.69 47.00 47.00 28.31 18.69 12.33 18.69 56.00 2.00 58.00 43.76	0.48 3.00 0.00 3.00 1.81 1.19 0.79 1.19 4.00 10.00 14.00 10.56	5.61 91.00 84.00 175.00 105.42 69.58 1.97 2.99 28.00 6.00 34.00 25.65	0.25 6.00 2.00 8.00 4.82 3.18 0.29 0.44 1.00 12.00 13.00 9.81	71.00 37.00 108.00 65.06 42.94 0.54 0.82 105.00 37.00 142.00 107.14	0.25 32.00 42.00 74.00 44.58 29.42 3.55 5.38 15.00 1.00 16.00 12.07	250.00 165.00 415.00 19.47 29.51 209.00 68.00	2.24005E-09*
X^2 AGC AGC TOTAL Exp. Exp. X^2 X^2 AGT AGT TOTAL Exp. Exp. Exp. Exp. Exp.	3.69 47.00 0.00 47.00 28.31 18.69 12.33 18.69 56.00 2.00 58.00 43.76 14.24	0.48 3.00 0.00 3.00 1.81 1.19 0.79 1.19 4.00 10.00 14.00 10.56 3.44	5.61 91.00 84.00 175.00 105.42 69.58 1.97 2.99 28.00 6.00 34.00 25.65 8.35	0.25 6.00 2.00 8.00 4.82 3.18 0.29 0.44 1.00 12.00 13.00 9.81 3.19	71.00 37.00 108.00 65.06 42.94 0.54 0.82 105.00 37.00 142.00 107.14 34.86	0.25 32.00 42.00 74.00 44.58 29.42 3.55 5.38 15.00 1.00 16.00 12.07 3.93	250.00 165.00 415.00 19.47 29.51 209.00 68.00 277.00	2.24005E-09*
X^2 AGC AGC TOTAL Exp. X^2 X^2 AGT AGT TOTAL	3.69 47.00 47.00 28.31 18.69 12.33 18.69 56.00 2.00 58.00 43.76	0.48 3.00 0.00 3.00 1.81 1.19 0.79 1.19 4.00 10.00 14.00 10.56	5.61 91.00 84.00 175.00 105.42 69.58 1.97 2.99 28.00 6.00 34.00 25.65	0.25 6.00 2.00 8.00 4.82 3.18 0.29 0.44 1.00 12.00 13.00 9.81	71.00 37.00 108.00 65.06 42.94 0.54 0.82 105.00 37.00 142.00 107.14	0.25 32.00 42.00 74.00 44.58 29.42 3.55 5.38 15.00 1.00 16.00 12.07	250.00 165.00 415.00 19.47 29.51 209.00 68.00	2.24005E-09*

Characterizing patterns in l	DNA sequence trace data	through informatics tools

C A A								
C A A								
CAA	29.00	110.00	72.00	152.00	202.00	31.00	596.00	
CAA	0.00	51.00	0.00	13.00	68.00	64.00	196.00	
TOTAL	29.00	161.00	72.00	165.00	270.00	95.00	792.00	
Exp.	21.82	121.16	54.18	124.17	203.18	71.49		p-value
Exp.	7.18	39.84	17.82	40.83	66.82	23.51		1.00751E-31
X^2	2.36	1.03	5.86	6.24	0.01	22.93	38.43	
X^2	7.18	3.12	17.82	18.97	0.02	69.73	116.84	
CAC	50.00	143.00	5.00	92.00	75.00	80.00	445.00	
CAC	49.00	45.00	85.00	0.00	98.00	24.00	301.00	
TOTAL	99.00	188.00	90.00	92.00	173.00	104.00	746.00	
	59.05	112.14	53.69	54.88	103.20	62.04	740.00	
Exp.			36.31			41.96	-	p-value 2.70263E-47
Exp.	39.95	75.86		37.12	69.80		02.04	2./0203E-4/
X^2	1.39	8.49	44.15	25.11	7.70	5.20	92.04	
X^2	2.05	12.55	65.27	37.12	11.39	7.69	136.08	
		17.00		453.00		224 00	60.1.00	1
CCA	81.00	47.00	90.00	152.00	93.00	221.00	684.00	
CCA	7.00	0.00	34.00	108.00	16.00	42.00	207.00	
TOTAL	88.00	47.00	124.00	260.00	109.00	263.00	891.00	
Exp.	67.56	36.08	95.19	199.60	83.68	201.90		p-value
Exp.	20.44	10.92	28.81	60.40	25.32	61.10		1.71467E-17
X^2	2.68	3.30	0.28	11.35	1.04	1.81	20.46	
X^2	8.84	10.92	0.94	37.50	3.43	5.97	67.60	
								•
CCC	6.00	150.00	0.00	211.00	1.00	93.00	461.00	
	0.00	5.00	0.00	91.00	0.00	42.00	138.00	
TOTAL	6.00	155.00	0.00	302.00	1.00	135.00	599.00	
	4.62	119.29	0.25	232.42	0.77	103.90	555.00	p-value
Exp.	1.38	35.71	0.25	69.58	0.25	31.10	-	1.58567E-09*
Exp. X^2	0.41	7.91		1.97	0.07	1.14	11.76	1.3030/E-09"
			0.25					
X^2	1.38	26.41	0.25	6.60	0.25	3.82	38.71	J
CCT	41.00	20.00	127.00	7.00	108.00	3.00	306.00	
CCT	15.00	36.00	6.00	15.00	39.00	76.00	187.00	
TOTAL	56.00	56.00	133.00	22.00	147.00	79.00	493.00	
Exp.	34.76	34.76	82.55	13.66	91.24	49.03	1	p-value
Exp.	21.24	21.24	50.45	8.34	55.76	29.97		4.30325E-44
X^2	1.12	6.27	23.93	3.24	3.08	43.22	80.86	
X^2	1.83	10.25	39.16	5.31	5.04	70.72	132.32	
666								
CCG	40.00	1.00	6.00	1.00	21.00	0.00	69.00	
CCG CCG	40.00 3.00	1.00 32.00	6.00 16.00	1.00 0.00	21.00 2.00	0.00	69.00 85.00	
CCG TOTAL	3.00	32.00	16.00	0.00 1.00	2.00	32.00	85.00	p-value
CCG TOTAL Exp.	3.00 43.00	32.00 33.00	16.00 22.00	0.00 1.00 0.45	2.00 23.00 10.31	32.00 32.00 14.34	85.00	p-value 6.55286E-23
CCG TOTAL	3.00 43.00 19.27	32.00 33.00 14.79 18.21	16.00 22.00 9.86 12.14	0.00 1.00 0.45 0.55	2.00 23.00 10.31 12.69	32.00 32.00 14.34 17.66	85.00 154.00	p-value 6.55286E-23
CCG TOTAL Exp. Exp. X^2	3.00 43.00 19.27 23.73 22.31	32.00 33.00 14.79 18.21 12.85	16.00 22.00 9.86 12.14 1.51	0.00 1.00 0.45 0.55 0.68	2.00 23.00 10.31 12.69 11.10	32.00 32.00 14.34 17.66 14.34	85.00 154.00 62.79	
CCG TOTAL Exp. Exp.	3.00 43.00 19.27 23.73	32.00 33.00 14.79 18.21	16.00 22.00 9.86 12.14	0.00 1.00 0.45 0.55	2.00 23.00 10.31 12.69	32.00 32.00 14.34 17.66	85.00 154.00	
CCG TOTAL Exp. Exp. X^2 X^2	3.00 43.00 19.27 23.73 22.31 18.11	32.00 33.00 14.79 18.21 12.85 10.43	16.00 22.00 9.86 12.14 1.51 1.23	0.00 1.00 0.45 0.55 0.68 0.55	2.00 23.00 10.31 12.69 11.10 9.01	32.00 32.00 14.34 17.66 14.34 11.64	85.00 154.00 62.79 50.97	
CCG TOTAL <u>Exp.</u> <u>Exp.</u> <u>X^2</u> <u>X^2</u> <u>CAT</u>	3.00 43.00 19.27 23.73 22.31 18.11 48.00	32.00 33.00 14.79 18.21 12.85 10.43 144.00	16.00 22.00 9.86 12.14 1.51 1.23 72.00	0.00 1.00 0.45 0.55 0.68 0.55 63.00	2.00 23.00 10.31 12.69 11.10 9.01 184.00	32.00 32.00 14.34 17.66 14.34 11.64 23.00	85.00 154.00 62.79 50.97 534.00	
CCG TOTAL Exp. Exp. X^2 X^2 CAT CAT	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00	85.00 154.00 62.79 50.97 534.00 231.00	
CCG TOTAL Exp. Exp. X^2 X^2 CAT CAT TOTAL	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00	85.00 154.00 62.79 50.97 534.00	6.55286E-23
CCG TOTAL Exp. Exp. X^2 X^2 CAT CAT TOTAL Exp.	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71	85.00 154.00 62.79 50.97 534.00 231.00	6.55286E-23 p-value
CCG TOTAL Exp. Exp. X^2 X^2 CAT CAT TOTAL Exp. Exp.	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08	0.00 1.00 0.45 0.55 0.68 0.55 63.00 63.00 66.00 46.07 19.93	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29	85.00 154.00 62.79 50.97 534.00 231.00 765.00	6.55286E-23
CCG TOTAL Exp. Exp. X^2 X^2 CAT CAT TOTAL Exp. Exp. X^2	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82	6.55286E-23 p-value
CCG TOTAL Exp. Exp. X^2 X^2 CAT CAT TOTAL Exp. Exp.	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08	0.00 1.00 0.45 0.55 0.68 0.55 63.00 63.00 66.00 46.07 19.93	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29	85.00 154.00 62.79 50.97 534.00 231.00 765.00	6.55286E-23 p-value
CCG TOTAL Exp. X^2 X^2 X^2 CAT CAT CAT TOTAL Exp. Exp. X^2 X^2	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63	6.55286E-23 p-value
CCG TOTAL Exp. Exp. X^2 X^2 CAT CAT CAT TOTAL Exp. Exp. X^2 X^2 X^2 CAT CAT CAT CAT CAT CAT CAT CAT	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00	6.55286E-23 p-value
CCG TOTAL Exp. Exp. X^2 X^2 CAT CAT CAT TOTAL Exp. Exp. X^2 X^2 CAT CAT CAT CAT CAT CAT CAT CAT	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00	6.55286E-23 p-value
CCG TOTAL Exp. Exp. X^2 X^2 CAT CAT CAT TOTAL Exp. Exp. X^2 X^2 X^2 CAT CAT CAT CAT CAT CAT CAT CAT	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 46.00	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00	6.55286E-23 p-value 4.77169E-08
CCG TOTAL Exp. Exp. X^2 X^2 CAT CAT CAT TOTAL Exp. Exp. X^2 X^2 CAT CAT CAT CAT CAT CAT CAT CAT	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 41.00 22.78	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 45.00 46.00 25.56	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00	6.55286E-23 p-value 4.77169E-08 p-value
CCG TOTAL Exp. Exp. X^2 X^2 CAT CAT CAT TOTAL Exp. Exp. X^2 X^2 CTA CTA CTA TOTAL	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 46.00	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00	6.55286E-23 p-value 4.77169E-08
CCG TOTAL Exp. Exp. X^2 X^2 CAT CAT CAT TOTAL Exp. Exp. X^2 X^2 CTA CTA CTA TOTAL Exp.	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 41.00 22.78	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 45.00 46.00 25.56	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00	6.55286E-23 p-value 4.77169E-08 p-value
CCG TOTAL Exp. X*2 X*2 CAT CAT CAT CAT Exp. Exp. X*2 CTA CTA CTA CTA CTA Exp.	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67 45.33	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00 24.00	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 41.00 22.78 18.22	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89 19.11	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 46.00 25.56 20.44	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11 4.89	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00 297.00	6.55286E-23 p-value 4.77169E-08 p-value
CCG TOTAL Exp. X^2 X^2 CAT CAT CAT CAT CAT Exp. Exp. X^2 X^2 CTA CTA CTA CTA CTA CTA CTA CTA	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67 45.33 11.33	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00 24.00 16.13	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 41.00 22.78 18.22 20.82	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89 19.11 0.41	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 46.00 25.56 20.44 23.59	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11 4.89 2.77	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00 297.00 75.05	6.55286E-23 p-value 4.77169E-08 p-value
CCG TOTAL Exp. X^2 X^2 CAT CAT CAT CAT CAT Exp. Exp. X^2 X^2 CTA CTA CTA CTA CTA CTA CTA CTA	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67 45.33 11.33	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00 24.00 16.13	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 41.00 22.78 18.22 20.82	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89 19.11 0.41	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 46.00 25.56 20.44 23.59	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11 4.89 2.77	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00 297.00 75.05	6.55286E-23 p-value 4.77169E-08 p-value
CCG TOTAL Exp. X^2 X^2 CAT CAT CAT CAT TOTAL Exp. X^2 X^2 CTA CTA CTA CTA CTA Exp. Exp. X^2 X^2 X^2 CTA CTA CTA CTA CTA CTA CTA CTA	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67 45.33 11.33 14.16 98.00	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00 24.00 16.13 20.17 8.00	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 41.00 22.78 18.22 20.82 26.03	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89 19.11 0.41 0.51 3.00	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 46.00 25.56 20.44 23.59 29.49 58.00	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11 4.89 2.77 3.46	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00 297.00 75.05 93.81 214.00	6.55286E-23 p-value 4.77169E-08 p-value
CCG TOTAL Exp. Exp. X^2 X^2 CAT CAT CAT Exp. X^2 X^2 CAT CTA CTA CTA Exp. X^2 X^2 CTA CTT CTT CTT CTT <tr tr=""></tr>	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67 45.33 11.33 11.33 14.16 98.00 56.00	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00 24.00 16.13 20.17 8.00 47.00	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 41.00 22.78 18.22 20.82 26.03	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89 19.11 0.41 0.51 3.00 0.00	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 46.00 25.56 20.44 23.59 29.49 58.00 35.00	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11 4.89 2.77 3.46	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00 297.00 75.05 93.81 214.00 194.00	6.55286E-23 p-value 4.77169E-08 p-value
CCG TOTAL Exp. X*2 X*2 CAT CAT CAT CAT CAT CAT CAT CAT	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67 45.33 11.33 14.16 98.00 56.00 154.00	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00 24.00 16.13 20.17 8.00 47.00 55.00	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 41.00 22.78 18.22 20.82 26.03	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89 19.11 0.41 0.51 3.00 0.00 3.00 0.00 3.00	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 46.00 25.56 20.44 23.59 29.49 58.00 35.00 93.00	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11 4.89 2.77 3.46 43.00 32.00 75.00	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00 297.00 75.05 93.81 214.00	6.55286E-23 p-value 4.77169E-08 p-value 1.28144E-34
CCG TOTAL Exp. X*2 X*2 CAT CAT CAT CAT Exp. Exp. X*2 X*2 CTA CTA CTA CTA CTA CTA CTA CTA	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67 45.33 11.33 14.16 98.00 56.00 154.00 80.77	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00 24.00 16.13 20.17 8.00 47.00 55.00 28.85	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 41.00 22.78 18.22 20.82 26.03 4.00 24.00 24.00 28.00 14.69	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89 19.11 0.41 0.51 3.00 0.00 3.00 1.57	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 46.00 25.56 20.44 23.59 29.49 58.00 35.00 93.00 48.78	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11 4.89 2.77 3.46 43.00 32.00 75.00 39.34	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00 297.00 75.05 93.81 214.00 194.00	6.55286E-23 p-value 4.77169E-08 p-value 1.28144E-34 p-value
CCG TOTAL Exp. X^2 X^2 CAT CAT CAT Exp. X^2 CAT CTA CTT CTT CTT CTT CTT CTT CTT CTT CTT CTA Exp. Exp. Exp.	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67 45.33 11.33 14.16 98.00 56.00 154.00 80.77 73.23	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00 24.00 16.13 20.17 8.00 47.00 55.00 28.85 26.15	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 40.00 41.00 22.78 18.22 20.82 26.03 4.00 24.00 28.00 14.69 13.31	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89 19.11 0.41 0.51 3.00 0.00 3.00 0.65 1.43	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 45.00 46.00 25.56 20.44 23.59 29.49 58.00 35.00 93.00 48.78 44.22	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11 4.89 2.77 3.46 43.00 32.00 75.00 39.34 35.66	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00 297.00 75.05 93.81 214.00 194.00 408.00	6.55286E-23 p-value 4.77169E-08 p-value 1.28144E-34
CCG TOTAL Exp. X^2 X^2 CAT CAT CAT CAT CAT CAT CAT CTA CTA	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67 45.33 11.33 14.16 98.00 56.00 154.00 80.77 73.23 3.67	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00 24.00 16.13 20.17 8.00 47.00 55.00 28.85 26.15 15.07	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 41.00 22.78 18.22 20.82 26.03 4.00 24.00 24.00 28.00 14.69 13.31 7.78	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89 19.11 0.41 0.51 3.00 0.00 3.00 1.57 1.43 1.29	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 46.00 25.56 20.44 23.59 29.49 58.00 35.00 93.00 48.78 44.22 1.74	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11 4.89 2.77 3.46 43.00 32.00 75.00 39.34 35.66 0.34	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00 297.00 75.05 93.81 214.00 194.00 408.00	6.55286E-23 p-value 4.77169E-08 p-value 1.28144E-34 p-value
CCG TOTAL Exp. X*2 X*2 CAT CAT CAT CAT CAT CAT CAT CAT	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67 45.33 11.33 14.16 98.00 56.00 154.00 80.77 73.23	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00 24.00 16.13 20.17 8.00 47.00 55.00 28.85 26.15	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 40.00 41.00 22.78 18.22 20.82 26.03 4.00 24.00 28.00 14.69 13.31	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89 19.11 0.41 0.51 3.00 0.00 3.00 0.65 1.43	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 45.00 46.00 25.56 20.44 23.59 29.49 58.00 35.00 93.00 48.78 44.22	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11 4.89 2.77 3.46 43.00 32.00 75.00 39.34 35.66	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00 297.00 75.05 93.81 214.00 194.00 408.00	6.55286E-23 p-value 4.77169E-08 p-value 1.28144E-34 p-value
CCG TOTAL Exp. Exp. X^2 X^2 CAT CAT CAT CAT CAT CAT CAT CAT	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67 45.33 11.33 14.16 98.00 56.00 154.00 80.77 73.23 3.67 4.05	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00 24.00 16.13 20.17 8.00 47.00 55.00 28.85 26.15 15.07 16.62	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 41.00 22.78 18.22 20.82 26.03 4.00 24.00 24.00 28.00 14.69 13.31 7.78 8.58	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89 19.11 0.41 0.51 3.00 0.65 1.57 1.43 1.29 1.43	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 46.00 25.56 20.44 23.59 29.49 58.00 35.00 93.00 48.78 44.22 1.74 1.92	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11 4.89 2.77 3.46 43.00 32.00 75.00 39.34 35.66 0.34 0.38	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00 297.00 75.05 93.81 214.00 194.00 408.00 29.89 32.97	6.55286E-23 p-value 4.77169E-08 p-value 1.28144E-34 p-value
CCG TOTAL Exp. X*2 X*2 CAT CAT CAT CAT CAT Exp. Exp. X*2 CTA CTA CTA CTA CTA CTA CTA CTA	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67 45.33 11.33 14.16 98.00 56.00 154.00 80.77 73.23 3.67 4.05	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00 24.00 16.13 20.17 8.00 47.00 55.00 28.85 26.15 15.07 16.62 62.00	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 41.00 22.78 18.22 20.82 26.03 4.00 24.00 28.00 14.69 13.31 7.78 8.58	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89 19.11 0.41 0.51 3.00 0.00 3.00 1.57 1.43 1.29 1.43	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 46.00 25.56 20.44 23.59 29.49 58.00 35.00 93.00 48.78 44.22 1.74 1.92 0.00	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11 4.89 2.77 3.46 43.00 32.00 75.00 39.34 35.66 0.34 0.38	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00 297.00 75.05 93.81 214.00 194.00 408.00 29.89 32.97 255.00	6.55286E-23 p-value 4.77169E-08 p-value 1.28144E-34 p-value
CCG TOTAL Exp. Exp. X*2 X*2 CAT CAT CAT CAT Exp. Exp. X*2 X*2 CTA CTA CTA CTA CTA CTA CTA CTA	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67 45.33 11.33 14.16 98.00 56.60 154.00 80.77 73.23 3.67 4.05	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00 24.00 16.13 20.17 8.00 47.00 55.00 28.85 26.15 15.07 16.62	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 41.00 22.78 18.22 20.82 26.03 4.00 24.00 24.00 28.00 14.69 13.31 7.78 8.58	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89 19.11 0.41 0.51 3.00 0.00 3.00 1.57 1.43 1.29 1.43 1.74.00 24.00	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 46.00 25.56 20.44 23.59 29.49 58.00 35.00 93.00 48.78 44.22 1.74 1.92	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11 4.89 2.77 3.46 43.00 32.00 75.00 39.34 35.66 0.34 0.38 15.00 24.00	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00 297.00 75.05 93.81 214.00 194.00 408.00 29.89 32.97 255.00 61.00	6.55286E-23 p-value 4.77169E-08 p-value 1.28144E-34 p-value
CCG TOTAL Exp. Exp. X*2 X*2 CAT CAT CAT CAT Exp. Exp. X*2 X*2 CTA CTA CTA CTA CTA CTA CTA CTA	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67 45.33 11.33 14.16 98.00 56.00 154.00 80.77 73.23 3.67 4.05	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00 24.00 16.13 20.17 8.00 47.00 55.00 28.85 26.15 15.07 16.62 62.00 12.00 74.00	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 41.00 22.78 18.22 20.82 26.03 4.00 24.00 28.00 14.69 13.31 7.78 8.58	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89 19.11 0.41 0.51 3.00 0.00 3.00 1.57 1.43 1.29 1.43 1.74.00 24.00 198.00	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 46.00 25.56 20.44 23.59 29.49 58.00 35.00 93.00 48.78 44.22 1.74 1.92	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11 4.89 2.77 3.46 43.00 32.00 75.00 39.34 35.66 0.34 0.38 15.00 24.00 39.00	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00 297.00 75.05 93.81 214.00 194.00 408.00 29.89 32.97 255.00	6.55286E-23 p-value 4.77169E-08 p-value 1.28144E-34 p-value 3.10181E-12
CCG TOTAL Exp. Exp. X*2 X*2 CAT CAT CAT CAT Exp. Exp. X*2 X*2 CTA CTA CTA CTA CTA CTA CTA CTA	3.00 43.00 19.27 23.73 22.31 18.11 48.00 36.00 84.00 58.64 25.36 1.93 4.46 82.00 20.00 102.00 56.67 45.33 11.33 14.16 98.00 56.60 154.00 80.77 73.23 3.67 4.05	32.00 33.00 14.79 18.21 12.85 10.43 144.00 84.00 228.00 159.15 68.85 1.44 3.34 52.00 2.00 54.00 30.00 24.00 16.13 20.17 8.00 47.00 55.00 28.85 26.15 15.07 16.62	16.00 22.00 9.86 12.14 1.51 1.23 72.00 21.00 93.00 64.92 28.08 0.77 1.79 1.00 40.00 41.00 22.78 18.22 20.82 26.03 4.00 24.00 24.00 28.00 14.69 13.31 7.78 8.58	0.00 1.00 0.45 0.55 0.68 0.55 63.00 3.00 66.00 46.07 19.93 6.22 14.38 27.00 16.00 43.00 23.89 19.11 0.41 0.51 3.00 0.00 3.00 1.57 1.43 1.29 1.43 1.74.00 24.00	2.00 23.00 10.31 12.69 11.10 9.01 184.00 66.00 250.00 174.51 75.49 0.52 1.19 1.00 45.00 46.00 25.56 20.44 23.59 29.49 58.00 35.00 93.00 48.78 44.22 1.74 1.92	32.00 32.00 14.34 17.66 14.34 11.64 23.00 21.00 44.00 30.71 13.29 1.94 4.48 2.00 9.00 11.00 6.11 4.89 2.77 3.46 43.00 32.00 75.00 39.34 35.66 0.34 0.38 15.00 24.00	85.00 154.00 62.79 50.97 534.00 231.00 765.00 12.82 29.63 165.00 132.00 297.00 75.05 93.81 214.00 194.00 408.00 29.89 32.97 255.00 61.00	6.55286E-23 p-value 4.77169E-08 p-value 1.28144E-34 p-value

								rippendices
Exp.	0.25	14.28	0.97	38.22	0.25	7.53	1	6.30261E-10*
X^2	0.25	0.09	0.00	1.27	0.25	8.62	10.47	0.302011-10
X^2 X^2	0.25	0.37	0.00	5.29	0.25	36.04	42.20	-
A 2	0.25	0.37	0.00	J.29	0.25	30.04	42.20	1
CTG	144.00	0.00	2.00	0.00	0.00	0.00	146.00	1
CTG	115.00	0.00	45.00	0.00	28.00	4.00	192.00	
TOTAL	259.00	0.00	47.00	0.00	28.00	4.00	338.00	
Exp.	111.88	0.25	20.30	0.25	12.09	1.73	550.00	p-value
Exp.	147.12	0.25	26.70	0.25	15.91	2.27	-	1.23144E-13*
X^2	9.22	0.25	16.50	0.25	12.09	1.73	40.05	1.251412 15
X^2	7.01	0.25	12.55	0.25	9.20	1.31	30.57	
~ 2	7.01	0.25	12.55	0.25	5.20	1.51	30.37	1
CAG	0.00	0.00	1.00	60.00	27.00	113.00	201.00	1
CAG	2.00	2.00	0.00	35.00	8.00	139.00	186.00	
TOTAL	2.00	2.00	1.00	95.00	35.00	252.00	387.00	
Exp.	1.04	1.04	0.52	49.34	18.18	130.88	507100	p-value
Exp.	0.96	0.96	0.48	45.66	16.82	121.12		0.000214204*
X^2	1.04	1.04	0.44	2.30	4.28	2.44	11.55	
X^2	1.12	1.12	0.48	2.49	4.63	2.64	12.48	
								4
CGA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1
CGA	3.00	0.00	61.00	0.00	25.00	0.00	89.00	
TOTAL	3.00	0.00	61.00	0.00	25.00	0.00	89.00	
Exp.	N/A	N/A	N/A	N/A	N/A	N/A		p-value
Exp.	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A
X^2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
X^2	N/A	N/A	N/A	N/A	N/A	N/A	N/A]
				-		-		
CGG	1.00	0.00	38.00	0.00	2.00	0.00	41.00]
CGG	11.00	2.00	1.00	0.00	31.00	0.00	45.00	
TOTAL	12.00	2.00	39.00	0.00	33.00	0.00	86.00	
Exp.	5.72	0.95	18.59	0.25	15.73	0.25		p-value
Exp.	6.28	1.05	20.41	0.25	17.27	0.25		6.69545E-14*
X^2	3.90	0.95	20.26	0.25	11.99	0.25	37.59	
X^2	3.55	0.87	18.46	0.25	10.92	0.25	34.30	
								_
CGC	10.00	1.00	1.00	42.00	0.00	1.00	55.00	
CGC	1.00	1.00	53.00	52.00	32.00	33.00	172.00	
TOTAL	11.00	2.00	54.00	94.00	32.00	34.00	227.00	
Exp.	2.67	0.48	13.08	22.78	7.75	8.24		p-value
Exp.	8.33	1.52	40.92	71.22	24.25	25.76		2.99927E-16
X^2	20.19	0.55	11.16	16.23	7.75	6.36	62.23	-
X^2	6.45	0.18	3.57	5.19	2.48	2.03	19.90	
CCT	47.00	5.00	F 00	20.00	0.00	2.00	00.00	1
CGT	47.00	5.00	5.00	30.00	0.00	2.00	89.00	
CGT	0.00	0.00	21.00	0.00	21.00	0.00	42.00	
TOTAL	47.00	5.00	26.00	30.00	21.00	2.00	131.00	
Exp.	31.93 15.07	3.40	17.66 8.34	20.38 9.62	14.27 6.73	1.36 0.64	-	p-value 1.23753E-22*
Exp. X^2	7.11	0.76	9.08	4.54	14.27	0.30	36.06	1.23/33E-22
X^2 X^2		1.60						-
A 4	15.07	1.00	19.24	9.62	30.23	0.64	76.40	J
TAA	1.00	12.00	0.00	102.00	3.00	36.00	154.00	1
TAA	35.00	110.00	5.00	102.00	0.00	37.00	308.00	
TOTAL	36.00	122.00	5.00	223.00	3.00	73.00	462.00	
Exp.	12.00	40.67	1.67	74.33	1.00	24.33	102.00	p-value
Exp.	24.00	81.33	3.33	148.67	2.00	48.67	1	2.45186E-15*
X^2	10.08	20.21	1.67	10.30	4.00	5.59	51.85	
X^2	5.04	10.10	0.83	5.15	2.00	2.80	25.92	1
								-
TAC	335.00	59.00	130.00	37.00	9.00	8.00	578.00	1
TAC	70.00	2.00	58.00	1.00	3.00	1.00	135.00	
TOTAL	405.00	61.00	188.00	38.00	12.00	9.00	713.00	
Exp.	328.32	49.45	152.40	30.81	9.73	7.30		p-value
Exp.	76.68	11.55	35.60	7.19	2.27	1.70	1	1.45071E-06
X^2	0.14	1.84	3.29	1.25	0.05	0.07	6.64	
X^2	0.58	7.90	14.10	5.33	0.23	0.29	28.44	
								_
TCA	1.00	3.00	19.00	26.00	320.00	7.00	376.00	
TCA	14.00	0.00	67.00	0.00	34.00	0.00	115.00	
TOTAL	15.00	3.00	86.00	26.00	354.00	7.00	491.00	
Exp.	11.49	2.30	65.86	19.91	271.09	5.36		p-value
Exp.	3.51	0.70	20.14	6.09	82.91	1.64		4.16722E-48*
X^2	9.57	0.21	33.34	1.86	8.83	0.50	54.32	
X^2	31.30	0.70	109.00	6.09	28.85	1.64	177.59	J
								•
TCC	6.00	29.00	73.00	16.00	73.00	5.00	202.00	I

Characterizing patterns in l	DNA sequence trace data	through informatics tools

K*2 0.08 0.52 6.76 1.60 0.15 3.48 12.69 TCT 1.00 0.76 9.83 2.32 0.22 5.65 18.31 TCT 1.00 21.60 57.60 4.00 135.00 6.00 185.00 TCT 1.00 21.60 57.60 4.00 170.60 6.00 285.00 7.75466E88 TCC 1.137 1.133 78.55 2.53 42.63 0.25 7.75466E88 X*2 4.78 8.47 10.45 1.47 0.96 0.25 26.40 X*2 2.79 4.94 6.10 0.86 0.56 0.25 15.59 TCC 1.60 0.69 3.08 1.409 180.99 48.09 133.09 130.90 TCC 1.60 1.60 1.60 1.60 1.60 13.00 130.90 130.90 TCC 1.60 1.60 1.60 1.60 130.90 130.90 130.90 </th <th>TOTAL 9 06 55. 649 91.09 27.69 17.90 13.90 241.09 Exp 5.33 33.17 53.31 23.12 23.22 76.42 13.26 77.44 77.44 K2 0.08 0.52 0.76 1.06 0.13 3.48 12.66 K2 0.12 0.76 1.08 0.18 0.08 0.80 13.68 10.5.18 TCT 1.68 0.76 0.76 0.08 0.79 0.90 100 0.90</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	TOTAL 9 06 55. 649 91.09 27.69 17.90 13.90 241.09 Exp 5.33 33.17 53.31 23.12 23.22 76.42 13.26 77.44 77.44 K2 0.08 0.52 0.76 1.06 0.13 3.48 12.66 K2 0.12 0.76 1.08 0.18 0.08 0.80 13.68 10.5.18 TCT 1.68 0.76 0.76 0.08 0.79 0.90 100 0.90									
TOTAL 9.90 15.90 17.90	TOTAL 9 06 55. 649 91.09 27.69 17.90 13.90 241.09 Exp 5.33 33.17 53.31 23.12 23.22 76.42 13.26 77.44 77.44 K2 0.08 0.52 0.76 1.06 0.13 3.48 12.66 K2 0.12 0.76 1.08 0.18 0.08 0.80 13.68 10.5.18 TCT 1.68 0.76 0.76 0.08 0.79 0.90 100 0.90		2 00		10 00	21 00	FC 00	14 00	120 00	1
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X*2 0.51 0.25 0.14 0.47 6.34 12.56 20.27 TAT 36.00 35.00 110.00 29.00 17.00 1.00 228.00 TOTAL 109.00 137.00 120.00 16.00 9.00 3.00 439.00 439.00 TOTAL 109.00 137.00 120.00 45.00 13.4 433 0 D-value Exp. 55.61 77.68 21.63 9.13 4.37 D-value 191224E-3 X*2 7.58 18.37 36.47 1.36 5.15 2.09 77.72 TA 104.00 5.00 22.00 26.00 191.00 5.08 37.00.00 451.00 TAT 145.00 9.05 13.00 39.00 451.00 5.84873E-1 5.84873E-1 TAT 126.00 110.00 1.00.2 2.59 36.64 5.94736-1 5.94 36.64 5.84873E-1 X*2 12.95 1.46 2.09 </th <th>X^λ2 θ.51 θ.25 θ.14 θ.47 6.34 12.56 28.27 TAT 36.60 15.60 110.00 129.60 17.00 1.00 121.00 TAT 73.60 102.00 10.00 15.60 220.00 8.00 211.00 TOTAL 199.60 137.00 120.00 45.60 137.00 120.00 45.00 130.00 120.00 45.00 130.00 110.00 120.00 45.00 120.00 9.00 439.00 210.00 1.91224E-30 K*2 7.59 16.37 35.647 1.36 5.15 2.69 17.74 X*2 8.11 19.85 39.41 1.46 5.57 3.12 77.752 TAT 21.60 9.60 188.60 5.80 22.60 26.60 131.00 130.00 TOTAL 125.90 1.80 6.63 5.97 36.64 5.97 36.64 X*2 1.80 2.99 0.13 4.62</th> <th>X^2</th> <th>0.53</th> <th>0.25</th> <th>0.15</th> <th>0.49</th> <th>6.60</th> <th>13.06</th> <th>21.08</th> <th></th>	X ^λ 2 θ.51 θ.25 θ.14 θ.47 6.34 12.56 28.27 TAT 36.60 15.60 110.00 129.60 17.00 1.00 121.00 TAT 73.60 102.00 10.00 15.60 220.00 8.00 211.00 TOTAL 199.60 137.00 120.00 45.60 137.00 120.00 45.00 130.00 120.00 45.00 130.00 110.00 120.00 45.00 120.00 9.00 439.00 210.00 1.91224E-30 K*2 7.59 16.37 35.647 1.36 5.15 2.69 17.74 X*2 8.11 19.85 39.41 1.46 5.57 3.12 77.752 TAT 21.60 9.60 188.60 5.80 22.60 26.60 131.00 130.00 TOTAL 125.90 1.80 6.63 5.97 36.64 5.97 36.64 X*2 1.80 2.99 0.13 4.62	X^2	0.53	0.25	0.15	0.49	6.60	13.06	21.08	
TAT 36.00 35.00 110.00 29.00 17.00 1.00 210.00 TAT 73.00 182.00 10.00 16.00 2.00 8.00 211.00 Exp. 55.61 71.15 62.32 23.37 9.87 4.67 9.00 19.00 19.00 19.00 19.00 19.00 19.00 19.100 19.100 19.100 19.100 19.100 19.100 19.100 19.100 19.00	TAT 35.00 110.00 29.00 1.00 228.00 211.00 TAT 73.00 102.00 10.00 16.00 2.00 8.00 210.00 43.00 Exp. 56.61 71.15 62.22 23.37 9.87 4.67 1.00 43.00 X*2 7.50 18.37 36.47 1.36 5.15 2.09 71.74 X*2 8.11 19.83 39.41 1.46 5.57 31.2 77.75 TTA 19.26 108.00 5.00 9.00 13.00 20.00 21.00 20.00 21.00 20.00 43.00 40.00 20.00 22.00 22.00 22.00 20.00 10.00 20.00 10.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00 22.00 22.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.01									
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TAT 77.00 182.00 10.00 16.00 2.00 8.00 211.00 Stop 137.00 120.00 45.00 9.87 4.67 p-value Exp. 52.39 65.85 57.68 21.63 9.13 4.33 X^2 7.50 18.37 36.47 1.36 5.15 2.89 71.74 X^2 8.11 1.85 39.41 1.46 5.57 2.12 77.52 TTA 21.60 9.00 108.00 5.06 22.00 26.00 270.00 TAL 128.00 35.60 22.100 10.00 31.00 270.00 451.00 TOTAL 128.00 35.60 22.100 10.00 31.00 30.00 270.00 451.00 X^2 18.30 2.05 128.44 5.86 18.16 52.94 35.60 270.00 50.64 33.00 5.848/35-1 X^2 12.35 1.48 2.09 0.13 4.62 4.24 35.50 59.93 36.64 5.97/38.64 59.73.84 59.73 59.7	TAT 7.3.08 102.00 10.09 10.09 2.00 8.00 211.08 Exp. 55.6.1 71.15 62.32 23.37 9.87 4.67 3.98 X^2 7.58 18.37 36.47 1.36 5.15 7.89 71.74 X^2 8.11 19.83 39.41 1.46 5.15 7.89 191.60 TA 21.09 9.69 108.09 5.00 70.00 191.60 TA 194.60 25.09 13.00 5.00 70.00 191.60 TA 104.00 25.00 113.00 5.00 70.00 100.00 TA 125.00 35.00 221.00 10.00 39.00 461.00 X^2 18.30 2.09 2.19.5 4.14 12.84 15.66 .04 X^2 12.9.5 1.48 2.62 .76.00 119.00 .07.00 TTT 1.09 1.09 1.09 24.00 7.00 7	T 4 T			440.55	20.0-	47.05		222	
TOTAL 199.00 137.00 120.00 45.00 19.00 9.00 439.00 Exp. 56.61 71.15 62.32 23.37 9.87 4.67	TOTAL 199,00 137,00 120,00 43,00 19,00 9,00 439,00 Exp. 55,61 71.15 62.32 23.37 9.87 4.67 1.91224E-30 X^2 7.50 18.37 36.47 1.36 5.15 2.85 71.74 X^2 8.11 19.85 39.41 1.46 5.77 3.12 77.52 TA 21.00 9.00 13.00 27.00 461.00 27.00 27.00 27.00 27.00 461.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00									
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Exp. 56.61 71.15 62.32 23.37 9.87 4.67 p p-value X^2 7.59 18.37 36.47 1.36 5.15 2.89 71.74 X^2 8.11 19.85 39.41 1.46 5.15 2.89 71.74 X^2 8.11 19.85 39.41 1.46 5.57 3.12 77.52 TA 21.96 9.69 108.60 5.06 22.60 191.00 270.60 TA 125.00 35.00 221.00 18.00 31.60 39.00 461.00 Exp. 73.21 20.50 129.44 5.86 18.16 22.84 5.84873E-1 X^2 18.30 2.09 0.13 4.62 4.24 25.50 5.84873E-1 TT 2.09 1.100 1.00 24.00 7.00 75.00 139.00 TT 1.09 2.09 0.13 4.62 4.24 25.50 TT 1.00 <th>Exp. 55.61 77.15 57.82 23.77 9.87 4.67 p-value X^2 7.50 18.37 35.647 1.36 5.15 2.89 77.752 X^2 8.11 19.85 39.41 1.46 5.57 2.129 77.52 TA 19.86 39.41 1.46 5.57 3.12 77.52 TA 19.40 9.60 11.90 5.60 39.90 13.90 270.90 TA 125.60 129.44 12.84 16.16 22.80 77.52 Y^2 18.30 2.09 2.95 0.18 6.53 5.99 36.64 X^2 12.95 1.48 2.09 7.00 139.00 194.00 TTT 1.00 1.00 1.00 7.69 139.00 194.00 TOTAL 2.133 0.28 0.81 8.77 5.69 3.49 33.00 TTT 1.00 1.00 12.00 14.00 139.00</th> <th>TOTAL</th> <th>109.00</th> <th>137.00</th> <th>120.00</th> <th>45.00</th> <th>19.00</th> <th>9.00</th> <th>439.00</th> <th></th>	Exp. 55.61 77.15 57.82 23.77 9.87 4.67 p-value X^2 7.50 18.37 35.647 1.36 5.15 2.89 77.752 X^2 8.11 19.85 39.41 1.46 5.57 2.129 77.52 TA 19.86 39.41 1.46 5.57 3.12 77.52 TA 19.40 9.60 11.90 5.60 39.90 13.90 270.90 TA 125.60 129.44 12.84 16.16 22.80 77.52 Y^2 18.30 2.09 2.95 0.18 6.53 5.99 36.64 X^2 12.95 1.48 2.09 7.00 139.00 194.00 TTT 1.00 1.00 1.00 7.69 139.00 194.00 TOTAL 2.133 0.28 0.81 8.77 5.69 3.49 33.00 TTT 1.00 1.00 12.00 14.00 139.00	TOTAL	109.00	137.00	120.00	45.00	19.00	9.00	439.00	
Exp. 52.39 65.85 57.68 21.63 9.13 4.33 1.31224E-3 X^22 8.11 19.85 39.41 1.46 5.57 3.12 77.52 TTA 21.00 9.00 108.00 5.00 22.00 26.00 191.00 TTA 104.00 26.00 113.00 39.40 1.46 39.00 461.00 Exp. 51.79 14.50 91.55 4.14 12.84 16.16 22.86 26.00 139.00 X^2 18.30 2.09 2.95 0.18 6.53 5.99 36.04 X^2 18.30 2.09 2.95 0.18 6.53 5.99 36.04 TTT 1.00 1.00 24.00 7.00 139.00 194.00 TOTAL 20.00 5.28 1.80 2.92 61.36 5.917.33.00 TT 1.02 3.78 0.58 6.43 4.08 2.50 27.69 TTC 1	Exp. 52.39 65.85 57.68 21.63 9.13 4.33 T.74 X*2 7.50 18.37 36.47 1.36 5.15 2.89 71.74 X*2 8.11 19.85 39.41 1.46 5.57 3.12 77.52 TA 194.69 9.60 198.69 5.60 22.69 26.69 270.69 TOTA 125.09 35.09 221.09 13.09 39.09 451.69 Exp. 73.21 29.59 12.94 5.86 18.16 22.84 5.867 X*2 12.95 1.48 2.09 6.13 4.62 4.24 25.59 TIT 1.09 1.08 8.109 7.08 77.68 139.40 TY2 1.48 2.09 0.58 6.117 4.08 85.64 TT 1.90 2.78 8.77 5.9 3.49 33.40 TTT 1.90 2.80 1.06 105.99 3.49									n-value
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X^2 8.11 19.85 39.41 1.46 5.57 3.12 77.52 TTA 21.00 9.00 108.00 5.00 22.00 26.00 191.00 270.00 TTA 104.00 26.00 113.00 5.00 9.00 13.00 39.00 461.00 Exp. 51.79 14.50 91.56 4.14 12.84 16.16 22.84 5.848/3E-1 X^2 18.30 2.09 2.95 0.18 6.53 5.99 36.04 X^2 18.30 2.09 0.13 4.62 4.24 25.50 TTT 1.00 41.00 0.00 81.00 0.30 134.00 139.00 TTT 1.00 41.00 0.00 81.00 0.00 13.30 0 194.00 33.00 TTT 1.00 41.00 0.00 10.00 7.00 17.00 133.00 194.00 33.00 TTT 1.00 41.00 0.00 10.00 12.00 13.00 194.00 33.00 X^2 14.30	X*2 8.11 19.85 39.41 1.46 5.57 3.12 77.52 TA 21.09 9.09 109.09 5.09 9.09 13.09 270.80 270.80 TA 194.09 25.09 35.09 221.09 10.90 31.09 31.09 461.09 TA 195.09 35.09 221.09 10.90 31.09 36.04 270.89 461.09 TA 12.95 14.50 91.56 4.14 12.84 16.16 5.99 36.04 X*2 12.95 1.48 2.09 0.13 4.62 4.24 25.59 TIT 20.69 11.90 1.69 24.90 7.98 71.60 33.99 TOTAL 21.69 52.09 1.81 8.97 7.89 71.80 33.99 TTC 1.90 24.90 7.89 74.98 33.99 33.99 TTC 1.90 24.99 6.13 4.98 2.59 27.69									1.91224E-30
TA 21.00 9.00 108.00 5.00 22.00 26.00 191.00 TA 104.00 26.00 113.00 5.00 9.00 13.00 270.00 461.00 TOTAL 125.00 35.00 221.00 10.00 31.00 39.00 461.00 X^2 18.30 20.59 129.44 5.86 18.16 228.84 5.86.04 X^2 12.95 1.48 2.09 0.13 4.62 4.24 25.59 TTT 20.00 11.00 1.00 24.00 7.00 139.00 333.00 TTT 1.00 52.00 1.00 105.00 7.00 147.00 333.00 Exp. 8.77 21.71 0.42 43.83 2.92 61.36 5.91723E-13 X^2 14.40 5.28 0.81 8.97 5.69 148.00 TTC 10.90 0.00 67.00 0.00 56.00 148.00 TC 1.09.0	TA 21.00 9.00 191.00 191.00 274.00 TK 125.00 25.00 9.00 13.00 270.00 461.00 Exp. 51.79 14.50 91.56 4.14 12.84 161.61 5.84 5.86 9.00 451.00 39.00 461.00 5.84735-12 X^2 13.30 2.09 2.95 0.18 6.53 5.99 36.84 5.84725-12 X^2 12.95 1.48 2.09 0.13 4.62 4.74 25.50 TIT 20.00 11.09 1.00 24.00 7.00 76.00 139.00 134.00 TOTAL 21.09 52.00 1.00 105.00 7.00 76.00 139.00 33.00 29.172.32-13* 5.9172.32+13* TC 1.00 24.00 7.00 76.00 139.00 33.00 5.9172.32+13* TC 1.00 24.00 0.58 61.17 4.68 85.64 5.9172.32+13* <td< th=""><th></th><th>7.50</th><th>18.37</th><th>36.47</th><th>1.36</th><th>5.15</th><th>2.89</th><th>71.74</th><th></th></td<>		7.50	18.37	36.47	1.36	5.15	2.89	71.74	
TA 21.00 9.00 108.00 5.00 22.00 26.00 191.00 TA 104.00 26.00 113.00 5.00 9.00 13.00 270.00 461.00 TOTAL 125.00 35.00 221.00 10.00 31.00 39.00 461.00 X^2 18.30 20.59 129.44 5.86 18.16 228.84 5.86.04 X^2 12.95 1.48 2.09 0.13 4.62 4.24 25.59 TTT 20.00 11.00 1.00 24.00 7.00 139.00 333.00 TTT 1.00 52.00 1.00 105.00 7.00 147.00 333.00 Exp. 8.77 21.71 0.42 43.83 2.92 61.36 5.91723E-13 X^2 14.40 5.28 0.81 8.97 5.69 148.00 TTC 10.90 0.00 67.00 0.00 56.00 148.00 TC 1.09.0	TA 21.00 9.00 191.00 191.00 274.00 TK 125.00 25.00 9.00 13.00 270.00 461.00 Exp. 51.79 14.50 91.56 4.14 12.84 161.61 5.84 5.86 9.00 451.00 39.00 461.00 5.84735-12 X^2 13.30 2.09 2.95 0.18 6.53 5.99 36.84 5.84725-12 X^2 12.95 1.48 2.09 0.13 4.62 4.74 25.50 TIT 20.00 11.09 1.00 24.00 7.00 76.00 139.00 134.00 TOTAL 21.09 52.00 1.00 105.00 7.00 76.00 139.00 33.00 29.172.32-13* 5.9172.32+13* TC 1.00 24.00 7.00 76.00 139.00 33.00 5.9172.32+13* TC 1.00 24.00 0.58 61.17 4.68 85.64 5.9172.32+13* <td< th=""><th>X^2</th><th>8.11</th><th>19.85</th><th>39.41</th><th>1.46</th><th>5.57</th><th>3.12</th><th>77.52</th><th></th></td<>	X^2	8.11	19.85	39.41	1.46	5.57	3.12	77.52	
TTA 104.00 26.00 113.00 5.00 9.00 13.00 270.00 TOTAL 125.00 35.00 221.00 10.00 31.00 30.00 461.00 Exp. 73.21 20.50 129.44 5.66 10.16 22.44 5.84873E-1 X^2 18.30 2.09 2.95 0.18 6.53 5.99 36.04 X^2 12.95 1.48 2.09 0.13 4.62 4.24 25.59 TTT 20.60 11.00 1.00 24.00 7.00 70.00 139.00 TTT 1.00 41.00 0.00 81.00 0.00 71.00 139.00 Exp. 8.77 721.71 0.42 43.83 2.92 61.36 5 X^2 14.40 5.28 0.81 8.97 5.69 3.49 38.65 X^2 10.32 3.78 0.58 61.31 7.89 148.00 13.7745 TTC 49.	TTA 104.00 26.00 113.00 5.00 9.00 13.00 270.00 f0TAL 125.60 35.00 221.00 10.00 31.00 461.00 5.84735 kp. 73.21 20.50 125.44 5.86 18.16 22.84 5.86735 5.99 36.04 X^2 12.35 1.48 2.09 0.13 4.62 4.24 25.59 TTT 20.00 11.00 1.00 24.00 7.00 76.00 139.00 TTT 1.00 1.00 105.00 7.00 147.00 333.00 Exp. 8.77 21.71 0.42 43.83 2.92 61.36 5.64 X^2 10.32 3.78 0.58 6.117 4.08 85.64 5.91238-13* X^2 10.32 3.78 0.58 6.43 4.08 2.50 19.108 TTC 1.90 24.09 0.60 67.00 0.00 56.00 191.00 333.00									
TTA 104.00 26.00 113.00 5.00 9.00 13.00 270.00 TOTAL 125.00 35.00 221.00 10.00 31.00 30.00 461.00 Exp. 73.21 20.50 129.44 5.66 10.16 22.44 5.84873E-1 X^2 18.30 2.09 2.95 0.18 6.53 5.99 36.04 X^2 12.95 1.48 2.09 0.13 4.62 4.24 25.59 TTT 20.60 11.00 1.00 24.00 7.00 70.00 139.00 TTT 1.00 41.00 0.00 81.00 0.00 71.00 139.00 Exp. 8.77 721.71 0.42 43.83 2.92 61.36 5 X^2 14.40 5.28 0.81 8.97 5.69 3.49 38.65 X^2 10.32 3.78 0.58 61.31 7.89 148.00 13.7745 TTC 49.	TTA 104.00 26.00 113.00 5.00 9.00 13.00 270.00 f0TAL 125.60 35.00 221.00 10.00 31.00 461.00 5.84735 kp. 73.21 20.50 125.44 5.86 18.16 22.84 5.86735 5.99 36.04 X^2 12.35 1.48 2.09 0.13 4.62 4.24 25.59 TTT 20.00 11.00 1.00 24.00 7.00 76.00 139.00 TTT 1.00 1.00 105.00 7.00 147.00 333.00 Exp. 8.77 21.71 0.42 43.83 2.92 61.36 5.64 X^2 10.32 3.78 0.58 6.117 4.08 85.64 5.91238-13* X^2 10.32 3.78 0.58 6.43 4.08 2.50 19.108 TTC 1.90 24.09 0.60 67.00 0.00 56.00 191.00 333.00	TTA	21.00	0.00	100.00	F 00	22.00	26.00	101 00	1
TOTAL 125.00 35.00 221.00 10.00 31.00 39.00 461.00 Exp. 51.79 14.50 91.56 4.14 12.84 16.16 p-value Sxp. 73.21 20.50 129.44 5.86 18.16 22.84 5.84873E-1 X^2 18.30 2.09 2.55 0.13 4.62 4.24 25.56 TTT 1.00 11.00 1.90 24.09 7.09 76.00 139.00 TTT 1.00 41.00 0.00 81.00 0.00 147.00 333.00 TOTAL 21.00 52.00 1.00 105.00 7.00 147.00 33.00 TTC 1.00 44.08 83.64 5.917.25.59 3.49 38.65 X^2 10.32 3.78 0.58 6.43 4.00 115.00 191.00 TTC 1.00 74.00 10.00 12.00 14.00 171.00 339.00 TTC 1.00<	TOTAL 125.00 33.00 221.00 10.00 31.00 39.00 461.00 Exp. 51.79 14.50 91.56 41.41 12.84 151.16 p-value X^2 18.30 2.05 0.13 4.62 4.24 25.50 X^2 12.95 1.48 2.09 0.13 4.62 4.24 25.50 TIT 20.00 11.00 1.00 24.00 7.00 76.00 139.00 TOTAL 21.00 41.00 1.00 105.00 7.00 71.00 139.00 TOTAL 21.00 52.00 1.1.00 44.00 0.00 75.00 147.00 33.00 Exp. 8.77 21.71 0.42 43.83 2.92 61.36 5.91723E-13* X^2 10.32 3.78 0.58 6.43 4.08 2.50 27.69 TTC 1.90 24.00 1.00 12.00 14.00 15.00 131.80 TTC									
Exp. 51.79 14.50 91.56 4.14 12.84 16.16 p-value Exp. 73.21 20.50 129.44 5.86 18.16 22.84 5.84873E-1 X^2 18.30 2.09 2.95 0.13 6.53 5.99 36.04 X^2 12.95 1.48 2.09 0.13 4.62 4.24 25.50 TTT 20.60 11.00 1.90 24.00 7.00 76.00 139.00 TTT 1.00 41.00 0.00 71.00 147.00 333.00 Exp. 8.77 21.71 0.42 43.83 2.92 61.36 6 5.91723E-13 X^2 14.40 5.28 0.81 8.97 5.59 3.49 38.65 27.69 X^2 10.32 3.78 0.58 6.111 74.68 79.18 13.7724E-2 Y^2 10.32 0.76 0.00 16.00 117.40 39.00 13.7724E-2	Exp. 51.79 14.50 91.56 4.14 12.84 16.16 p-value X^2 18.30 2.09 129.44 5.86 18.16 22.84 5.84873E-12 X^2 12.95 1.48 2.09 0.13 4.62 4.24 25.50 TIT 20.60 1.160 1.00 24.00 7.00 194.00 194.00 TOTAL 21.00 52.00 1.00 105.00 7.00 147.00 33.00 Exp. 12.23 30.29 0.58 61.17 4.08 85.64 5.91723E-13* X^2 10.32 3.78 0.58 6.17 4.08 85.64 5.91723E-13* TC 1.00 22.00 1.06 72.00 14.00 150.00 33.00 TC 1.08 24.00 1.06 72.00 14.00 171.00 330.00 Exp. 21.83 10.48 0.44 34.49 6.11 74.65 79.18 X^2<								(
Exp. 73.21 20.50 129.44 5.86 18.16 22.84 5.84873E-1 X^2 18.30 2.09 2.95 0.18 6.53 5.99 36.64 X^2 12.95 1.48 2.09 0.13 4.62 4.24 25.50 TTT 20.00 11.00 1.00 24.00 7.00 76.00 194.00 TTT 1.00 52.00 1.00 105.00 7.00 147.00 333.00 Exp. 8.77 21.71 0.42 48.83 2.92 61.36 5.91723E-13 X^2 10.32 30.29 0.58 61.17 4.08 85.64 5.91723E-13 X^2 10.32 3.78 0.58 6.43 4.08 2.59 27.69 TC 1.00 24.00 0.90 12.00 14.00 119.00 191.00 TC 1.00 24.00 1.090 12.00 14.00 101.00 13.7724E-2 X^2	[xh]. [73,21] [29.59] [129.44] [5.86 [18.16] [22.84] [5.84873E-12] [xh]2 [12.95] [1.48] [2.09] [0.13] [4.62] [4.24] [25.56] [TT] [1.09] [1.48] [2.09] [0.13] [4.62] [4.24] [25.56] [TT] [1.09] [41.60] [0.09] [61.60] [7.06] [139.00] [30.01] [30.01] [30.01] [30.01] [30.01] [30.01] [30.01]<	TOTAL	125.00	35.00	221.00	10.00	31.00	39.00	461.00	
Exp. 73.21 20.50 129.44 5.86 18.16 22.84 5.84873E-1 X^2 18.30 2.09 2.95 0.18 6.53 5.99 36.64 X^2 12.95 1.48 2.09 0.13 4.62 4.24 25.50 TT 20.00 11.00 1.00 24.00 7.00 76.00 194.00 TTT 1.00 52.00 1.00 105.00 7.00 147.00 333.00 Exp. 8.77 21.71 0.42 48.83 2.92 61.36 5.91723E-13 X^2 10.32 30.29 0.58 61.17 4.08 85.64 5.91723E-13 X^2 10.32 3.78 0.58 6.43 4.08 2.59 27.69 TC 1.00 24.00 0.90 14.00 115.00 191.00 TC 1.90 24.00 1.00 79.00 14.00 119.00 139.00 Exp. 28.17	Exp. 73.21 20.50 129.44 5.86 18.16 22.84 5.84873E-12 X^22 12.95 1.48 2.09 0.13 4.62 4.24 25.50 TT 20.95 1.48 2.09 0.13 4.62 4.24 25.50 TT 1.09 41.06 0.09 7.00 76.00 139.00 33.00 TTT 1.09 41.06 0.09 81.00 7.00 147.00 33.00 Exp. 8.77 21.71 0.42 43.83 2.92 61.36 9.9723E-13* X^2 10.32 3.78 0.58 6.43 4.08 2.50 27.69 TTC 1.00 24.00 0.00 56.00 148.00 191.00 TTC 1.08 24.00 1.00 79.00 14.00 191.00 131.00 TTC 1.08 24.00 1.00 79.00 14.00 101.00 137724E-28 X^2 19.77	Exp	51 79	14 50	91 56	4 14	12 84	16 16		p-value
X^2 18.30 2.09 2.95 0.18 6.53 5.99 36.04 X^2 12.95 1.48 2.09 0.13 4.62 4.24 25.50 TTT 20.00 11.00 1.00 24.00 7.00 76.60 139.00 TTT 1.00 41.00 0.00 81.00 0.00 144.00 333.00 TTT 1.00 41.00 0.02 43.83 2.92 61.36 5.91723E-13 X^2 14.40 5.28 0.81 8.97 5.69 3.49 38.65 X^2 10.32 3.78 0.58 6.43 4.08 2.59 2.769 TTC 1.00 24.00 0.00 67.00 14.00 115.00 191.00 TOTAL 50.00 24.00 1.00 12.00 14.00 115.00 191.00 TOTAL 50.00 24.00 1.00 12.00 14.00 114.00 13.724E-2 X^2 15.40 13.52 0.55 44.51 7.89 96.35	X*2 18.30 2.09 2.95 0.18 6.53 5.99 36.04 X*2 12.95 1.48 2.09 0.13 4.62 4.24 25.50 TIT 20.00 11.00 1.00 24.00 7.00 76.00 139.00 TOTAL 21.00 52.00 1.00 105.00 7.00 147.00 333.00 Exp. 61.71 0.42 43.83 2.92 61.36 p-value K*2 14.40 5.28 0.81 8.97 5.69 3.49 38.65 X*2 10.32 3.78 0.58 6.43 4.08 171.00 339.00 TTC 1.09 24.00 0.60 67.90 0.00 15.00 339.00 TTC 1.98 0.64.44 34.49 6.11 74.65 p-value Exp. 21.83 10.48 0.44 36.64 6.11 4.66 79.18 X*2 19.87 17.45 0.44 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>									
X^2 12.95 1.48 2.09 0.13 4.62 4.24 25.50 TTT 20.00 11.00 1.00 24.00 7.00 76.00 139.00 TTT 1.00 41.00 0.00 81.00 0.00 71.00 194.00 TOTAL 21.00 52.00 1.00 105.00 7.00 147.00 333.00 Exp. 8.77 21.71 0.42 43.83 2.92 61.36 5.91723E-13 X^2 14.30 5.28 0.81 8.97 5.69 3.49 38.65 X^2 10.32 3.78 0.58 6.43 4.08 2.50 27.69 TTC 1.00 24.00 0.00 67.00 0.00 130.00 191.00 TOTAL 50.00 24.00 0.00 67.00 10.00 73.00 191.00 TTC 1.90.87 17.45 0.44 30.64 6.11 74.65 79.18 K^2 13	X^2 1.48 2.09 0.13 4.62 4.24 25.50 TIT 20.00 11.00 1.00 24.00 7.00 76.00 139.00 TIT 1.00 41.00 0.00 0.00 71.00 139.00 194.00 TOTAL 21.00 52.00 1.00 0.00 7.00 147.00 33.00 Exp. 8.77 21.71 0.42 43.83 2.92 61.36 p-value X^2 14.40 5.28 0.81 8.97 5.69 3.49 38.65 X^2 10.32 3.78 0.58 6.13 4.08 2.50 27.69 TTC 1.00 24.00 0.00 12.00 14.00 1191.00 139.00 TTC 1.90 24.00 1.00 12.00 14.00 117.00 339.00 TTC 1.90 24.00 1.00 1.00 1.00 1.00 1.00 1.00 K^2 19.87								26.04	5.040751-12
ITT 20.00 11.00 1.00 24.00 7.00 76.00 139.00 ITT 1.00 41.00 0.00 81.00 0.00 139.00 139.00 TOTAL 21.00 52.00 1.00 105.00 7.00 147.00 333.00 Exp. 8.77 21.71 0.42 43.83 2.92 61.36 p-value SX^2 14.40 5.28 0.81 8.97 5.69 3.49 38.65 X^2 10.32 3.78 0.58 64.3 4.08 2.50 27.69 TTC 1.00 24.00 0.00 12.00 14.00 191.00 TTC 49.00 0.00 1.00 7.90 14.00 191.00 TTAL 50.02 24.00 1.00 7.90 14.00 191.00 TTAL 1.90 339.00 12.00 14.00 191.00 339.00 TTC 1.90 0.44 34.49 6.11 74.	TIT 20.00 11.00 24.00 7.00 76.00 139.00 TIT 1.00 41.00 0.00 81.00 7.00 77.00 194.00 TOTAL 21.00 52.00 1.00 105.00 7.00 147.00 333.00 Exp. 12.23 30.29 0.58 61.17 4.08 85.64 5.91723E-13* X^2 14.40 5.28 0.81 8.97 5.69 3.49 38.65 X^2 10.32 3.78 0.58 6.43 4.08 2.50 27.69 TIC 1.00 24.00 1.00 79.00 14.00 191.00 133.90 TOTAL 59.00 24.00 1.00 79.00 14.00 191.00 13774E-28 X^2 19.87 17.45 0.44 30.64 6.11 4.66 79.18 K^2 19.87 17.45 0.44 30.64 6.11 4.66 135.00 TG 67.00									
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TTT 1.00 41.00 0.00 81.00 0.00 71.00 194.00 333.00 TOTAL 21.00 52.00 1.00 105.00 7.00 147.00 333.00 Exp. 8.77 21.71 0.42 43.83 2.92 61.36 p-value X^2 14.40 5.28 0.58 61.17 4.08 85.64 5.91723E-13 X^2 14.40 5.28 0.81 8.97 5.69 3.49 38.65 X^2 10.32 3.78 0.58 6.43 4.08 2.50 27.69 TTC 1.00 24.00 0.00 12.00 14.00 115.00 191.00 TTC 49.00 0.00 1.00 79.00 14.00 171.00 339.00 TTC 1.98.7 13.52 0.56 44.51 7.89 96.35 96.35 X^2 19.87 17.45 0.44 34.49 6.11 74.65 96.35 X^2 19.87 17.45 0.34 23.75 4.74 3.61 61.35	TTT 1.00 41.00 0.00 81.00 71.00 194.00 TOTAL 21.00 52.00 1.00 105.00 7.00 147.00 333.00 Exp. 8.77 21.71 0.42 43.83 2.92 61.35 9 X^2 14.40 5.28 0.81 8.97 5.69 3.49 38.65 X^2 10.32 3.78 0.58 6.43 4.08 2.50 77.69 TTC 1.00 24.00 0.00 67.00 0.40 115.00 181.00 TTC 1.00 24.00 1.00 77.00 14.00 115.00 191.00 TTC 1.352 0.55 44.51 7.89 14.60 17.00 339.00 X^2 19.87 17.45 0.44 30.64 6.11 74.65 79.18 X^2 19.87 17.45 0.44 30.64 6.11 4.66 79.18 X^2 1.40 10.25									
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TOTAL 21.00 52.00 1.00 105.00 7.00 147.00 333.00 Exp. 8.77 21.71 0.42 43.83 2.92 61.36 p-value Exp. 12.23 30.29 0.58 61.17 4.08 85.64 5.91723E-12 X^2 14.40 5.28 0.81 8.97 5.69 3.49 38.65 X^2 10.32 3.78 0.58 6.43 4.08 2.50 27.69 TTC 1.00 24.00 0.00 67.00 0.00 15.00 191.00 TTC 49.00 0.00 1.00 12.00 14.00 171.00 339.00 Exp. 21.83 10.48 0.44 34.49 6.11 74.65 p-value X^2 15.40 13.52 0.56 44.51 7.89 96.35 1.37724E-2 X^2 15.40 13.52 0.34 23.75 4.74 3.61 61.35 TTG	TOTAL 21.00 52.00 1.00 105.00 7.00 147.00 333.00 Exp. 8.77 21.71 0.42 43.83 2.92 61.36 5 K^2 12.23 30.29 0.58 61.17 4.08 85.64 3.9 38.65 X^2 10.32 3.78 0.58 6.43 4.08 2.50 27.69 TTC 1.06 24.00 0.08 6.70 0.08 56.60 148.00 TTC 4.9.00 0.060 1.00 12.00 14.00 191.00 393.00 TTC 1.9.6 24.00 1.00 79.00 14.00 191.00 393.00 TTC 1.3.52 0.55 44.51 7.89 96.35 P-value Exp. 28.17 13.52 0.34 23.75 4.74 3.61 61.35 TTG 67.00 0.00 87.00 0.00 0.00 9.00 330.00 TTG 62.00 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>									
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X^2 14.40 5.28 0.81 8.97 5.69 3.49 38.65 X^2 10.32 3.78 0.58 6.43 4.08 2.50 27.69 TTC 1.00 24.00 0.00 67.00 0.00 56.00 148.00 TTC 49.00 0.00 1.00 12.00 14.00 115.00 339.00 TTC 49.00 24.00 1.00 79.00 14.00 171.00 339.00 TTC 1.83 10.48 0.44 34.49 6.11 74.65 p-value TX^2 19.87 17.45 0.44 30.64 6.11 4.66 79.18 X^2 15.40 13.52 0.34 23.75 4.74 3.61 61.35 TTG 67.00 0.00 144.00 0.00 0.00 149.00 330.00 TTG 15.40 13.52 0.34 23.75 4.74 3.61 61.35 TTG 67.00 0.00 149.00 330.00 149.00 330.00 149.00 30.00	X^2 14.40 5.28 0.81 8.97 5.69 3.49 38.65 X^2 10.32 3.78 0.58 6.43 4.08 2.50 27.69 TTC 1.00 24.00 0.00 67.00 0.00 56.00 148.00 TTC 49.00 0.00 1.00 12.00 115.00 191.00 TTC 1.33 10.48 0.44 34.49 6.11 74.65 p-value Exp. 21.83 10.48 0.44 30.64 6.11 4.66 79.18 X^2 19.87 17.45 0.44 30.64 6.11 4.66 79.18 X^2 15.40 13.52 0.34 23.75 4.74 3.61 61.35 TTG 67.00 0.00 87.00 0.00 0.00 149.00 330.00 TTG 67.00 0.00 87.00 0.25 0.25 0.25 0.25 0.925 0.925 0.925 0.925 0.925 0.925 0.925 0.925 0.925 0.925 0.925	Exp.	12.23	30.29	0.58	61.17	4.08	85.64		5.91723E-13*
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TTC 1.00 24.00 0.00 67.00 0.00 148.00 TTC 1.90 24.00 1.00 12.00 14.00 115.00 191.00 TOTAL 50.00 24.00 1.00 79.00 14.00 171.00 339.00 Exp. 21.83 10.48 0.44 34.49 6.11 74.65 p-value X^2 19.87 17.45 0.44 30.64 6.11 4.66 79.18 X^2 15.40 13.52 0.34 23.75 4.74 3.61 61.35 TTG 67.00 0.00 87.00 0.00 0.00 149.00 TTAL 129.00 0.00 201.00 0.00 0.25 0.25 0.25 0.25 TTAL 129.00 0.00 201.00 0.00 0.00 0.00 0.00 0.00 TTG 67.02 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 </th <th>TTC 1.00 24.00 0.00 67.00 0.00 56.00 148.00 TTC 49.00 0.00 1.00 12.00 14.00 115.00 339.00 ToTAL 50.00 24.00 1.00 79.00 14.00 171.00 339.00 Exp. 21.83 10.48 0.44 34.49 6.11 74.65 p-value Exp. 28.17 13.52 0.56 44.51 7.89 96.35 1.37724E-28 X^2 15.40 13.52 0.34 23.75 4.74 3.61 61.35 TTG 67.00 0.00 114.00 0.00 0.00 149.00 TOTAL 129.00 0.00 87.00 0.00 0.00 149.00 TG 62.00 0.25 110.25 0.25 0.25 0.25 0.95 TG 62.00 0.25 0.13 0.25 0.25 0.25 0.25 0.25 Exp. 58.25</th> <th></th> <th></th> <th>5 28</th> <th></th> <th>8 97</th> <th>5 69</th> <th></th> <th>38.65</th> <th></th>	TTC 1.00 24.00 0.00 67.00 0.00 56.00 148.00 TTC 49.00 0.00 1.00 12.00 14.00 115.00 339.00 ToTAL 50.00 24.00 1.00 79.00 14.00 171.00 339.00 Exp. 21.83 10.48 0.44 34.49 6.11 74.65 p-value Exp. 28.17 13.52 0.56 44.51 7.89 96.35 1.37724E-28 X^2 15.40 13.52 0.34 23.75 4.74 3.61 61.35 TTG 67.00 0.00 114.00 0.00 0.00 149.00 TOTAL 129.00 0.00 87.00 0.00 0.00 149.00 TG 62.00 0.25 110.25 0.25 0.25 0.25 0.95 TG 62.00 0.25 0.13 0.25 0.25 0.25 0.25 0.25 Exp. 58.25			5 28		8 97	5 69		38.65	
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TOTAL 50.00 24.00 1.00 79.00 14.00 171.00 339.00 Exp. 21.83 10.48 0.44 34.49 6.11 74.65 p-value Exp. 28.17 13.52 0.56 44.51 7.89 96.35 p-value X^2 19.87 17.45 0.44 30.64 6.11 4.66 79.18 X^2 15.40 13.52 0.34 23.75 4.74 3.61 61.35 TIG 67.00 0.00 114.00 0.00 0.00 181.00 TTG 62.00 0.00 201.00 0.00 0.00 149.00 TOTAL 129.00 0.00 210.00 0.00 0.00 0.00 TTG 62.25 0.25 110.25 0.25 0.25 0.25 0.25 TTG 62.25 0.25 0.25 0.25 0.25 0.25 0.25 TTG 62.00 0.25 0.25 0.25 </th <th>TOTAL 50.00 24.00 1.00 79.00 14.00 171.00 339.00 Exp. 21.83 10.48 0.44 34.49 6.11 74.65 p-value X^2 19.87 17.45 0.56 44.51 7.89 96.35 1.37724E-28 X^2 19.87 17.45 0.44 30.64 6.11 4.66 79.18 K^2 15.40 13.52 0.34 23.75 4.74 3.61 61.35 TTG 67.00 0.00 114.00 0.00 0.00 149.00 TTG 62.00 0.00 87.00 0.00 0.00 149.00 TTG 62.00 0.00 201.00 0.00 0.00 0.00 TTG 58.25 0.25 110.25 0.25 0.25 0.25 1.33 X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.20 0.25 0.16 0.25</th> <th></th> <th>10.32</th> <th>3.78</th> <th>0.81 0.58</th> <th>6.43</th> <th>4.08</th> <th>2.50</th> <th>27.69</th> <th>1</th>	TOTAL 50.00 24.00 1.00 79.00 14.00 171.00 339.00 Exp. 21.83 10.48 0.44 34.49 6.11 74.65 p-value X^2 19.87 17.45 0.56 44.51 7.89 96.35 1.37724E-28 X^2 19.87 17.45 0.44 30.64 6.11 4.66 79.18 K^2 15.40 13.52 0.34 23.75 4.74 3.61 61.35 TTG 67.00 0.00 114.00 0.00 0.00 149.00 TTG 62.00 0.00 87.00 0.00 0.00 149.00 TTG 62.00 0.00 201.00 0.00 0.00 0.00 TTG 58.25 0.25 110.25 0.25 0.25 0.25 1.33 X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.20 0.25 0.16 0.25		10.32	3.78	0.81 0.58	6.43	4.08	2.50	27.69	1
Exp. 21.83 10.48 0.44 34.49 6.11 74.65 p-value Exp. 28.17 13.52 0.56 44.51 7.89 96.35 1.37724E-2 X^2 19.87 17.45 0.44 30.64 6.11 4.66 79.18 X^2 15.40 13.52 0.34 23.75 4.74 3.61 61.35 TG 67.00 0.00 114.00 0.00 0.00 181.00 149.00 TTG 62.00 0.00 87.00 0.00 0.00 0.00 149.00 TTG 62.00 0.00 201.00 0.00 0.00 0.00 149.00 TTG 62.00 0.00 201.00 0.00 0.00 0.00 0.00 Exp. 78.25 0.25 110.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 1.33 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.13 0.25 0.25 0.25 1.40	Exp. 21.83 10.48 0.44 34.49 6.11 74.65 p-value Exp. 28.17 13.52 0.56 44.51 7.89 96.35 1.37724E-28 X^2 19.87 17.45 0.44 30.64 6.11 4.66 79.18 X^2 15.40 13.52 0.34 23.75 4.74 3.61 61.35 TG 67.00 0.00 114.00 0.00 0.00 149.00 TG 62.00 0.00 201.00 0.00 0.00 0.00 330.00 Exp. 70.75 0.25 110.25 0.25 0.25 0.25 0.25 K^2 0.20 0.25 0.13 0.25 0.25 0.25 0.25 0.25 K^2 0.20 0.25 0.16 0.25 0.25 1.33 0.30 0.30 0.5 0.25 1.33 X^2 0.20 0.25 0.16 0.25 0.25 1.40 <	TTC	10.32	3.78 24.00	0.81 0.58 0.00	6.43 67.00	4.08 0.00	2.50	27.69 148.00	
Exp. 28.17 13.52 0.56 44.51 7.89 96.35 1.37724E-2 X^2 19.87 17.45 0.44 30.64 6.11 4.66 79.18 X^2 15.40 13.52 0.34 23.75 4.74 3.61 61.35 TTG 67.00 0.00 114.00 0.00 0.00 0.00 181.00 TTG 62.00 0.00 87.00 0.00 0.00 0.00 149.00 TTG 62.00 0.00 201.00 0.00 0.00 0.00 181.00 TTG 67.00 0.25 10.25 0.25 0.25 0.25 0.25 0.925 TTG 70.75 0.25 0.15 0.25 0.25 0.25 0.25 0.93 X^2 0.24 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33	Exp. 28.17 13.52 0.56 44.51 7.89 96.35 1.37724E-28 X^2 19.87 17.45 0.44 30.64 6.11 4.66 79.18 X^2 15.40 13.52 0.34 23.75 4.74 3.61 61.35 TG 67.00 0.00 114.00 0.00 0.00 0.00 181.00 TTG 62.00 0.00 27.00 0.00 0.00 0.00 0.00 181.00 TTG 62.00 0.00 27.00 0.00 0.00 0.00 0.00 181.00 TTG 62.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 TAG 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.38 X^2 0.25 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.25 0.25 0.16 0.25 0.25 0.25 0.2	TTC TTC	10.32 1.00 49.00	3.78 24.00 0.00	0.81 0.58 0.00 1.00	6.43 67.00 12.00	4.08 0.00 14.00	2.50 56.00 115.00	27.69 148.00 191.00	
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X^2 15.40 13.52 0.34 23.75 4.74 3.61 61.35 TTG 67.00 0.00 114.00 0.00 0.00 0.00 181.00 TTG 62.00 0.00 87.00 0.00 0.00 0.00 149.00 TOTAL 129.00 0.00 201.00 0.00 0.00 0.00 330.00 Exp. 70.75 0.25 110.25 0.25 0.25 0.25 0.25 0.25 K^2 0.20 0.25 90.75 0.25 0.25 0.25 0.25 0.25 0.93 X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.25 0.16 0.25 0.25 0.25 0.25 0.25	X^2 15.40 13.52 0.34 23.75 4.74 3.61 61.35 TTG 67.00 0.00 114.00 0.00 0.00 0.00 181.00 TTG 62.00 0.00 87.00 0.00 0.00 0.00 149.00 TOTAL 129.00 0.00 201.00 0.00 0.00 0.00 330.00 Exp. 58.25 0.25 110.25 0.25 0.25 0.25 0.25 0.25 0.25 0.925 1.33 X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 21.40 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 21.90 Exp. 0.25 0.25 0.75 1105.99 11.98 45.68 90.0000171764* X^2 0.25 0.25 0.75 <th>TTC TTC TOTAL Exp.</th> <th>10.32 1.00 49.00 50.00 21.83</th> <th>3.78 24.00 0.00 24.00 10.48</th> <th>0.81 0.58 0.00 1.00 1.00 0.44</th> <th>6.43 67.00 12.00 79.00 34.49</th> <th>4.08 0.00 14.00 14.00 6.11</th> <th>2.50 56.00 115.00 171.00 74.65</th> <th>27.69 148.00 191.00</th> <th></th>	TTC TTC TOTAL Exp.	10.32 1.00 49.00 50.00 21.83	3.78 24.00 0.00 24.00 10.48	0.81 0.58 0.00 1.00 1.00 0.44	6.43 67.00 12.00 79.00 34.49	4.08 0.00 14.00 14.00 6.11	2.50 56.00 115.00 171.00 74.65	27.69 148.00 191.00	
TTG 67.00 0.00 114.00 0.00 0.00 0.00 181.00 TTG 62.00 0.00 87.00 0.00 0.00 0.00 149.00 TOTAL 129.00 0.00 201.00 0.00 0.00 0.00 330.00 Exp. 70.75 0.25 110.25 0.25 0.25 0.25 0.25 X^2 0.20 0.25 0.13 0.25 0.25 0.25 0.981600137 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 TAG 0.00 0.00 141.00 16.00 58.00 164.00 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TAG 0.00 0.00 1.00 141.00 16.00 61.00 219.00 TAG 0.00 0.25 0.75 105.59 11.98 45.68 p-value Exp. 0.25 0.25	TTG 67.00 0.00 114.00 0.00 0.00 0.00 181.00 TTG 62.00 0.00 87.00 0.00 0.00 0.00 149.00 TOTAL 129.00 0.00 201.00 0.00 0.00 0.00 330.00 Exp. 70.75 0.25 110.25 0.25 0.25 0.25 0.25 0.90 X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.25 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.25 0.25 0.16 0.25 0.25 1.33 X^2 0.25 0.25 0.16 0.25 0.25 1.33 X^2 0.25 0.25 0.75	TTC TTC TOTAL Exp. Exp.	10.32 1.00 49.00 50.00 21.83 28.17	3.78 24.00 0.00 24.00 10.48 13.52	0.81 0.58 0.00 1.00 0.44 0.56	6.43 67.00 12.00 79.00 34.49 44.51	4.08 0.00 14.00 14.00 6.11 7.89	2.50 56.00 115.00 171.00 74.65 96.35	27.69 148.00 191.00 339.00	
TTG 67.00 0.00 114.00 0.00 0.00 0.00 181.00 TTG 62.00 0.00 87.00 0.00 0.00 0.00 149.00 TOTAL 129.00 0.00 201.00 0.00 0.00 0.00 330.00 Exp. 70.75 0.25 110.25 0.25 0.25 0.25 0.25 X^2 0.20 0.25 0.13 0.25 0.25 0.25 0.981600137 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 TAG 0.00 0.00 141.00 16.00 58.00 164.00 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TAG 0.00 0.00 1.00 141.00 16.00 61.00 219.00 TAG 0.00 0.25 0.75 105.59 11.98 45.68 p-value Exp. 0.25 0.25	TTG 67.00 0.00 114.00 0.00 0.00 0.00 181.00 TTG 62.00 0.00 87.00 0.00 0.00 0.00 149.00 TOTAL 129.00 0.00 201.00 0.00 0.00 0.00 330.00 Exp. 70.75 0.25 110.25 0.25 0.25 0.25 0.25 0.90 X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.25 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.25 0.25 0.16 0.25 0.25 1.33 X^2 0.25 0.25 0.16 0.25 0.25 1.33 X^2 0.25 0.25 0.75	TTC TTC TOTAL Exp. Exp. X^2	10.32 1.00 49.00 50.00 21.83 28.17	3.78 24.00 0.00 24.00 10.48 13.52	0.81 0.58 0.00 1.00 0.44 0.56	6.43 67.00 12.00 79.00 34.49 44.51	4.08 0.00 14.00 6.11 7.89 6.11	2.50 56.00 115.00 171.00 74.65 96.35	27.69 148.00 191.00 339.00 79.18	
TTG 62.00 0.00 87.00 0.00 0.00 0.00 149.00 TOTAL 129.00 0.00 201.00 0.00 0.00 0.00 330.00 Exp. 70.75 0.25 110.25 0.25 0.25 0.25 0.25 0.25 K^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 TAG 0.00 0.00 149.00 28.00 164.00 55.00 164.00 TAG 0.00 0.00 1.00 49.00 2.00 14.00 58.00 164.00 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 219.00 TAG 0.00 0.00 1.00 141.00 16.00 61.00 219.00 219.00 Exp. 0.25 0.25 0.75 1.05.59 11.98	TTG 62.00 0.00 87.00 0.00 0.00 0.00 149.00 TOTAL 129.00 0.00 201.00 0.00 0.00 0.00 330.00 Exp. 70.75 0.25 110.25 0.25 0.25 0.25 0.25 0.25 K^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TAG 0.00 0.00 1.00 141.00 16.00 61.00 219.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value Common 0.00 0.00 67.00 0.00 0.00 219.00 Exp. 0.25	TTC TTC TOTAL Exp. Exp. X^2	10.32 1.00 49.00 50.00 21.83 28.17 19.87	3.78 24.00 0.00 24.00 10.48 13.52 17.45	0.81 0.58 0.00 1.00 0.44 0.56 0.44	6.43 67.00 12.00 79.00 34.49 44.51 30.64	4.08 0.00 14.00 6.11 7.89 6.11	2.50 56.00 115.00 171.00 74.65 96.35 4.66	27.69 148.00 191.00 339.00 79.18	
TTG 62.00 0.00 87.00 0.00 0.00 0.00 149.00 TOTAL 129.00 0.00 201.00 0.00 0.00 0.00 330.00 Exp. 70.75 0.25 110.25 0.25 0.25 0.25 0.25 0.25 K^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 TAG 0.00 0.00 149.00 28.00 164.00 55.00 164.00 TAG 0.00 0.00 1.00 49.00 2.00 14.00 58.00 164.00 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 219.00 TAG 0.00 0.00 1.00 141.00 16.00 61.00 219.00 219.00 Exp. 0.25 0.25 0.75 1.05.59 11.98	TTG 62.00 0.00 87.00 0.00 0.00 0.00 149.00 TOTAL 129.00 0.00 201.00 0.00 0.00 0.00 330.00 Exp. 70.75 0.25 110.25 0.25 0.25 0.25 0.25 0.25 K^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TAG 0.00 0.00 1.00 141.00 16.00 61.00 219.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value Common 0.00 0.00 67.00 0.00 0.00 219.00 Exp. 0.25	TTC TTC TOTAL Exp. Exp. X^2	10.32 1.00 49.00 50.00 21.83 28.17 19.87	3.78 24.00 0.00 24.00 10.48 13.52 17.45	0.81 0.58 0.00 1.00 0.44 0.56 0.44	6.43 67.00 12.00 79.00 34.49 44.51 30.64	4.08 0.00 14.00 6.11 7.89 6.11	2.50 56.00 115.00 171.00 74.65 96.35 4.66	27.69 148.00 191.00 339.00 79.18	
TOTAL 129.00 0.00 201.00 0.00 0.00 0.00 330.00 Exp. 70.75 0.25 110.25 0.981600137 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 219.00 TAG 0.00 0.00 1.00 141.00 16.00 61.00 219.00 TAG 0.00 0.00 1.00 141.00 16.00 61.00 219.00	TOTAL 129.00 0.00 201.00 0.00 0.00 0.00 330.00 Exp. 70.75 0.25 110.25 0.26 0.200171764* <tr< th=""><th>TTC TTC TOTAL Exp. Exp. X^2 X^2</th><th>10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40</th><th>3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52</th><th>0.81 0.58 0.00 1.00 1.00 0.44 0.56 0.44 0.34</th><th>6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75</th><th>4.08 0.00 14.00 6.11 7.89 6.11 4.74</th><th>2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61</th><th>27.69 148.00 191.00 339.00 79.18 61.35</th><th></th></tr<>	TTC TTC TOTAL Exp. Exp. X^2 X^2	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52	0.81 0.58 0.00 1.00 1.00 0.44 0.56 0.44 0.34	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75	4.08 0.00 14.00 6.11 7.89 6.11 4.74	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61	27.69 148.00 191.00 339.00 79.18 61.35	
Exp. 70.75 0.25 110.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 219.00 TOTAL 0.00 0.00 1.00 141.00 16.00 61.00 219.00 219.00 <t< th=""><th>Exp. 70.75 0.25 110.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.981600137* X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 X^2 0.20 0.00 0.16 0.25 0.25 1.40 X 0.25 0.16 0.25 0.25 1.40 0.25 X 0.00 0.00 1.00 49.00 2.00 3.00 55.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 0.000171764* X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66</th><th>TTC TTC TOTAL Exp. Exp. X^2 X^2 X^2 TTG</th><th>10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00</th><th>3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00</th><th>0.81 0.58 0.00 1.00 1.00 0.44 0.56 0.44 0.34 114.00</th><th>6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00</th><th>4.08 0.00 14.00 6.11 7.89 6.11 4.74</th><th>2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00</th><th>27.69 148.00 191.00 339.00 79.18 61.35 181.00</th><th></th></t<>	Exp. 70.75 0.25 110.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.981600137* X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 X^2 0.20 0.00 0.16 0.25 0.25 1.40 X 0.25 0.16 0.25 0.25 1.40 0.25 X 0.00 0.00 1.00 49.00 2.00 3.00 55.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 0.000171764* X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66	TTC TTC TOTAL Exp. Exp. X^2 X^2 X^2 TTG	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00	0.81 0.58 0.00 1.00 1.00 0.44 0.56 0.44 0.34 114.00	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00	4.08 0.00 14.00 6.11 7.89 6.11 4.74	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00	27.69 148.00 191.00 339.00 79.18 61.35 181.00	
Exp. 58.25 0.25 90.75 0.25 0.25 0.25 0.25 X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TAG 0.00 0.00 1.00 141.00 16.00 61.00 219.00 TOTAL 0.00 0.25 0.75 105.59 11.98 45.68 p-value Exp. 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87	Exp. 58.25 0.25 90.75 0.25 0.25 0.25 0.25 0.981600137* X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 MC Constraint	TTC TTC TOTAL Exp. X^2 X^2 TTG TTG	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00	0.81 0.58 0.00 1.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00	4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00	
Exp. 58.25 0.25 90.75 0.25 0.25 0.25 0.25 X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TAG 0.00 0.00 1.00 141.00 16.00 61.00 219.00 TOTAL 0.00 0.25 0.75 105.59 11.98 45.68 p-value Exp. 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87	Exp. 58.25 0.25 90.75 0.25 0.25 0.25 0.25 0.981600137* X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 MC Constraint	TTC TTC TOTAL Exp. X^2 X^2 TTG TTG	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00	0.81 0.58 0.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00	4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.00	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00	1.37724E-28
X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 TAG 0.00 0.00 1.00 92.00 14.00 58.00 164.00 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TOTAL 0.00 0.00 1.00 141.00 16.00 61.00 219.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87	X^2 0.20 0.25 0.13 0.25 0.25 0.25 1.33 X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 TAG 0.00 0.00 92.00 14.00 58.00 164.00 55.00 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TOTAL 0.00 0.00 1.00 141.00 16.00 61.00 219.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87 TGA 28.00 74.00 0.00 7.00 0.00 0.00 81.00 TGA 28.00 74.00 0.00 7.00 0.00 0.00 81.00 TGA 0.00 74.00 <th>TTC TTC TOTAL Exp. Exp. X^2 X^2 TTG TTG TTG TTG TOTAL</th> <th>10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00</th> <th>3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00</th> <th>0.81 0.58 0.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00</th> <th>6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00</th> <th>4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00</th> <th>2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.00</th> <th>27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00</th> <th>1.37724E-28</th>	TTC TTC TOTAL Exp. Exp. X^2 X^2 TTG TTG TTG TTG TOTAL	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00	0.81 0.58 0.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00	4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.00	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00	1.37724E-28
X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 TAG 0.00 0.00 0.00 92.00 14.00 58.00 164.00 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TAG 0.00 0.00 1.00 141.00 16.00 61.00 219.00 TAG 0.25 0.25 0.75 105.59 11.98 45.68 p-value Exp. 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87	X^2 0.24 0.25 0.16 0.25 0.25 0.25 1.40 TAG 0.00 0.00 0.00 92.00 14.00 58.00 164.00 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TOTAL 0.00 0.00 1.00 141.00 16.00 61.00 219.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value X^2 0.25 0.25 0.75 105.59 11.98 45.68 p-value X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87 TGA 28.00 74.00 0.00 7.00 0.00 0.00 81.00 TGA 28.00 148.00 0.00 74.00 0.00 74.00 0.00 250.00 250.00 250.00	TTC TTC TOTAL Exp. Exp. X^2 X^2 TTG TTG TTG TTG Exp. Exp. Exp.	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.00 0.25	0.81 0.58 0.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.00 0.25	4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.00 0.25	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.00 0.25	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00	1.37724E-28 p-value
TAG 0.00 0.00 92.00 14.00 58.00 164.00 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TAG 0.00 0.00 1.00 141.00 16.00 61.00 219.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87	TAG 0.00 0.00 92.00 14.00 58.00 164.00 TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TOTAL 0.00 0.00 1.00 141.00 16.00 61.00 219.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value K^2 0.25 0.25 0.75 105.59 11.98 45.68 0.0000171764* X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87 TGA 28.00 74.00 0.00 7.00 0.00 0.00 81.00 TOTAL 28.00 148.00 0.00 74.00 0.25 50.62 0.25 0.25 0.25 0.25 0.25 50.02 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.	TTC TTC TOTAL Exp. Exp. X^2 X^2 TTG TTG TOTAL Exp. Exp. Exp. Exp. Exp. Exp.	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.00 0.25 0.25	0.81 0.58 0.00 1.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.00 0.25 0.25	4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.00 0.25 0.25	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.00 0.00 0.25 0.25	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00	1.37724E-28 p-value
TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TOTAL 0.00 0.00 1.00 141.00 16.00 61.00 219.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87	TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TOTAL 0.00 0.00 1.00 141.00 16.00 61.00 219.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value Exp. 0.25 0.25 0.25 0.25 35.41 4.02 15.32 0.000171764* X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87 TGA 28.00 74.00 0.00 67.00 0.00 0.00 81.00 TOTAL 28.00 74.00 0.00 7.00 0.00 0.00 81.00 TOTAL 28.00 148.00 0.00 7.00 0.00 0.00 81.00 TOTAL 28.00 74.00 0.00 7.00 0.00 250.00 250.00 TOTAL 28.00 148.00 0.00 7.00 0.00 0.00 250.00 250.00	TTC TTC TTC Exp. Exp. X^2 X^2 TTG TTG TOTAL Exp. Exp. Exp. Exp. Exp. Exp. Exp. X^2	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.00 0.25 0.25 0.25	0.81 0.58 0.00 1.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.00 0.25 0.25 0.25	4.08 0.00 14.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.00 0.25 0.25 0.25	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.00 0.25 0.25 0.25	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33	1.37724E-28 p-value
TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TOTAL 0.00 0.00 1.00 141.00 16.00 61.00 219.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87	TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TOTAL 0.00 0.00 1.00 141.00 16.00 61.00 219.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value Exp. 0.25 0.25 0.25 0.25 35.41 4.02 15.32 p-value X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87 TGA 28.00 74.00 0.00 67.00 0.00 0.00 81.00 TGA 28.00 74.00 0.00 7.00 0.00 81.00 TOTAL 28.00 74.00 0.00 7.00 0.00 0.00 81.00 TOTAL 28.00 74.00 0.00 7.00 0.00 0.00 81.00 TGA 28.00 74.00 0.00 7.00 0.00 0.00 81.00 TOTAL 28.00	TTC TTC TTC Exp. Exp. X^2 X^2 TTG TTG TOTAL Exp. Exp. Exp. Exp. Exp. Exp. Exp. X^2	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.00 0.25 0.25 0.25	0.81 0.58 0.00 1.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.00 0.25 0.25 0.25	4.08 0.00 14.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.00 0.25 0.25 0.25	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.00 0.25 0.25 0.25	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33	1.37724E-28 p-value
TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TOTAL 0.00 0.00 1.00 141.00 16.00 61.00 219.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87	TAG 0.00 0.00 1.00 49.00 2.00 3.00 55.00 TOTAL 0.00 0.00 1.00 141.00 16.00 61.00 219.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value Exp. 0.25 0.25 0.25 0.25 35.41 4.02 15.32 0.000171764* X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87 TGA 28.00 74.00 0.00 67.00 0.00 0.00 81.00 TOTAL 28.00 74.00 0.00 7.00 0.00 0.00 81.00 TOTAL 28.00 148.00 0.00 7.00 0.00 0.00 81.00 TOTAL 28.00 74.00 0.00 7.00 0.00 250.00 250.00 TOTAL 28.00 148.00 0.00 7.00 0.00 0.00 250.00 250.00	TTC TTC TTC Exp. X^2 X^2 TTG TTG TTG Exp. X*2 X^2 X*2 X*2 X*2 X*2 X*2 X*2 X*2	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.25 0.25 0.25 0.25	0.81 0.58 0.00 1.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.25 0.25 0.25 0.25	4.08 0.00 14.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.25 0.25 0.25 0.25	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40	1.37724E-28 p-value
TOTAL 0.00 0.00 1.00 141.00 16.00 61.00 219.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value Exp. 0.25 0.25 0.25 0.25 35.41 4.02 15.32 0.000171764 X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87	TOTAL 0.00 0.00 1.00 141.00 16.00 61.00 219.00 Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value Exp. 0.25 0.25 0.25 0.25 35.41 4.02 15.32 p-value X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87 TGA 28.00 74.00 0.00 67.00 0.00 0.00 81.00 TOTAL 28.00 148.00 0.00 74.00 0.00 250.00 81.00 Exp. 18.93 100.05 0.25 50.02 0.25 0.25 9.25 9.25 9.25 Exp. 9.07 47.95 0.25 23.98 0.25 0.25 50.625 0.25	TTC TTC TTC Exp. X^2 X^2 TTG TTG TTG Exp. X*2 X^2 X*2 X*2 X*2 X*2 X*2 X*2 X*2	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.25 0.25 0.25 0.25	0.81 0.58 0.00 1.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.25 0.25 0.25 0.25	4.08 0.00 14.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.25 0.25 0.25 0.25	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40	1.37724E-28 p-value
Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value Exp. 0.25 0.25 0.25 35.41 4.02 15.32 0.000171764 X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87	Exp. 0.25 0.25 0.75 105.59 11.98 45.68 p-value Exp. 0.25 0.25 0.25 35.41 4.02 15.32 0.000171764* X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87 TGA 28.00 74.00 0.00 67.00 0.00 81.00 TGA 28.00 148.00 0.00 7.00 0.00 81.00 TOTAL 28.00 148.00 0.25 50.02 0.25 0.25 9.25 Exp. 18.93 100.05 0.25 50.02 0.25 0.25 50.602 Exp. 9.07 47.95 0.25 23.98 0.25 0.25 5.0687E-10*	TTC TTC TOTAL Exp. Exp. X^2 TTG TTG TTG Exp. Exp. Exp. X^2 TTG TTG TAG	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24 0.00	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.00	0.81 0.58 0.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.25 0.25 0.25 0.25 92.00	4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 14.00	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.25 0.25 0.25 0.25 58.00	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40	1.37724E-28 p-value
Exp. 0.25 0.25 0.25 35.41 4.02 15.32 0.000171764 X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87	Exp. 0.25 0.25 0.25 35.41 4.02 15.32 0.000171764* X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87 TGA 28.00 74.00 0.00 7.00 0.00 0.00 81.00 TGA 28.00 148.09 0.00 74.00 0.00 7.00 0.00 250.00 Exp. 18.93 100.05 0.25 50.02 0.25 0.25 0.25 0.25 Exp. 9.07 47.95 0.25 23.98 0.25 0.25 5.0687E-10*	TTC TTC TOTAL Exp. Exp. X^2 TTG TTG TTG TOTAL Exp. X^2 X*2 TTG TTG TOTAL Exp. X*2 X*2 X*2 X*2 TAG TAG	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24 0.00 0.00	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25	0.81 0.58 0.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16 0.00 1.00	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.25 0.25 0.25 0.25 92.00 49.00	4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 14.00 2.00	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.25 0.25 0.25 0.25 58.00 3.00	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40 164.00 55.00	1.37724E-28 p-value
X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87	X^2 0.25 0.25 0.75 1.75 0.34 3.32 6.66 X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87 TGA 28.00 74.00 0.00 67.00 0.00 0.00 81.00 TGA 28.00 148.00 0.00 7.00 0.00 0.00 81.00 TOTAL 28.00 148.00 0.25 50.02 0.25 0.25 0.25 9.07 Exp. 9.07 47.95 0.25 23.98 0.25 0.25 5.0687E-10*	TTC TTC TOTAL Exp. Exp. X^2 X^2 TTG TTG. TOTAL Exp. X^2 X^2 TTG TTG. TOTAL Exp. X^2 X^2 X^2 TAG TAG TOTAL	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24 0.00 0.00 0.00 0.00	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25	0.81 0.58 0.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16 0.00 1.00 1.00	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.25 0.25 0.25 0.25 92.00 49.00 141.00	4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 14.00 2.00 16.00	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.25 0.25 0.25 0.25 58.00 3.00 61.00	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40 164.00 55.00	1.37724E-28 p-value 0.981600137*
X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87	X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87 TGA 28.00 74.00 0.00 67.00 0.00 169.00 TGA 28.00 74.00 0.00 7.00 0.00 0.00 81.00 TOTAL 28.00 148.00 0.00 74.00 0.00 250.00 P-value Exp. 18.93 100.05 0.25 50.02 0.25 0.25 0.25 5.0687E-10*	TTC TTC TOTAL Exp. Exp. X^2 X^2 TTG TTG TOTAL Exp. X^2 X*2 TTG TOTAL Exp. X*2 X*2 TAG TAG TOTAL Exp. X*2 X*2	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24 0.00 0.00 0.00 0.00 0.25	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.00 0.25 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.25 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00	0.81 0.58 0.00 1.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16 0.00 1.00 1.00 0.75	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 92.00 49.00 141.00 105.59	4.08 0.00 14.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.00 0.25	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 58.00 3.00 61.00 45.68	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40 164.00 55.00	1.37724E-28 p-value 0.981600137* p-value
X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87	X^2 0.25 0.25 2.23 5.21 1.01 9.91 18.87 TGA 28.00 74.00 0.00 67.00 0.00 169.00 TGA 28.00 74.00 0.00 7.00 0.00 0.00 81.00 TOTAL 28.00 148.00 0.00 74.00 0.00 250.00 P-value Exp. 18.93 100.05 0.25 50.02 0.25 0.25 0.25 5.0687E-10*	TTC TTC TTC TOTAL Exp. X^2 X^2 TTG TTG TOTAL Exp. Exp. Exp. X^2 X^2 TAG TAG TOTAL Exp.	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24 0.00 0.00 0.00 0.00 0.00 0.25 0.25	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.00 0.00 0.25	0.81 0.58 0.00 1.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16 0.00 1.00 1.00 0.75 0.25	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 92.00 49.00 141.00 105.59 35.41	4.08 0.00 14.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.00 0.25	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.00 0.25 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.5	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40 164.00 55.00 219.00	1.37724E-28 p-value 0.981600137* p-value
	TGA 28.00 74.00 0.00 67.00 0.00 0.00 169.00 TGA 0.00 74.00 0.00 7.00 0.00 81.00 TGA 28.00 74.00 0.00 7.00 0.000 250.00 TGA 28.00 148.00 0.00 74.00 0.00 250.00 Exp. 18.93 100.05 0.25 50.02 0.25 0.25 p-value Exp. 9.07 47.95 0.25 23.98 0.25 0.25 5.0687E-10*	TTC TTC TTC TOTAL Exp. X^2 X^2 TTG TTG TOTAL Exp. Exp. Exp. X^2 X^2 TAG TAG TOTAL Exp.	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24 0.00 0.00 0.00 0.00 0.00 0.25 0.25	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.00 0.00 0.25	0.81 0.58 0.00 1.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16 0.00 1.00 1.00 0.75 0.25	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 92.00 49.00 141.00 105.59 35.41	4.08 0.00 14.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.00 0.25	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.00 0.25 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.00 0.5 0.5	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40 164.00 55.00 219.00	1.37724E-28 p-value 0.981600137* p-value
TGA 28.00 74.00 0.00 67.00 0.00 0.00 169.00	TGA 0.00 74.00 0.00 7.00 0.00 0.00 81.00 TOTAL 28.00 148.00 0.00 74.00 0.00 0.00 250.00 Exp. 18.93 100.05 0.25 50.02 0.25 0.25 p-value Exp. 9.07 47.95 0.25 23.98 0.25 0.25 5.0687E-10*	TTC TTC TTG Exp. X^2 X^2 TTG TTG. TOTAL Exp. X^2 X*2 TAG TAG TOTAL Exp. X^2 X*2 X*2 X*2 X*2 X*2 X*2	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24 0.00 0.00 0.00 0.00 0.25 0.25 0.25	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.00 0.00 0.25	0.81 0.58 0.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16 0.00 1.00 1.00 0.75 0.25 0.75	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.00 0.25	4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.25	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.25 0.3,00 0.60 0.60 0.60 0.60 0.25 0.25 0.25 0.25 0.25 0.25 0.3,00 0.60 0.3,00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.3,00 0.3,00 0.60 0.3,00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.3,00 0.60 0.60 0.3,00 0.25 0.3,00 0.5 0.3,00 0.5 0.3,00 0.5 0.3,00 0.5 0.3,00 0.5 0.3,00 0.5 0.3,00 0.5 0.3,00 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40 164.00 55.00 219.00 6.66	1.37724E-28 p-value 0.981600137* p-value
IGA 28.00 /4.00 0.00 6/.00 0.00 0.00 169.00	TGA 0.00 74.00 0.00 7.00 0.00 0.00 81.00 TOTAL 28.00 148.00 0.00 74.00 0.00 0.00 250.00 Exp. 18.93 100.05 0.25 50.02 0.25 0.25 p-value Exp. 9.07 47.95 0.25 23.98 0.25 0.25 5.0687E-10*	TTC TTC TTG Exp. X^2 X^2 TTG TTG. TOTAL Exp. X^2 X*2 TAG TAG TOTAL Exp. X^2 X*2 X*2 X*2 X*2 X*2 X*2	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24 0.00 0.00 0.00 0.00 0.25 0.25 0.25	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.00 0.00 0.25	0.81 0.58 0.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16 0.00 1.00 1.00 0.75 0.25 0.75	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.00 0.25	4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.25	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.25 0.3,00 0.60 0.60 0.60 0.60 0.25 0.25 0.25 0.25 0.25 0.25 0.3,00 0.60 0.3,00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.3,00 0.3,00 0.60 0.3,00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.3,00 0.60 0.60 0.3,00 0.25 0.3,00 0.5 0.3,00 0.5 0.3,00 0.5 0.3,00 0.5 0.3,00 0.5 0.3,00 0.5 0.3,00 0.5 0.3,00 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40 164.00 55.00 219.00 6.66	1.37724E-28 p-value 0.981600137* p-value
	TOTAL 28.00 148.00 0.00 74.00 0.00 0.00 250.00 Exp. 18.93 100.05 0.25 50.02 0.25 0.25 p-value Exp. 9.07 47.95 0.25 23.98 0.25 0.25 5.0687E-10*	TTC TTC TTC Exp. Exp. X^2 TTG TTG TTG TTG X*2 X*2 X*2 TTG TTG TAG TAG TAG Exp. X*2 XAG TAG TAG TAG YAG X*2	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	0.81 0.58 0.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16 0.00 1.00 1.00 1.00 0.75 0.25 0.75 2.23	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 92.00 49.00 141.00 105.59 35.41 1.75 5.21	4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.25 0.34 1.01 0.01	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 58.00 3.00 61.00 45.68 15.32 3.32 9.91	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40 164.00 55.00 219.00 6.66 18.87	1.37724E-28 p-value 0.981600137* p-value
TGA 0.00 74.00 0.00 7.00 0.00 0.00 81.00	TOTAL 28.00 148.00 0.00 74.00 0.00 0.00 250.00 Exp. 18.93 100.05 0.25 50.02 0.25 0.25 p-value Exp. 9.07 47.95 0.25 23.98 0.25 0.25 5.0687E-10*	TTC TTC TOTAL Exp. X^2 X^2 TTG TTTG. TOTAL Exp. X^2 X*2 TTG TTG. TOTAL Exp. X*2 X*2 TAG TAG TOTAL Exp. X*2 XAG TAG TAG TAG TAG TAG TAG TAG TAG TGA	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.28.00	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.25	0.81 0.58 0.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16 0.00 1.00 1.00 1.00 1.00 0.75 0.25 0.75 2.23	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.25 0.25 0.25 92.00 49.00 141.00 105.59 35.41 1.75 5.21	4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.25 0.34 1.01 0.00	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.25 0.55 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40 164.00 55.00 219.00 6.66 18.87 169.00	1.37724E-28 p-value 0.981600137* p-value
	Exp. 18.93 100.05 0.25 50.02 0.25 0.25 p-value Exp. 9.07 47.95 0.25 23.98 0.25 0.25 5.0687E-10*	TTC TTC TOTAL Exp. X^2 X^2 TTG TTTG. TOTAL Exp. X^2 X*2 TTG TTG. TOTAL Exp. X*2 X*2 TAG TAG TOTAL Exp. X*2 XAG TAG TAG TAG TAG TAG TAG TAG TAG TGA	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.28.00	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.25	0.81 0.58 0.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16 0.00 1.00 1.00 1.00 1.00 0.75 0.25 0.75 2.23	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.25 0.25 0.25 92.00 49.00 141.00 105.59 35.41 1.75 5.21	4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.25 0.34 1.01 0.00	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.25 0.55 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40 164.00 55.00 219.00 6.66 18.87 169.00	1.37724E-28 p-value 0.981600137* p-value
	Exp. 9.07 47.95 0.25 23.98 0.25 0.25 5.0687E-10*	TTC TTC TOTAL Exp. X^2 X^2 TTG TTG. TTG. TTG. TTG. TTG. TTG. TAC. Exp. X^2 X^2 TAG. TAG. TOTAL Exp. X^2 X^2 X^2 TAG. TOTAL Exp. X^2 TAG. TOTAL Exp. X^2 TAG. TGA. TGA. TGA.	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24 0.00 0.24 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.20	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.25	0.81 0.58 0.00 1.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16 0.00 1.00 1.00 1.00 0.75 0.25 0.75 2.23	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.25 0.25 0.25 92.00 49.00 141.00 105.59 35.41 1.75 5.21 67.00 7.00	4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.25 0.26	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.25 0.25 0.25 0.25 58.00 3.00 61.00 45.68 15.32 3.32 9.91 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40 164.00 55.00 219.00 6.66 18.87 169.00 81.00	1.37724E-28 p-value 0.981600137* p-value
		TTC TTC TOTAL Exp. X^2 X^2 TTG TTG. TTG. TTG. TTG. TTG. TTG. TAC. Exp. X^2 X^2 X^2 X^2 X^2 X^2 TAG TAG TOTAL Exp. X^2 X^2 TAG TOTAL Exp. X^2 TAG TGA TGA TGA TGA TGA TGA	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.20	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.25	0.81 0.58 0.00 1.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16 0.00 1.00 1.00 1.00 1.00 0.75 0.25 0.75 2.23	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.25 0.25 0.25 92.00 44.00 105.59 35.41 1.75 5.21 67.00 7.00 74.00	4.08 0.00 14.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.25 0.26 0.25 0.26 0.00 0.00 0.00 0.00 0.00 0.00	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 58.00 3.00 61.00 45.68 15.32 3.32 9.91 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.25 0.25 0.25 0.25 0.25 0.00 0	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40 164.00 55.00 219.00 6.66 18.87 169.00 81.00	1.37724E-28 p-value 0.981600137* p-value 0.000171764*
		TTC TTC TTC Exp. Exp. X^2 X^2 TTG TTG TTG TTG TTG TAG TAG TOTAL Exp. X^2 X^2 X^2 TAG TOTAL Exp. X^2 TAG TOTAL Exp. X^2 TAG TOTAL Exp. X^2 TAG TOTAL Exp. X^2 TGA TGA TGA TOTAL Exp.	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.26 0.00 0.00 0.00 0.00 0.25 0 0 0 0 0 0 0 0 0 0 0 0 0	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.25	0.81 0.58 0.00 1.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16 0.00 1.00 1.00 0.75 0.25 0.75 2.23 0.00 0.00 0.00 0.00 0.00	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 92.00 49.00 141.00 105.59 35.41 1.75 5.21 67.00 7.00 74.00 50.02	4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.00 0.25 0.00 0.00 0.00 0.00 0.00 0.25	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.25 0.00 0.25 0.00 0.00 0.00 0.00 0.00 0.25 0.00 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.00	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40 164.00 55.00 219.00 6.66 18.87 169.00 81.00	1.37724E-28 p-value 0.981600137* p-value 0.000171764* p-value
	X^2 4.35 6.78 0.25 5.76 0.25 0.25 17.64	TTC TTC TTG Exp. X^2 X^2 TTG TTG. TTG. TOTAL Exp. X^2 X^2 TAG TAG TOTAL Exp. X^2 X^2 TAG TGA TGA TGA TGA TOTAL Exp. Exp. Exp.	10.32 1.00 49.00 50.00 21.83 28.17 19.87 15.40 67.00 62.00 129.00 70.75 58.25 0.20 0.24 0.00 0.24 0.00 0.00 0.25 0.00	3.78 24.00 0.00 24.00 10.48 13.52 17.45 13.52 0.00 0.00 0.00 0.25	0.81 0.58 0.00 1.00 0.44 0.56 0.44 0.34 114.00 87.00 201.00 110.25 90.75 0.13 0.16 0.00 1.00 1.00 0.75 0.25 0.75 2.23 0.00 0.00 0.00 0.00 0.00 0.00 0.25 0.25	6.43 67.00 12.00 79.00 34.49 44.51 30.64 23.75 0.00 0.00 0.00 0.00 0.25 0.21 0.00 7.00	4.08 0.00 14.00 6.11 7.89 6.11 4.74 0.00 0.00 0.00 0.25	2.50 56.00 115.00 171.00 74.65 96.35 4.66 3.61 0.00 0.00 0.00 0.25 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.00 0.00 0.25	27.69 148.00 191.00 339.00 79.18 61.35 181.00 149.00 330.00 1.33 1.40 164.00 55.00 219.00 6.66 18.87 169.00 81.00 250.00	1.37724E-28 p-value 0.981600137* p-value 0.000171764* p-value

X^2	9.07	14.15	0.25	12.02	0.25	0.25	35.99	1
~ 2	5.07	14.15	0.25	12.02	0.25	0.25	33.33	J
TCC	0.00	50.00	0.00	20.00	0.00	0.00	00.00	1
TGG	0.00	59.00	0.00	29.00	0.00	0.00	88.00	
TGG	0.00	33.00	0.00	44.00	0.00	4.00	81.00	
TOTAL	0.00	92.00	0.00	73.00	0.00	4.00	169.00	
Exp.	0.25	47.91	0.25	38.01	0.25	2.08		p-value
Exp.	0.25	44.09	0.25	34.99	0.25	1.92		0.014598301*
X^2	0.25	2.57	0.25	2.14	0.25	2.08	7.54	
X^2	0.25	2.79	0.25	2.32	0.25	2.26	8.13	
TGC	4.00	34.00	0.00	85.00	0.00	0.00	123.00	
TGC	22.00	65.00	1.00	91.00	0.00	0.00	179.00	
TOTAL	26.00	99.00	1.00	176.00	0.00	0.00	302.00	
Exp.	10.59	40.32	0.41	71.68	0.25	0.25		p-value
Exp.	15.41	58.68	0.59	104.32	0.25	0.25	-	0.019495242*
X^2	4.10	0.99	0.41	2.47	0.25	0.25	8.47	0.019499242
X^2	2.82	0.68	0.28	1.70	0.25	0.25	5.98	-
<u>^ 2</u>	2.02	0.00	0.20	1.70	0.25	0.25	3.30	
707	0.00	1.00	0.00	125.00	0.00	1 00	127.00	1
TGT	0.00	1.00	0.00	135.00	0.00	1.00	137.00	
TGT	0.00	21.00	0.00	200.00	0.00	0.00	221.00	
TOTAL	0.00	22.00	0.00	335.00	0.00	1.00	358.00	
Exp.	0.25	8.42	0.25	128.20	0.25	0.38		p-value
Exp.	0.25	13.58	0.25	206.80	0.25	0.62		0.025445335*
X^2	0.25	6.54	0.25	0.36	0.25	1.00	8.64	
X^2	0.25	4.05	0.25	0.22	0.25	0.62	5.64	1
								-
GAA	35.00	0.00	0.00	0.00	29.00	10.00	74.00	1
GAA	1.00	43.00	0.00	2.00	5.00	34.00	85.00	
TOTAL	36.00	43.00	0.00	2.00	34.00	44.00	159.00	
	16.75	20.01		0.93	15.82	20.48	155.00	n-value
Exp.	19.25	22.99	0.25	1.07	18.18	20.48	-	p-value 1.85645E-21*
Exp. X^2							67.00	1.030436-21*
	19.87	20.01	0.25	0.93	10.97	5.36	57.39	-
X^2	17.30	17.42	0.25	0.81	9.55	4.67	50.00	
	•		•			-		
GAC	0.00	1.00	0.00	26.00	57.00	41.00	125.00	
GAC	11.00	57.00	0.00	28.00	0.00	1.00	97.00	
	11.00	57.00	0.00	20100	0.00			
TOTAL	11.00	58.00	0.00	54.00	57.00	42.00	222.00	
TOTAL								p-value
TOTAL Exp.	11.00 6.19	58.00 32.66	0.00 0.25	54.00 30.41	57.00 32.09	42.00 23.65		
TOTAL Exp. Exp.	11.00 6.19 4.81	58.00 32.66 25.34	0.00 0.25 0.25	54.00 30.41 23.59	57.00 32.09 24.91	42.00 23.65 18.35	222.00	p-value 1.4373E-32
TOTAL Exp. Exp. X^2	11.00 6.19 4.81 6.19	58.00 32.66 25.34 30.69	0.00 0.25 0.25 0.25	54.00 30.41 23.59 0.64	57.00 32.09 24.91 19.33	42.00 23.65 18.35 12.73	222.00 69.83	
TOTAL Exp. Exp.	11.00 6.19 4.81	58.00 32.66 25.34	0.00 0.25 0.25	54.00 30.41 23.59	57.00 32.09 24.91	42.00 23.65 18.35	222.00	
TOTAL Exp. Exp. X ² X ²	11.00 6.19 4.81 6.19 7.98	58.00 32.66 25.34 30.69 39.55	0.00 0.25 0.25 0.25 0.25	54.00 30.41 23.59 0.64 0.82	57.00 32.09 24.91 19.33 24.91	42.00 23.65 18.35 12.73 16.41	222.00 69.83 89.91	
TOTAL Exp. Exp. X^2 X^2 GCA	11.00 6.19 4.81 6.19 7.98 33.00	58.00 32.66 25.34 30.69 39.55 37.00	0.00 0.25 0.25 0.25 0.25 13.00	54.00 <u>30.41</u> 23.59 0.64 0.82 <u>36.00</u>	57.00 32.09 24.91 19.33 24.91 33.00	42.00 23.65 18.35 12.73 16.41 36.00	222.00 69.83 89.91 188.00	
TOTAL Exp. Exp. X^2 X^2 GCA GCA	11.00 6.19 4.81 6.19 7.98 33.00 38.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00	0.00 0.25 0.25 0.25 0.25 13.00 46.00	54.00 30.41 23.59 0.64 0.82 36.00 23.00	57.00 32.09 24.91 19.33 24.91 33.00 1.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00	222.00 69.83 89.91 188.00 218.00	
TOTAL Exp. Exp. X^2 X^2 GCA GCA TOTAL	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00	222.00 69.83 89.91 188.00	1.4373E-32
TOTAL Exp. Exp. X^2 GCA GCA TOTAL Exp.	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51	222.00 69.83 89.91 188.00 218.00	1.4373E-32
TOTAL Exp. Exp. X^2 X^2 GCA GCA TOTAL Exp. Exp.	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49	222.00 69.83 89.91 188.00 218.00 406.00	1.4373E-32
TOTAL Exp. Exp. X^2 X^2 GCA GCA TOTAL Exp. Exp. X^2	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06	222.00 69.83 89.91 188.00 218.00 406.00 31.45	1.4373E-32
TOTAL Exp. Exp. X^2 X^2 GCA GCA TOTAL Exp. Exp.	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49	222.00 69.83 89.91 188.00 218.00 406.00	1.4373E-32
TOTAL Exp. Exp. X^2 X^2 GCA GCA GCA Exp. Exp. X^2 X*2	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91	0.00 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13	1.4373E-32
TOTAL Exp. Exp. X^2 X^2 GCA GCA TOTAL Exp. Exp. X^2	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06	222.00 69.83 89.91 188.00 218.00 406.00 31.45	1.4373E-32
TOTAL Exp. Exp. X^2 X^2 GCA GCA GCA Exp. Exp. X^2 X*2	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00	0.00 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13	1.4373E-32
TOTAL Exp. Exp. X^2 GCA GCA GCA TOTAL Exp. X^2 X*2	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00	0.00 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00	1.4373E-32
TOTAL Exp. Exp. X^2 GCA GCA GCA Exp. X^2 Xorrel Exp. X^2 GCA GCA GCA GCA GCA GCA GCA GCA GCC GCC GCC	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00	1.4373E-32
TOTAL Exp. Exp. X^2 GCA GCA GCA Barbon GCA GCC GCC GCC GCC GCC TOTAL	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00	1.4373E-32 p-value 2.3865E-11
TOTAL Exp. Exp. X^2 GCA GCA TOTAL Exp. X^2 X^2 GCA GCA GCA GCA GCA GCA GCA GCC GCC GCC GCC GCC TOTAL Exp. Exp.	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.25 0.25	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00	1.4373E-32 p-value 2.3865E-11 p-value
TOTAL Exp. Exp. X^2 GCA GCA GCA SCA GCA GCA GCA GCA GCA GCA GCA GCA GCA GCC GCC GCC GCC GCC GCC GCC SCO TOTAL Exp. Exp. Exp. X^2	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88	0.00 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.25 0.25 0.25	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37	1.4373E-32 p-value 2.3865E-11 p-value
TOTAL Exp. Exp. X^2 GCA GCA TOTAL Exp. X^2 X^2 GCA GCA GCA GCA GCA GCA GCA GCC GCC GCC GCC GCC TOTAL Exp. Exp.	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.25 0.25	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00	1.4373E-32 p-value 2.3865E-11 p-value
TOTAL Exp. Exp. X^2 GCA GCC GCC GCC GCC GCC GCC TOTAL Exp. X^2 X^2	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90	1.4373E-32 p-value 2.3865E-11 p-value
TOTAL Exp. Exp. X^2 GCA GCC GCC GCC GCC GCC TOTAL Exp. X^2 X^2 X^2 GCT	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31 0.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00	1.4373E-32 p-value 2.3865E-11 p-value
TOTAL Exp. Exp. X^2 GCA GCA GCA GCA GCA GCA GCA GCA GCA GCC GCT GCT	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 25.48 26.31 0.00 0.00 0.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00	0.00 0.25 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 4.00 0.00	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00	1.4373E-32 p-value 2.3865E-11 p-value
TOTAL Exp. Exp. X^2 GCA GCA GCA GCA GCA GCA GCA GCA GCC GCT GCT GCT GCT GCT GCT GCT	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 25.48 26.31 0.00 0.00 0.00 0.00 0.00 0.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00	0.00 0.25 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 52.00	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19*
TOTAL Exp. Exp. X^2 X^2 GCA GCC GCT GCT GCT GCT TOTAL Exp.	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.25	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00 31.00 12.62	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 52.00 21.18	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.64 0.00 0.00 0.00 0.00 0.00 0.00 0.25 0.00 0.00 0.00 0.25	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00 1.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19*
TOTAL Exp. Exp. X^2 GCA GCC GCC GCC GCC GCC GCC GCC GCC GCC GCT GCT GCT GCT Exp. Exp. Exp.	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.25 0.25	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00 31.00 12.62 18.38	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 52.00 21.18 30.82	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00 1.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88 39.12	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00 194.00	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19*
TOTAL Exp. Exp. X^2 GCA GCC GCT GCT GCT GCT Sx^2	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31 0.00 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00 31.00 12.62 18.38 12.62	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 52.00 21.18 30.82 19.22	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.25 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00 41.00 64.00 1.00 32.53	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88 39.12 1.89	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00 194.00 69.96	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19*
TOTAL Exp. Exp. X^2 GCA GCC GCC GCC GCC GCC GCC GCC GCC GCC GCT GCT GCT GCT Exp. Exp. Exp.	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.25 0.25	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00 31.00 12.62 18.38	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 52.00 21.18 30.82	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00 1.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88 39.12	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00 194.00	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19*
TOTAL Exp. Exp. X^2 GCA GCC GCT GCT GCT GCT Sx^2	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31 0.00 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00 31.00 12.62 18.38 12.62	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 52.00 21.18 30.82 19.22	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.25 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00 41.00 64.00 1.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88 39.12 1.89	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00 194.00 69.96	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19*
TOTAL Exp. Exp. X^2 GCA GCC GCT GCT GCT GCT Sx^2	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31 0.00 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00 31.00 12.62 18.38 12.62	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 52.00 21.18 30.82 19.22	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.25 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00 41.00 64.00 1.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88 39.12 1.89	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00 194.00 69.96	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19*
TOTAL Exp. Exp. X^2 GCA GCA GCA SCA CA GCA GCA GCA GCA GCA GCA GCA GCA GCC GCC GCC GCC GCC GCC GCC GCT GCT GCT GCT SCP. X^2 X^2 GCT GCG	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31 0.00 0.00 0.00 0.25 0.25 0.25 0.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00 31.00 31.00 12.62 18.38 12.62 8.67	0.00 0.25 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 52.00 21.18 30.82 19.22 13.21 0.00	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.00 0.25 0.00 1.63 2.37 3.45 2.37	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00 41.00 2.85 2.95 0.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88 39.12 1.89 1.30 0.00	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00 194.00 69.96 48.14 0.00	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19*
TOTAL Exp. Exp. X^2 GCA GCC GCC GCC GCC GCC GCC GCC GCT GCT GCT GCT GCT GCT GCT GCC X^2 X^2 GCG GCG GCG GCG	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31 0.00 0.00 0.25 0.25 0.25 0.00 0.00 0.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00 31.00 31.00 12.62 18.38 12.62 8.67	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 52.00 21.18 30.82 19.22 13.21 0.00 13.00	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.25 0.00	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00 16.70 24.30 32.53 22.35	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88 39.12 1.89 1.30 0.00 57.00	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00 194.00 69.96 48.14 0.00 96.00	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19*
TOTAL Exp. Exp. X^2 GCA GCC GCC GCC GCC GCC GCC GCC GCT GCT GCT GCT GCT GCT GCT GCG <	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31 0.00 0.00 0.00 0.25 0.25 0.25 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00 31.00 12.62 18.38 12.62 8.67	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 52.00 21.18 30.82 19.22 13.21 0.00 13.00	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.25 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88 39.12 1.89 1.30 0.00 57.00 57.00	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00 194.00 69.96 48.14 0.00	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19* p-value 1.00929E-23*
TOTAL Exp. Exp. X*2 GCA GCC GCC GCC GCC GCC GCC GCC GCC GCC GCT GCT GCT GCT GCT GCT GCT GCT GCG GCG GCG GCG GCG GCG GCG TOTAL Exp. X^2 X*2	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.00 0.25 0.25 0.25 0.25 0.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00 31.00 31.00 31.00 12.62 18.38 12.62 8.67	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 52.00 21.18 30.82 19.22 13.21 0.00 13.00 13.00 N/A	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.25 0.00 0.23 0.00	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00 41.00 41.00 16.70 24.30 32.53 22.35 0.00 1.00 1.00 1.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88 39.12 1.89 1.30 0.00 57.00 57.00 N/A	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00 194.00 69.96 48.14 0.00 96.00	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19* p-value 1.00929E-23*
TOTAL Exp. Exp. X*2 GCA GCC GCC GCC GCC GCC GCC GCC GCT GCT GCT GCT GCT GCG GCG GCG GCG GCG GCG GCG TOTAL Exp. Exp. Exp. Exp. Exp. Exp.	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00 31.00 31.00 12.62 18.38 12.62 8.67 0.00 2.00 2.00 2.00 0.00 2.00	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 51.00 52.00 21.18 30.82 19.22 13.21 0.00 13.00 13.00 N/A N/A	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.25 0.23 0.00 23.00 N/A N/A	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00 41.00 16.70 24.30 32.53 22.35 0.00 1.00 1.00 1.00 1.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88 39.12 1.89 1.30 0.00 57.00 N/A N/A	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00 194.00 69.96 48.14 0.00 96.00	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19* p-value 1.00929E-23*
TOTAL Exp. Exp. X*2 GCA GCC GCC GCC GCC GCC GCC GCC GCC GCT GCT GCT GCT GCT GCG TOTAL Exp. <th>11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48</th> <th>58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 2.88 2.98 0.00 31.00 31.00 31.00 31.00 12.62 18.38 12.62 8.67 0.00 2.00 2.00 2.00 N/A N/A</th> <th>0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 51.00 52.00 21.18 30.82 19.22 13.21 0.00 13.00 N/A N/A</th> <th>54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.25 0.00 0.23 0.00 0.25 0.25 0.25 0.00 0.23 0.00 0.23 0.00 0.25 0.00 0.23 0.00 0.25 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.25</th> <th>57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00 16.70 24.30 32.53 22.35 0.00 1.00 1.00 1.00</th> <th>42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88 39.12 1.89 1.30 0.00 57.00 57.00 57.00 N/A N/A</th> <th>222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00 194.00 69.96 48.14 0.00 96.00 96.00</th> <th>1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19* p-value 1.00929E-23*</th>	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 2.88 2.98 0.00 31.00 31.00 31.00 31.00 12.62 18.38 12.62 8.67 0.00 2.00 2.00 2.00 N/A N/A	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 51.00 52.00 21.18 30.82 19.22 13.21 0.00 13.00 N/A N/A	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.25 0.00 0.23 0.00 0.25 0.25 0.25 0.00 0.23 0.00 0.23 0.00 0.25 0.00 0.23 0.00 0.25 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.00 0.25	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00 16.70 24.30 32.53 22.35 0.00 1.00 1.00 1.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88 39.12 1.89 1.30 0.00 57.00 57.00 57.00 N/A N/A	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00 194.00 69.96 48.14 0.00 96.00 96.00	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19* p-value 1.00929E-23*
TOTAL Exp. Exp. X*2 GCA GCC GCC GCC GCC GCC GCC GCC GCT GCT GCT GCT GCT GCG GCG GCG GCG GCG GCG GCG TOTAL Exp. Exp. Exp. Exp. Exp. Exp.	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00 31.00 31.00 12.62 18.38 12.62 8.67 0.00 2.00 2.00 2.00 0.00 2.00	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 51.00 52.00 21.18 30.82 19.22 13.21 0.00 13.00 13.00 N/A N/A	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.25 0.23 0.00 23.00 N/A N/A	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00 16.70 24.30 32.53 22.35 0.00 1.00 1.00 1.00 1.00	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88 39.12 1.89 1.30 0.00 57.00 N/A N/A	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00 194.00 69.96 48.14 0.00 96.00	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19* p-value 1.00929E-23*
TOTAL Exp. Exp. X*2 GCA GCC GCC GCC GCC GCC GCT GCT GCT GCT GCT GCG TOTAL Exp. X*2 X*2	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00 31.00 31.00 31.00 12.62 18.38 12.62 8.67 0.00 2.00 2.00 2.00 2.00 N/A N/A N/A	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 52.00 21.18 30.82 19.22 13.21 0.00 13.00 N/A N/A N/A	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.25 0.76 2.37 3.45 2.37 3.45 2.37 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.75 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.76 2.37 3.45 2.37 0.00	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00 16.70 24.30 32.53 22.35 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88 39.12 1.89 1.30 0.00 57.00 57.00 N/A N/A N/A	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00 194.00 59.96 48.14 0.00 96.00 96.00 96.00	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19* p-value 1.00929E-23*
TOTAL Exp. Exp. X^2 GCA GCC GCC GCC GCC GCC GCC GCC GCT GCT GCT GCT GCT GCT GCG <	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 N/A N/A N/A	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00 31.00 31.00 12.62 18.38 12.62 8.67 0.00 2.00 2.00 2.00 2.00 0.00 0.00 0.0	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 52.00 21.18 30.82 19.22 13.21 0.00 13.00 N/A N/A N/A N/A N/A	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.25 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.23.00 0.00 0.23.00 0.23.00 0.00 0.23.00 0.00 0.23.00 0.00 0.23.00 0.00 0.23.00 0.00 0.23.00 0.00 0.23.00 0.00 0.23.00 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.25 0.00 0.23.00 0.00 0.00 0.23.00 0.00	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00 16.70 24.30 32.53 22.35 0.00 1.00 1.00 N/A N/A N/A	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88 39.12 1.89 1.30 0.00 57.00 57.00 N/A N/A N/A	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00 194.00 69.96 48.14 0.00 96.00 96.00 96.00 123.00	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19* p-value 1.00929E-23*
TOTAL Exp. Exp. X*2 GCA GCC GCC GCC GCC GCC GCT GCT GCT GCT GCT GCG TOTAL Exp. X*2 X*2	11.00 6.19 4.81 6.19 7.98 33.00 38.00 71.00 32.88 38.12 0.00 0.00 97.00 18.00 115.00 58.42 56.58 25.48 26.31 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.00	58.00 32.66 25.34 30.69 39.55 37.00 65.00 102.00 47.23 54.77 2.22 1.91 16.00 32.00 48.00 24.38 23.62 2.88 2.98 0.00 31.00 31.00 31.00 31.00 12.62 18.38 12.62 8.67 0.00 2.00 2.00 2.00 2.00 N/A N/A N/A	0.00 0.25 0.25 0.25 0.25 13.00 46.00 59.00 27.32 31.68 7.51 6.47 3.00 39.00 42.00 21.34 20.66 15.76 16.27 1.00 51.00 52.00 21.18 30.82 19.22 13.21 0.00 13.00 N/A N/A N/A	54.00 30.41 23.59 0.64 0.82 36.00 23.00 59.00 27.32 31.68 2.76 2.38 0.00 0.00 0.00 0.00 0.25 0.76 2.37 3.45 2.37 3.45 2.37 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.75 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.76 2.37 3.45 2.37 0.00	57.00 32.09 24.91 19.33 24.91 33.00 1.00 34.00 15.74 18.26 18.91 16.31 41.00 64.00 105.00 53.34 51.66 2.85 2.95 40.00 1.00 41.00 16.70 24.30 32.53 22.35 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	42.00 23.65 18.35 12.73 16.41 36.00 45.00 81.00 37.51 43.49 0.06 0.05 2.00 1.00 3.00 1.52 1.48 0.15 0.15 34.00 32.00 66.00 26.88 39.12 1.89 1.30 0.00 57.00 57.00 N/A N/A N/A	222.00 69.83 89.91 188.00 218.00 406.00 31.45 27.13 159.00 154.00 313.00 47.37 48.90 79.00 115.00 194.00 59.96 48.14 0.00 96.00 96.00 96.00	1.4373E-32 p-value 2.3865E-11 p-value 4.09952E-19* p-value 1.00929E-23*

Exp. 0.25 <th0.25< th=""> 0.25 0.25 <th0< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th0<></th0.25<>									
Exp. 0.25 42.4 0.25 12.91 0.25 17.78 33.59 358548.16* X*2 0.25 0.01 0.25 11.97 0.25 25.64 48.71 X*2 0.25 0.01 0.25 11.91 0.23 25.64 48.71 CTA 124.69 43.06 51.06 51.06 51.06 52.69 48.71 CTA 124.69 43.70 21.03 51.26 11.90 62.20 72.60<	Evn	0.75	67 29	0.25	22 00	0.75	79 57		
X*2 0.25 0.01 0.25 14.97 0.25 17.78 33.50 CTA 2.50 0.10 0.25 1.10 0.25 0									
X*2 0 0 0 0 25 21,91 0.25 26,90 42,90 GIA 114,60 43,60 24,60 61,60 95,60 52,00 442,80 GIA 135,60 52,00 7,00 135,60 52,00 52,00 52,00 52,00 Stp. 125,44 42,70 21,249 53,36 115,70 55,40 52,00 53,10 1,965,31,10 X*2 0.62 0.01 0.20 1.61 3,00 1.69 6,23 1,965,21,00 1,965,21									5.93954E-16*
GTA 174.00 43.00 74.00 61.00 94.00 72.00 427.00 81.00 GTA 125.00 9.00 2.00 61.00 61.00 61.00 61.00 81.00<	X^2	0.25	0.01	0.25	14.97	0.25	17.78	33.50	
GTA 174.00 43.00 74.00 61.00 94.00 72.00 427.00 81.00 GTA 125.00 9.00 2.00 61.00 61.00 61.00 61.00 81.00<	X^2	0.25	0.01	0.25	21.91	0.25	26.04	48.71	
CitA 25 9 9.09 2.09 2.60 41.00 6.06 33.00 525.									
CitA 25 9 9.09 2.09 2.60 41.00 6.06 33.00 525.	CTA	124.00	42.00	24.00	C1 00	0.000	02.00	442.00	1
TOTAL 149.00 52.00 75.00 61.00 61.90 139.00 99.00 52.00 72.00 GYD 23.54 42.73 21.30 51.32 11.92 61.33.00 92.00 1.96011-07 X*2 0.92 0.01 0.70 1.61 3.09 1.67 5.23 1.96011-07 X*2 0.92 0.90 0.90 0.90 0.90 22.00 32.00 97.00 GTT 0.90 2.00 5.00 2.00 33.00 97.00 22.00 1.269.20 1.269.21 <th></th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>									
Exp. 125.44 43.76 11.9 64.17 20 87.31 P=*alue X2 6.02 6.01 6.23 1.8 3.93 1.69 6.23 1.95 X2 6.02 6.01 1.60 5.64 16.67 5.82 3.18 1.95 GT 0.09 0.09 0.00 5.00 2.00 6.00 9.00 9.00 7.01 9.00 1.00 9.00 1.00 9.00 1.00 9.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 <th>GTA</th> <td>25.00</td> <td>9.00</td> <td>2.00</td> <td>0.00</td> <td>41.00</td> <td>6.00</td> <td>83.00</td> <td></td>	GTA	25.00	9.00	2.00	0.00	41.00	6.00	83.00	
Exp. 21.55 8.22 4.11 9.64 21.98 15.49 5.195316-87 X*2 0.62 0.61 0.22 1.16 3.99 1.95 33.18 X*2 0.69 0.67 1.68 9.64 11.647 5.82 33.18 CTT 0.69 0.69 0.69 5.95 7.06 37.66 87.66 87.66 TOTAL 0.69 6.23 89.69 89.69 9.75 10.74 5.93 7.91 66.68 9.66 10.75 10.74 5.93 7.91 66.68 10.769 10.75 10.75 10.75 10.76 10.769 10.75 10.75 10.75 10.76 10.769 10.76 10.76 10.76 10.75 10.75 10.75 <	TOTAL	149.00	52.00	26.00	61.00	139.00	98.00	525.00	
Exp. 21.55 8.22 4.11 9.64 21.98 15.49 5.195316-87 X*2 0.62 0.61 0.22 1.16 3.99 1.95 33.18 X*2 0.69 0.67 1.68 9.64 11.647 5.82 33.18 CTT 0.69 0.69 0.69 5.95 7.06 37.66 87.66 87.66 TOTAL 0.69 6.23 89.69 89.69 9.75 10.74 5.93 7.91 66.68 9.66 10.75 10.74 5.93 7.91 66.68 10.769 10.75 10.75 10.75 10.76 10.769 10.75 10.75 10.75 10.76 10.769 10.76 10.76 10.76 10.75 10.75 10.75 <	Exp	125 44	43 78	21 89	51 36	117 02	82 51		n-value
X ² 2 0.62 0.63 1.68 0.20 1.81 3.09 1.69 6.23 3.18 CT 0.69 0.60 0.69 0.69 0.69 0.69 2.20 9.70									
X^2 0.09 0.07 1.08 9.64 16.47 5.82 33.18 CIT 0.09 6.00 5.09 2.00 0.09 7.00 0.70 0.09 7.00 0.70 0.09 7.00 0.70 0.09 7.00 0.70 0.09 7.00 0.70 0.09 7.00 0.70 0.09 7.00 0.70 0.									1.900311-07
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CTT 0.00 22.00 0.2.00 32.00 67.00 68.00 Exp. 0.25 2.00 0.25 1.24 5.93 7.91 p-value X2 0.25 2.08 0.25 1.24 5.93 7.91 60.08 X2 0.25 2.08 0.25 1.24 43.52 7.91 60.08 X2 0.25 2.08 1.24 43.52 7.91 60.08 CTC 2.08 0.89 4.60 3.60 1.24 92.60 110.09 CTC 13.69 9.23 6.31 63.55 1.44 64.23 25.64 91 90.90 TOTAL 32.66 1.35 14.64 35.66 1.25 1.78 14.1.16 X2 6.83 9.23 8.31 3.65 9.25 3.78 41.16 X2 6.90 0.60 0.60 0.60 0.60 0.80 9.80 9.80 9.80 9.80 9.80									_
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TOTAL 0.00 28.00 0.025 0.24 0.00 32.00 0.00 p-value Exp. 0.25 1.24 5.93 7.01 18.07 24.09 1.26492E-15* X^2 0.25 2.27 0.25 1.24 43.52 7.91 66.08 X^2 0.25 2.27 0.25 0.21 43.52 7.90 10.00 GTC 10.00 0.90 0.90 0.90 2.60 27.00 110.00 GTC 12.06 0.90 0.90 0.90 9.00 10.00 12.00 GTC 12.34 6.04 3.56 1.58 14.64 35.60 12.63 26.51 X^2 4.51 6.04 0.44 0.90 0.90 10.90									
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CTC 22.08 10.08 9.08 4.00 3.08 72.08 72.08 GTC 10.08 0.08 0.08 4.00 37.08 90.08 110.08 Exp. 12.66 3.96 3.40 56.09 120.08 2.55594E-13* X*2 6.89 9.23 8.31 3.63 9.25 3.78 41.16 X*2 6.89 9.23 8.31 3.69 9.24 3.78 41.16 X*2 6.89 9.23 8.31 3.69 9.25 3.78 41.16 X*2 6.89 9.00 9.00 9.00 188.09 188.09 TOTAL 10.98 9.00 44.98 0.90 54.09 9.00 188.09 TOTAL 10.98 9.08 6.08 36.09 188.09 188.09 Exp. N/A N/A N/A N/A N/A N/A N/A X*2 N/A N/A N/A N/A N/A <th></th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>4</td>									4
GTC 10.00 0.00 34.00 66.00 110.00 Exp. 12.66 3.96 3.56 1.58 14.64 35.60 12.00 Exp. 12.66 3.96 3.56 1.58 14.64 35.60 12.84 X^2 6.89 9.23 8.31 3.69 9.25 3.78 78.6 78.6 78.6 X^2 6.89 9.23 8.31 3.69 9.25 3.78 78.6 78.6 78.6 GTC 0.80 0.60 0.60 0.60 0.60 0.60 0.60 0.80 0.80 0.80 GTG 10.80 0.60 0.44.00 6.00 54.00 0.00 108.60 CTG N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A	XZ	0.25	2.27	0.25	0.41	14.29	2.00	20.00	1
GTC 10.00 0.00 34.00 66.00 110.00 Exp. 12.66 3.96 3.56 1.58 14.64 35.60 12.00 Exp. 12.66 3.96 3.56 1.58 14.64 35.60 12.84 X^2 6.89 9.23 8.31 3.69 9.25 3.78 78.6 78.6 78.6 X^2 6.89 9.23 8.31 3.69 9.25 3.78 78.6 78.6 78.6 GTC 0.80 0.60 0.60 0.60 0.60 0.60 0.60 0.80 0.80 0.80 GTG 10.80 0.60 0.44.00 6.00 54.00 0.00 108.60 CTG N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A					1	1			
TOTAL 32.00 10.00 9.00 4.00 37.00 90.00 182.00 Exp. 12.66 3.96 3.56 1.58 1.4.64 35.60 2.35594E-13* X^2 6.89 9.23 8.31 3.69 9.25 3.78 41.16 X^2 4.51 6.84 5.44 2.42 6.86 2.48 26.35 GTG 0.00 0.80 6.80 0.80 9.09 108.00 GTG 10.00 0.80 4.408 0.80 54.00 0.00 108.00 TOTAL 10.80 0.80 4.408 0.80 54.00 0.00 108.00 TOTAL 10.80 0.80 4.408 0.80 54.00 0.00 108.00 K^2 N/A N/A N/A N/A N/A N/A N/A K^2 N/A N/A N/A N/A N/A N/A N/A K^2 N/A N/A N/A		22.00	10.00	9.00		3.00		72.00	
TOTAL 32.00 10.00 9.00 4.00 37.00 90.00 182.00 Exp. 12.66 3.96 3.56 1.58 1.4.64 35.60 2.35594E-13* X^2 6.89 9.23 8.31 3.69 9.25 3.78 41.16 X^2 4.51 6.84 5.44 2.42 6.86 2.48 26.35 GTG 0.00 0.80 6.80 0.80 9.09 108.00 GTG 10.00 0.80 4.408 0.80 54.00 0.00 108.00 TOTAL 10.80 0.80 4.408 0.80 54.00 0.00 108.00 TOTAL 10.80 0.80 4.408 0.80 54.00 0.00 108.00 K^2 N/A N/A N/A N/A N/A N/A N/A K^2 N/A N/A N/A N/A N/A N/A N/A K^2 N/A N/A N/A	GTC	10.00	0.00	0.00	0.00	34.00	66.00	110.00	
Exp. 12.66 3.96 3.56 1.58 14.64 35.69 2.72.36 55.4.40 2.33594E-13* X^2 6.89 9.23 8.31 3.69 9.25 3.78 41.16 2.35594E-13* X^2 6.89 9.23 8.31 3.69 9.25 3.78 41.16 X^2 4.51 6.84 2.42 6.86 2.48 26.94 GTG 10.80 0.80 44.08 6.80 34.60 0.80 108.60 GTG 10.80 0.80 44.08 6.80 34.60 0.80 108.60 Exp. N/A N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A X^2 N/A N/A <th></th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>									
Exp. 19.34 6.04 5.44 2.42 22.36 54.40 2.5335945-13* X^2 4.51 6.04 5.44 2.42 6.06 2.43 26.94 X^2 4.51 6.04 5.44 2.42 6.06 2.43 26.94 GTG 0.00 0.00 44.00 0.00 54.00 0.00 188.00 GTG 10.00 0.00 44.00 0.00 54.00 0.00 188.00 Exp. N/A N/A N/A N/A N/A N/A N/A X^22 N/A N/A N/A N/A N/A N/A N/A X^22 N/A N/A N/A N/A N/A N/A <t< td=""><th></th><td></td><td></td><td></td><td></td><td></td><td></td><td>102.00</td><td>n_value</td></t<>								102.00	n_value
X*2 6.89 9.73 8.31 3.59 9.75 3.78 41.16 X*2 4.51 6.64 5.44 2.42 6.66 2.48 26.94 GTG 10.80 0.90 44.09 0.90 54.09 0.90 108.09 Cyp. N/A N/A N/A N/A N/A N/A X*2 N/A N/A N/A N/A									
X*2 4.51 6.04 5.44 2.42 6.06 2.48 26.94 GTG 0.00 0.00 0.00 0.00 0.00 10.00 GTG 10.00 0.00 44.00 0.00 54.00 0.00 108.00 TOTAL 10.00 0.00 44.00 0.00 54.00 0.00 108.00 Exp. N/A N/A N/A N/A N/A N/A X*2 N/A N/A N/A N/A N/A N/A Stop: N/A N/A N/A N/A N/A N/A X*2 N/A N/A N/A N/A N/A N/A Stop: Stop: Stop: Stop: <t< td=""><th></th><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>2.53594E-13*</td></t<>									2.53594E-13*
CTG 0		6.89			3.69			41.16	
CTG 0.00 0.00 44.00 0.00 54.00 0.00 188.00 CTG 10.00 0.00 44.00 0.00 54.00 0.00 188.00 Exp. N/A N/A N/A N/A N/A N/A N/A X*2 N/A N/A N/A N/A N/A N/A X*2 N/A N/A N/A N/A N/A N/A X*2 N/A N/A N/A N/A N/A N/A Scatt 0.00 0.00 0.00 0.00 10.00 100.00 CAG 0.00 0.00 0.00 10.00 100.00 100.00 CAG 0.00 0.00 0.00 10.00 100.00 100.00 CAG 0.00 0.00 0.00 10.00 13.00 13.00 Exp. N/A N/A N/A N/A N/A N/A X*2 N/A N/A N/A<	X^2	4.51	6.04	5.44	2.42	6.06	2.48	26.94	
GTG 10.00 0.00 44.00 0.00 54.00 0.00 108.00 Exp. N/A N/A N/A N/A N/A N/A P-value Exp. N/A N/A N/A N/A N/A N/A P-value SY2 N/A N/A N/A N/A N/A N/A X*2 N/A N/A N/A N/A N/A									-
GTG 10.00 0.00 44.00 0.00 54.00 0.00 108.00 Exp. N/A N/A N/A N/A N/A N/A P-value Exp. N/A N/A N/A N/A N/A N/A P-value SY2 N/A N/A N/A N/A N/A N/A X*2 N/A N/A N/A N/A N/A	GTG	0.00	0 00	0 00	0 00	0 00	0.00	0 00	1
TOTAL 10.00 0.00 44.00 0.00 54.00 0.00 188.00 Exp. N/A N/A N/A N/A N/A N/A P-value SY2 N/A N/A N/A N/A N/A N/A N/A Y2 N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A S66 0.00 0.00 36.00 0.00 36.00 100.00 G6A 0.00 0.00 36.00 0.00 36.00 100.00 Exp. N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A X^2 N/A N/A N/A									
Exp. N/A N/A N/A N/A N/A N/A N/A N/A P-value Exp. N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/									
Exp. N/A K*2 N/A N/A N/A N/A N/A N/A N/A N/A GGG 0.00 0.00 0.00 36.00 0.00 36.00 100.00 100.00 Exp. N/A <	TOTAL	10.00						108.00	
K*2 N/A N/A <th>Exp.</th> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td></td> <td>p-value</td>	Exp.	N/A	N/A	N/A	N/A	N/A	N/A		p-value
K*2 N/A N/A <th>Exp.</th> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td></td> <td>N/A</td>	Exp.	N/A	N/A	N/A	N/A	N/A	N/A		N/A
X^2 N/A N/A N/A N/A N/A N/A N/A N/A GAG 0.00	X^2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
CAG 0.00									
GAG 8.00 20.00 0.00 36.00 0.00 36.00 100.00 TOTAL 8.00 20.00 0.00 36.00 0.00 36.00 100.00 Exp. N/A K*2 N/A N/A N/A N/A N/A N/A N/A N/A K*2 N/A N/A N/A N/A N/A N/A N/A K*2 N/A N/A N/A N/A N/A N/A N/A TOTAL 103.00 23.00 0.00 2.00 19.00 13.00 93.00 TOTAL 103.00 23.00 0.00 1.00 9.09 1.81 16.72 2.7942E-06* K*	Λ <u>ζ</u>	N7 A	N/A	117.4	N7 A	11775	N/ A	N/ A	1
GAG 8.00 20.00 0.00 36.00 0.00 36.00 100.00 TOTAL 8.00 20.00 0.00 36.00 0.00 36.00 100.00 Exp. N/A K*2 N/A N/A N/A N/A N/A N/A N/A N/A K*2 N/A N/A N/A N/A N/A N/A N/A K*2 N/A N/A N/A N/A N/A N/A N/A TOTAL 103.00 23.00 0.00 2.00 19.00 13.00 93.00 TOTAL 103.00 23.00 0.00 1.00 9.09 1.81 16.72 2.7942E-06* K*									•
TOTAL 8.00 20.00 0.00 36.00 0.00 36.00 100.00 Exp. N/A									
Exp. N/A N/A <th>GAG</th> <td>8.00</td> <td>20.00</td> <td>0.00</td> <td>36.00</td> <td>0.00</td> <td>36.00</td> <td>100.00</td> <td></td>	GAG	8.00	20.00	0.00	36.00	0.00	36.00	100.00	
Exp. N/A N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A GGA 66.00 1.00 0.00 22.00 5.00 94.00 GGA 37.00 22.00 0.00 22.00 41.00 18.00 187.00 Exp. 51.22 11.44 0.25 0.99 28.39 8.95 3.57942E-06* X^2 3.95 9.75 0.25 1.01 0.09 1.81 16.72 K^2 3.95 9.75 0.25 0.25 0.25 0.25	TOTAL	8.00	20.00	0.00	36.00	0.00	36.00	100.00	
Exp. N/A N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A GGA 66.00 1.00 0.00 22.00 5.00 94.00 GGA 37.00 22.00 0.00 22.00 41.00 18.00 187.00 Exp. 51.22 11.44 0.25 0.99 28.39 8.95 3.57942E-06* X^2 3.95 9.75 0.25 1.01 0.09 1.81 16.72 K^2 3.95 9.75 0.25 0.25 0.25 0.25	Evp								-
X^2 N/A GGA 66.00 1.00 0.00 0.00 22.00 5.00 94.00 93.00 GGA 37.00 22.00 0.00 2.00 5.00 93.00 TOTAL 103.00 23.00 0.00 2.00 41.00 18.00 187.00 Exp. 51.78 11.56 0.25 1.01 20.61 9.05 3.57942E-06* X^2 3.91 9.65 0.25 1.01 0.09 1.81 16.72 X^2 3.91 9.65 0.25 1.02 0.09 1.83 16.89 CGG 1.00 0.00 0.00 0.00 8.05 20.00 TOTAL 2.00 31.00 0.00 0.00 0.00 8.00 113.00 Exp. 1.65 25.51 0.25 0.25 0.25 0.20 0.00 0.00	EXD.	N/A	N/A	N/A	N/A	N/A	N/A		p-value
X^2 N/A N/A N/A N/A N/A N/A N/A N/A GGA 65.00 1.00 0.00 22.00 5.00 94.00 GGA 37.00 22.00 0.00 2.00 19.00 13.00 93.00 TOTAL 103.00 23.00 0.00 2.00 41.00 18.00 187.00 Exp. 51.78 11.56 0.25 1.01 20.61 9.05 3.57942E-06* X^2 3.91 9.65 0.25 1.01 0.09 1.81 16.72 X^2 3.95 9.75 0.25 1.02 0.09 1.83 16.89 GGG 1.00 30.00 0.00 0.00 20.00 20.00 TOTAL 2.00 31.00 0.25 0.25 0.25 14.16 0.209268032* X^2 0.25 0.75 0.25 0.25 1.04 6.64 K^2 0.25 0.25 0.25 1.									
GGA G6.00 1.00 0.00 0.00 22.00 5.00 94.00 93.00 TOTAL 103.00 23.00 0.00 2.00 11.00 13.00 93.00 Exp. 51.78 11.56 0.25 1.01 20.61 9.05 p-value X^2 3.91 9.65 0.25 1.01 0.09 1.81 16.72 X^2 3.95 9.75 0.25 1.01 0.09 1.83 16.89 GGG 1.00 1.00 0.00 0.00 0.00 80.00 113.00 GGG 1.00 0.00 0.00 0.00 80.00 113.00 Kr2 0.35 5.49 0.25 0.25 0.25 1.22 1.04 0.00 GGG 1.65 25.51 0.25 0.25 0.25 1.30 0 GGG 0.35 5.49 0.25 0.25 0.25 1.04 6.64 X*2 0.00	Exp.	N/A	N/A	N/A	N/A	N/A	N/A	N / A	
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TOTAL 2.00 31.00 0.00 0.00 0.00 80.00 113.00 Exp. 1.65 25.51 0.25 0.25 0.25 65.84 p-value X^2 0.35 5.49 0.25 0.25 0.25 14.16 0.209268032* X^2 0.18 3.67 0.25 0.25 0.25 1.04 6.64 Color 0.00 0.00 0.00 0.00 0.00 0.00 0.209268032* X^2 1.18 3.67 0.25 0.25 0.25 1.04 6.64 Color 0.00 0.00 0.00 0.00 0.00 62.00 GGC 0.00 29.00 0.00 1.00 0.00 32.00 62.00 Exp. N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A GGT 0.00 0.00 2.00	Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. Exp. X^2 X^2	N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95	N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75	N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25	N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02	N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09	N/A N/A N/A 5.00 13.00 18.00 9.05 8.95 1.81 1.83	N/A 94.00 93.00 187.00 16.72 16.89	N/A p-value
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Exp. 0.35 5.49 0.25 0.25 0.25 14.16 0.209268032* X^2 0.25 0.79 0.25 0.25 0.25 0.22 2.02 X^2 1.18 3.67 0.25 0.25 0.25 0.22 2.02 X^2 1.18 3.67 0.25 0.25 0.25 1.04 6.64 GGC 0.00 0.00 0.00 0.00 32.00 62.00 GGC 0.00 29.00 0.00 1.00 0.00 32.00 62.00 Exp. N/A N/A N/A N/A N/A N/A P-value K^2 N/A N/A N/A N/A N/A N/A N/A K^2 N/A N/A N/A N/A N/A N/A N/A K^2 N/A N/A N/A N/A N/A N/A K^2 N/A N/A N/A N/A N/A N/A	Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 GGG GGG	N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 1.00 1.00	N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00	N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09	N/A N/A N/A 5.00 13.00 18.00 9.05 8.95 1.81 1.83 62.00 18.00	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00	N/A p-value
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X^2 1.18 3.67 0.25 0.25 1.04 6.64 GGC 0.00 62.00	Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 X^2 GGG GGG TOTAL Exp.	N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 1.00 1.00 2.00 1.65	N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51	N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.00 0.25	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.09 0.00 0.00 0.00	N/A N/A N/A 5.00 13.00 18.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00	N/A p-value 3.57942E-06* p-value
GGC 0.00 62.00 62.00 62.00 0.00 Exp. N/A	Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 X^2 GGG GGG TOTAL Exp. Exp. Exp. Exp. Exp.	N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 1.00 1.00 1.00 2.00 1.65 0.35	N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49	N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.00 0.25 0.25	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.00	N/A N/A N/A 5.00 13.00 18.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00	N/A p-value 3.57942E-06* p-value
GGC 0.00 62.00 62.00 62.00 0.00 Exp. N/A	Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 X^2 GGG GGG GGG TOTAL Exp. Exp. Exp. X^2 X^2	N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 1.00 1.00 1.00 2.00 1.65 0.35 0.25	N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79	N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.00 0.25 0.25 0.25	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.00	N/A N/A N/A 5.00 13.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02	N/A p-value 3.57942E-06* p-value
GGC 0.00 29.00 0.00 1.00 0.00 32.00 62.00 TOTAL 0.00 29.00 0.00 1.00 0.00 32.00 62.00 Exp. N/A N/A N/A N/A N/A N/A N/A P-value Exp. N/A N/A N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A N/A GGT 0.00 0.00 2.00 41.00 21.00 39.00 103.00 35.00 GGT 0.00 0.00 2.00 74.00 21.00 39.00 103.00 35.00 GGT 0.00 0.00 2.00 74.00 21.00 41.00 138.00 Exp. 0.25 0.25 1.49 55.23 15.67 30.60 7.94153E-06* X^2 0.25 0.25 0.17 3.67 1.81	Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 X^2 GGG GGG GGG TOTAL Exp. Exp. Exp. X^2 X^2	N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 1.00 1.00 1.00 2.00 1.65 0.35 0.25	N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79	N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.00 0.25 0.25 0.25	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.00	N/A N/A N/A 5.00 13.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02	N/A p-value 3.57942E-06* p-value
GGC 0.00 29.00 0.00 1.00 0.00 32.00 62.00 TOTAL 0.00 29.00 0.00 1.00 0.00 32.00 62.00 Exp. N/A N/A N/A N/A N/A N/A N/A P-value Exp. N/A N/A N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A N/A GGT 0.00 0.00 2.00 41.00 21.00 39.00 103.00 35.00 GGT 0.00 0.00 2.00 74.00 21.00 39.00 103.00 35.00 GGT 0.00 0.00 2.00 74.00 21.00 41.00 138.00 Exp. 0.25 0.25 1.49 55.23 15.67 30.60 7.94153E-06* X^2 0.25 0.25 0.17 3.67 1.81	Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 X^2 GGG GGG GGG TOTAL Exp. Exp. Exp. X^2 X^2	N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 1.00 1.00 1.00 2.00 1.65 0.35 0.25	N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79	N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.00 0.25 0.25 0.25	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.00	N/A N/A N/A 5.00 13.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02	N/A p-value 3.57942E-06* p-value
TOTAL 0.00 29.00 0.00 1.00 0.00 32.00 62.00 Exp. N/A N/A N/A N/A N/A N/A N/A p-value Exp. N/A N/A N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A GGT 0.00 0.00 2.00 41.00 21.00 39.00 103.00 GGT 0.00 0.00 2.00 74.00 21.00 41.00 138.00 TOTAL 0.00 0.25 0.25 1.49 55.23 15.67 30.60 p-value Exp. 0.25 0.25 0.51 18.77 5.33 10.40 7.94153E-06* X^2 0.25 0.25 0.51 10.79 5.33 6.78 23.91	Exp. X^2 X^2 GGA GGA TOTAL Exp. X^2 X^2 X^2 GGG GGG TOTAL Exp. Exp. X^2 X^2 X^2	N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 1.00 1.00 2.00 1.65 0.35 0.25 1.18	N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79 3.67	N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.00 0.00	N/A N/A N/A 0.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.25 0.25 0.25 0.25	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.25 0.25 0.25 0.25	N/A N/A N/A S.00 13.00 18.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22 1.04	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02 6.64	N/A p-value 3.57942E-06* p-value
Exp. N/A N/A <th>Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 GGG GGG GGG TOTAL Exp. Exp. X^2 X^2 SGG GGG GGG TOTAL Exp. X^2 X^2 SGG GGG GGG GGG GGG GGG GGG GG</th> <td>N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 1.00 1.00 2.00 1.65 0.35 0.25 1.18</td> <td>N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79 3.67</td> <td>N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25</td> <td>N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0</td> <td>N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.00</td> <td>N/A N/A N/A 5.00 13.00 18.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22 1.04</td> <td>N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02 6.64 0.00</td> <td>N/A p-value 3.57942E-06* p-value</td>	Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 GGG GGG GGG TOTAL Exp. Exp. X^2 X^2 SGG GGG GGG TOTAL Exp. X^2 X^2 SGG GGG GGG GGG GGG GGG GGG GG	N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 1.00 1.00 2.00 1.65 0.35 0.25 1.18	N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79 3.67	N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.00	N/A N/A N/A 5.00 13.00 18.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22 1.04	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02 6.64 0.00	N/A p-value 3.57942E-06* p-value
Exp. N/A N/A N/A N/A N/A N/A N/A X^2 N/A N/A N/A N/A N/A N/A N/A GGT 0.00 0.00 2.00 41.00 21.00 39.00 103.00 35.00 GGT 0.00 0.00 2.00 74.00 21.00 41.00 138.00 TOTAL 0.025 0.25 1.49 55.23 15.67 30.60 p-value Exp. 0.25 0.25 0.51 18.77 5.33 10.40 7.94153E-06* X^2 0.25 0.25 0.51 10.79 5.33 6.78 23.91	Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 GGG GGG TOTAL Exp. Exp. X^2 X^2 GGG GGG GGG TOTAL Exp. X^2 X^2 GGG GGG GGG GGG GGG GGG GGG G	N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 1.00 1.00 2.00 1.65 0.35 0.25 1.18 0.00 0.00	N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79 3.67 0.00 29.00	N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A 5.00 13.00 18.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22 1.04	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02 6.64 0.00 62.00	N/A p-value 3.57942E-06* p-value
X^2 N/A N/A <th>Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 GGG GGG TOTAL Exp. Exp. X^2 X^2 GGG GGG TOTAL Exp. X^2 X^2 Contemporal (Contemporal) Contemporal (Contemporal) Co</th> <td>N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 1.00 1.00 2.00 1.65 0.35 0.25 1.18 0.00 0.00 0.00</td> <td>N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79 3.67 0.00 29.00 29.00</td> <td>N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25</td> <td>N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0</td> <td>N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25</td> <td>N/A N/A N/A N/A 5.00 13.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22 1.04</td> <td>N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02 6.64 0.00 62.00</td> <td><u>p-value</u> 3.57942E-06* <u>p-value</u> 0.209268032*</td>	Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 GGG GGG TOTAL Exp. Exp. X^2 X^2 GGG GGG TOTAL Exp. X^2 X^2 Contemporal (Contemporal) Contemporal (Contemporal) Co	N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 1.00 1.00 2.00 1.65 0.35 0.25 1.18 0.00 0.00 0.00	N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79 3.67 0.00 29.00 29.00	N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A N/A 5.00 13.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22 1.04	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02 6.64 0.00 62.00	<u>p-value</u> 3.57942E-06* <u>p-value</u> 0.209268032*
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GGT 0.00 0.00 0.00 33.00 0.00 2.00 35.00 TOTAL 0.00 0.00 2.00 74.00 21.00 41.00 138.00 Exp. 0.25 0.25 1.49 55.23 15.67 30.60 p-value Exp. 0.25 0.25 0.51 18.77 5.33 10.40 7.94153E-06* X^2 0.25 0.25 0.51 10.79 5.33 6.78 23.91	Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 GGG GGG TOTAL Exp. Exp. X^2 X^2 GGC GGC GGC GGC GGC TOTAL Exp. X^2 X^2 X^2	N/A N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 0.1.00 1.00 1.00 2.00 1.65 0.35 0.25 1.18 0.00 0.00 0.00 0.00 N/A N/A	N/A N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79 3.67 0.00 29.00 29.00 29.00 29.00 N/A N/A	N/A N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A N/A 0.00 2.00 1.01 1.01 1.02 0.00 0.00 0.00	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A N/A S.00 13.00 18.00 9.05 8.95 1.81 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22 1.04 0.22 1.04	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02 6.64 0.00 62.00 62.00 62.00	N/A p-value 3.57942E-06* 0.209268032* p-value p-value
TOTAL 0.00 0.00 2.00 74.00 21.00 41.00 138.00 Exp. 0.25 0.25 1.49 55.23 15.67 30.60 p-value Exp. 0.25 0.25 0.51 18.77 5.33 10.40 7.94153E-06* X^2 0.25 0.25 0.51 10.79 5.33 6.78 23.91	Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 GGG GGG TOTAL Exp. X^2 X^2 GGG GGG TOTAL Exp. X^2 X^2 X^2 X^2 X^2 X^2 X^2 X^2	N/A N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 0 1.00 1.00 2.00 1.65 0.35 0.25 1.18 0.00 0.00 0.00 0.00 N/A N/A N/A N/A	N/A N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79 3.67 0.00 29.00 29.00 29.00 N/A N/A N/A	N/A N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A N/A S.00 13.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22 1.04 0.00 32.00 32.00 32.00 N/A N/A N/A	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02 6.64 0.00 62.00 62.00 N/A N/A	N/A p-value 3.57942E-06* 0.209268032* p-value p-value
Exp. 0.25 0.25 1.49 55.23 15.67 30.60 p-value Exp. 0.25 0.25 0.51 18.77 5.33 10.40 7.94153E-06* X^2 0.25 0.25 0.17 3.67 1.81 2.30 8.45 X^2 0.25 0.25 0.51 10.79 5.33 6.78 23.91	Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 GGG GGG TOTAL Exp. Exp. X^2 X^2 GGC GGC GGC GGC GGC TOTAL Exp. X^2 X^2 X^2 GGC GGC GGC GGC TOTAL Exp. X^2 X^2 X^2 GGC GGC GGC GGC GGC GGC GGC GG	N/A N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 1.00 1.00 2.00 1.65 0.35 0.25 1.18 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A	N/A N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79 3.67 0.00 29.00 29.00 29.00 29.00 N/A N/A N/A N/A	N/A N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 <td>N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0</td> <td>N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25</td> <td>N/A N/A N/A N/A S.00 13.00 18.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22 1.04 0.00 32.00 32.00 N/A N/A N/A N/A N/A</td> <td>N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02 6.64 0.00 62.00 62.00 62.00 N/A N/A N/A</td> <td>N/A p-value 3.57942E-06* 0.209268032* p-value p-value</td>	N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A N/A S.00 13.00 18.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22 1.04 0.00 32.00 32.00 N/A N/A N/A N/A N/A	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02 6.64 0.00 62.00 62.00 62.00 N/A N/A N/A	N/A p-value 3.57942E-06* 0.209268032* p-value p-value
Exp. 0.25 0.25 0.51 18.77 5.33 10.40 7.94153E-06* X^2 0.25 0.25 0.17 3.67 1.81 2.30 8.45 X^2 0.25 0.25 0.51 10.79 5.33 6.78 23.91	Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 GGG GGG TOTAL Exp. Exp. X^2 X^2 GGG GGC GGC GGC GGC GGC GGC GG	N/A N/A N/A N/A N/A Contemport N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79 3.67 0.00 29.00 29.00 29.00 29.00 29.00 N/A N/A N/A N/A	N/A N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 N/A N/A N/A N/A 0.00 0.00	N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A N/A S.00 13.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22 1.04 0.00 32.00 32.00 N/A N/A N/A N/A N/A N/A N/A	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02 6.64 0.00 62.00 62.00 N/A N/A N/A 103.00 35.00	N/A p-value 3.57942E-06* 0.209268032* p-value p-value
X^2 0.25 0.25 0.17 3.67 1.81 2.30 8.45 X^2 0.25 0.25 0.51 10.79 5.33 6.78 23.91	Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 GGG GGG TOTAL Exp. X^2 X^2 GGG GGC GGC GGC GGC GGC TOTAL Exp. X^2 X^2 X^2 GGC GGC GGC GGC GGC TOTAL Exp. X^2 X^2 C C C C C C C C C C C C C	N/A N/A N/A N/A C C C C C C C C C C C C C C C C C C C	N/A N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79 3.67 0.00 29.00 29.00 N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 0.00 2.00 0.00	N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.09 0.00 0.00 0.00	N/A N/A N/A N/A N/A S.00 13.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22 1.04 0.00 32.00 32.00 N/A N/A N/A N/A N/A N/A N/A	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02 6.64 0.00 62.00 62.00 N/A N/A N/A 103.00 35.00	<u>p-value</u> 3.57942E-06* <u>p-value</u> 0.209268032*
X^2 0.25 0.25 0.51 10.79 5.33 6.78 23.91	Exp. X^2 X^2 GGA GGA GGA TOTAL Exp. Exp. X^2 X^2 GGG GGG GGG GGC GGC TOTAL Exp. Exp. X^2 X^2 X^2 GGC GGC GGC GGC TOTAL Exp. Exp. X^2 X^2 C C C C C C C C C C C C C	N/A N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 0.1.00 1.00 2.00 1.00 2.00 1.65 0.35 0.25 1.18 0.00 0.00 0.00 0.00 0.00 0.00 0.00	N/A N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79 3.67 0.00 29.00 29.00 29.00 29.00 29.00 29.00 N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A N/A 0.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A N/A N/A S.00 13.00 18.00 9.05 8.95 1.81 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22 1.04 0.22 1.04 0.00 32.00 32.00 N/A N/A N/A N/A N/A N/A N/A	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02 6.64 0.00 62.00 62.00 N/A N/A N/A 103.00 35.00	<u>p-value</u> 3.57942E-06* <u>p-value</u> 0.209268032* <u>p-value</u> N/A
X^2 0.25 0.25 0.51 10.79 5.33 6.78 23.91	Exp. X^2 X^2 GGA GGA GGA TOTAL Exp. Exp. X^2 X^2 GGG GGG GGG GGC GGC TOTAL Exp. Exp. X^2 X^2 X^2 GGC GGC GGC GGC TOTAL Exp. Exp. X^2 X^2 C C C C C C C C C C C C C	N/A N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 0.1.00 1.00 2.00 1.00 2.00 1.65 0.35 0.25 1.18 0.00 0.00 0.00 0.00 0.00 0.00 0.00	N/A N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79 3.67 0.00 29.00 29.00 29.00 29.00 29.00 29.00 N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A N/A 0.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A N/A N/A S.00 13.00 18.00 9.05 8.95 1.81 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22 1.04 0.22 1.04 0.00 32.00 32.00 N/A N/A N/A N/A N/A N/A N/A	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02 6.64 0.00 62.00 62.00 N/A N/A N/A 103.00 35.00	<u>p-value</u> 3.57942E-06* <u>p-value</u> 0.209268032* <u>p-value</u> N/A
	Exp. X^2 X^2 GGA GGA TOTAL Exp. Exp. X^2 X^2 GGG GGG TOTAL Exp. X^2 X^2 GGC GGC GGC GGC GGC GGC TOTAL Exp. X^2 X^2 X^2 C C C C C C C C C C C C C	N/A N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 0.1.00 1.00 2.00 1.65 0.35 0.25 1.18 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	N/A N/A N/A N/A 1.00 22.00 23.00 11.56 11.44 9.65 9.75 30.00 1.00 31.00 25.51 5.49 0.79 3.67 0.00 29.00 29.00 29.00 29.00 29.00 29.00 N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.00 N/A 0.00 2.00 0.00 1.49 0.51	N/A N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.00 0.00 0.00 0.00 0.25 0.25 0.25 0.25	N/A N/A N/A N/A N/A S.00 13.00 18.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22 1.04 0.22 1.04 0.00 32.00 32.00 N/A N/A N/A N/A N/A N/A N/A N/A	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02 6.64 0.00 62.00 62.00 62.00 N/A N/A N/A 103.00 35.00 138.00	<u>p-value</u> 3.57942E-06* <u>p-value</u> 0.209268032* <u>p-value</u> N/A
	Exp. X^2 X^2 GGA GGA GGA TOTAL Exp. X^2 X^2 GGG GGG GGG GGG GGC GGC GGC GG	N/A N/A N/A N/A 66.00 37.00 103.00 51.78 51.22 3.91 3.95 0 1.00 1.00 2.00 1.65 0.35 0.25 1.18 0.00 0.00 0.00 0.00 N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A 0.00 0.00 0.25 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A N/A 0.00 2.00 2.00 1.01 0.99 1.01 1.02 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0	N/A N/A N/A 22.00 19.00 41.00 20.61 20.39 0.09 0.09 0.09 0.00 0.00 0.00 0.25 0.25 0.25 0.25 0.25	N/A N/A N/A N/A S.00 13.00 18.00 9.05 8.95 1.81 1.83 62.00 18.00 80.00 65.84 14.16 0.22 1.04 0.22 1.04 0.00 32.00 32.00 32.00 N/A N/A N/A N/A N/A N/A N/A N/A	N/A 94.00 93.00 187.00 16.72 16.89 93.00 20.00 113.00 2.02 6.64 0.00 62.00 62.00 62.00 0.20.00 13.00 35.00 138.00 8.45	<u>p-value</u> 3.57942E-06* <u>p-value</u> 0.209268032* <u>p-value</u> N/A

*Kolmogorov-Smirnov test performed and generally consistent with the Chi Square test

Table B. The p-values for the comparisons between Primers A1 and C1; Primers B1 and D1; and Primers A1 and B1. Any p-value < 7.8125E-4 (0.05/64) is considered statistically significant with an overall $\alpha = 0.05$ for that frame given the null hypothesis that the distribution of patterns is the same. All p-values exceeding 7.8125E-4 are black reversed; the null hypothesis is not rejected. Overall, the primer comparisons yielded statistically significant different distributions of patterns. All N/A correspond to no observations or too few observations for that frame.

Frame A1 C1 B1 D1 A1 B1 AAC 1.4092E-07 7.013E-09* 6.45651E-12 AAC 1.40989E-28 4.53575E-05* 1.99847E-15* ACA 2.00702E-29 3.12266E-06* 4.73195E-36 ACC 7.7332E-15 0.934457717* 5.093042F-33 ACC 3.4923E-25* 1.03049E-08* 3.9667E-08* AAT 9.02931E-26 7.98438E-12 1.33188E-15 ATT 1.9252E-55 9.96664E-11 7.82831E-10 ATT 1.9222E-55 9.96664E-11 7.82831E-10 ATT 1.9222E-55 9.96664E-11 7.82831E-10 ATT 1.920246722* 0.002436012* 2.06447E-25 AAG 2.91673E-12* 2.26737E-17* 2.8567E-14 AGG 3.01677E-10* 1.79521E-06* 2.91334E-11 AGG 3.0487E-13* 1.71264E-10* 2.9982E-21 AGG 3.0487E-13* 1.72394E-06* 5.11273E-06* AGT 4.9304E-13 1.81423E-10* <			p-value	
AAC 1.4993E-28 4.5357E-05* 1.99847E-15* ACA 2.0070E-29 3.1226E-06* 4.73195E-36 ACC 7.72332E-15 0.034557/17* 5.09304E-33 ACT 9.3124E-27 7.84194E-25* 2.11203E-22 ACG 3.4923E-25* 1.03049E-08* 3.9667E-08* AAT 9.07352E-25 9.96064E-11 7.8231E-10 ATT 1.9232E-55 9.96064E-11 7.8231E-10 ATT 1.9232E-55 9.9604E-11 7.82381E-10 ATT 1.9232E-55 9.9604E-11 7.82381E-10 ATT 1.9232E-55 9.9604E-11 7.82387E-10* ATT 1.9232E-56 9.96024905072* 0.9024360712* AAG 2.91673E-12* 0.9024360712* 1.84341E-07 AAG 9.1678E-131 1.728567E-14* 1.9921E-06* AGG 2.91673E-14* 1.9521E-06* 2.97852E-21 CAA 1.00751E-31 1.71261E-07* 1.95248E-43 CAC 2.70263E+47 N/A N/A CC	Frame	A1 - C1		A1 - B1
ACA 2.00702E-29 3.12266E-06* 4.73195E-36 ACC 7.73392E-15* 0050455777* 5.003046-33 ACT 9.3124E-27 7.84194E-25* 2.11203E-22 ACG 3.4928E-25* 1.03049E-08* 3.9667E-08* ANT 9.02911E-26 7.98438E-12 1.33198E-15 ATT 1.93252E-55 9.96064E-11 7.82831E-10 ATC 2.65293E-13 0.002938016 2.04847E-25 AAG 2.91673E-12* 0.002938016 2.0684F-11* AGG 3.18772E-13 5.27502E-28 1.9318E-15 AAG 0.2916618383 2.67454E-10* 2.0334E-11 AGG 3.181272E-10* 1.79521E-06* 2.01334E-11 AGG 3.1837E-10* 1.79521E-06* 3.1338E-14 AGC 2.916618338 2.67454E-10* 1.93454E-43 AGC 2.916618338 2.67454E-10* 2.9352E-14 AGG 3.9361E-10* 1.79521E-06* 3.1123516-07* CAC 2.70252E-47 N/A N/A	AAA	1.20022E-07	7.013E-09*	6.45651E-12
ACC 7.72392E-15 0.92455717* 5.09304E-32 ACT 9.3124E-77 7.84194E-25* 2.11203E-22 ACG 3.4923E-25* 1.03049E-08* 3.9667E-08* AAT 9.02911E-26 7.98438E-12 1.32109E-29 ATA 6.74572E-13 5.27502E-28 1.39138E-15 ATT 1.99252E-55 9.96064E-11 7.82331E-10 AGG 2.91673E-12 2.67454E-10* 2.08447E-25 AAG 0.9216618333* 2.67454E-10* 2.01334E-11 AGG 3.61857E-10* 1.79521E-66* 2.97852E-14 AGG 2.24095E-09* 6.06573E-12* 4.60096-07* AGT 4.9394E-13 1.81423E-10* 1.29992E-21 CAA 1.09721E-31 1.71861E-07* 1.9554E-43 CCC 1.5356E-09* 1.25396E-06* 5.11253E-06* CCC 1.5356E-09* 1.25396E-06* 5.11253E-06* CCC 1.5366E-13* 0.009342836* 9.20901E-19* CAA 1.90252E-23 0.009342836* 9.20901E-19*	AAC	1.40989E-28	4.53575E-05*	1.99847E-15*
ACT 9.3124E-27 7.84194E-25* 2.11203E-22 ACG 3.4928E-25* 1.09049E-08* 3.9667E-08* ATT 9.02911E-26 7.98438E-12 1.32109E-29 ATA 6.74572E-13 5.27502E-28 1.39138E-110 ATT 1.99252E-25 9.9664E-11 7.8231E-10 ATC 2.65293E-13 0.002898016 2.08447E-25 AGG 0.9216618383* 2.7454E-10* 2.85657E-14 AGG 2.916318-12 2.6737E-17 2.85657E-14 AGG 3.61857E-10* 1.79521E-06* 2.97852E-14 AGG 3.61857E-10* 1.79521E-06* 2.97852E-14 AGG 3.61857E-10* 1.79521E-06* 2.97852E-14 AGC 2.70263E-47 N/A N/A CCA 1.70457E-17 2.59221E-14 3.9661E-19* CAT 4.71467E-17 2.59221E-14 3.9661E-19* CCT 4.38335E-44 3.14998E-07* 8.43966E-25 CCG 6.55286E-23 0.000342836* 9.20901E-19*	ACA	2.00702E-29	3.12266E-06*	4.73195E-36
ACG 3.9423E-25* 1.03049E-08* 3.9667E-08* AAT 9.02911E-26 7.98438E-12 1.32109E-29 ATA 6.74572E-13 5.27502E-28 1.39138E-15 ATT 1.99252E-55 9.96064E-11 7.82831E-10 ATG 0.00430672* 1.45441E-07 AAG 2.91673E-12 2.26737E-17 2.85557E-14 AGG 3.61857E-10* 2.07521E-06* 2.08447E-25 AGG 3.61857E-10* 1.79521E-06* 2.01334E-11 AGC 2.24005E-09* 6.06573E-12* 4.6000E-07* AGT 4.9304E-13 1.81423E-10* 1.29992E-21 CAA 1.00751E-31 1.71861E-07* 1.95454E-43 CCC 1.58567E-09* 1.25396E-06* 5.11253E-06* CCC 1.58567E-09* 1.25396E-06* 5.11253E-06* CCG 6.55286E-23 0.00032836* 9.20901E-19* CAT 4.7169E-08* 5.12204E-11* 1.49321E-36 CTT 3.1814E-13* 1.39157E-07* 3.18246E-19* CA	ACC	7.72392E-15	0.934557717*	5.09304E-33
AAT 9.02911E-26 7.98438E-12 1.32109E-29 ATA 6.74572E-12 5.27502E-28 1.39138E-15 ATT 1.99252E-55 9.96064E-11 7.02831E-10 ATC 2.65238E-13 0.00446262* 0.002838016 2.08447E-25 AAG 0.02464262* 0.002838016 2.08447E-25 AAG 0.216618383* 2.67454E-10* 2.0533E-14 AGG 3.61857E-10* 1.79521E-06* 2.97852E-14 AGC 2.20055E-47 N/A N/A CCA 1.79521E-10* 1.95454E-43 CCC 1.58567E-09* 1.25326E-06* 5.11253E-06* CCT 4.39356E-44 3.14998E-07* 8.43966E-25 CCG 0.5226E-23 0.008342836* 9.20901E-19* CAT 4.77169E-08 5.12204E-11* 1.43931E-36 CTT 3.10181E-12 1.64098E-11* 8.9071E-45 CTG 6.39261E-10* N/A# N/A# CAT 4.77169E-08 5.12204E-11* 1.9317E-16* CAG			7.84194E-25*	
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AGC 2.24005E-09* 6.06573E-12* 4.60009E-07* AGT 4.9304E-13 1.81423E-10* 1.29992E-21 CAA 1.00751E-31 1.71861E-07* 1.95454E-43 CAC 2.70263E-47 N/A N/A N/A CCC 1.58567E-09* 1.25396E-06* 5.11253E-06* CCC 1.38567E-09* 1.25396E-06* 5.11253E-06* CCC 6.55286E-23 0.000342836* 9.20901E-19* CAT 4.77169E-08 5.12204E-11* 1.49321E-36 CTT 3.10181E-12 1.56409E-11* 8.90771E-35 CTG 6.30261E-10* N/A# N/A# CTG 1.23144E-13* 1.90216E-05* 0.000668257* CGG 6.69545E-14* 1.90216E-05* 0.0006668257* CGG 1.23758E-22* 1.32679E-05* 2.95144E-21* TAA 2.45186E-15* 1.37024E-08* 0.68355E-13* CGG 1.23758E-22* 1.32679E-05* 2.95142E-21* TAA 2.45186E-15* 1.34798E-28 2.62831E-60* <th></th> <th></th> <th></th> <th></th>				
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CCC 1.58567E-09* 1.25396E-06* 5.11253E-06* CCT 4.30325E-44 3.14998E-07* 8.43966E-25 CCG 6.55286E-23 0.000342836* 9.20901E-19* CAT 4.77169E-08 5.12204E-11* 1.49321E-36 CTT 3.10181E-12 1.56409E-11* 8.97731E-36 CTT 3.10181E-12 1.56409E-11* 8.97731E-45 CTG 1.23144E-13* 1.39157E-07* 3.18246E-19* CAG 0.000214204* 1.02616E-05* 0.0006257* CGG 2.997E-16 N/A N/A CGG 2.997E-16 N/A N/A CGG 2.997E-16 N/A N/A CGT 1.23753E-22* 1.32679E-05* 2.95144E-21* TAA 2.45186E-15* 1.54798E-28 2.62831E-60 TAC 1.4672E-48* 6.27949E-10* 9.52412E-45 TCC 9.76724E-06 3.36645E-10* 9.96373E-15 TTA 5.84873E-12 3.78381-5* 4.46194E-066 TTA 5.947				
CCT 4.30325E-44 3.14998E-07* 8.43966E-25 CCG 6.55286E-23 0.000342836* 9.20901E-19* CAT 4.7169E-08 5.12204E-11* 1.49321E-36 CTA 1.28144E-34 1.59877E-15* 1.77731E-36 CTT 3.10181E-12 1.56409E-11* 8.90771E-45 CTG 6.30261E-10* N/A# N/A# CTG 1.23144E-13* 1.39157E-07* 3.18246E-19* CAG 0.000214204* 1.02616E-05* 0.000668257* CGA N/A 0.160445616* N/A CGC 2.99927E-16 N/A N/A CGC 2.99927E-16 N/A N/A CGT 1.23753E-22* 1.32679E-05* 2.95144E-21* TAA 2.45186E-15* 1.54798E-28 2.62831E-60 TAC 1.45071E-06 3.3657E-16* 3.97032E-21 TCC 9.76724E-06 3.36645E-10* 2.96373E-15 TCC 9.7724E-28 0.574033387* 0.003747644* TCG 1.0957E-07* </th <th></th> <th></th> <th></th> <th></th>				
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TCA 4.16722E-48* 6.27949E-10* 9.52412E-45 TCC 9.76724E-06 3.30645E-10* 2.96373E-15 TCT 7.79446E-08* 0.57403337* 0.083747644* TCG 1.00597E-07* N/A N/A TAT 1.91224E-30 1.51128E-08* 5.68855E-11 TTA 5.84873E-12 3.7283E-15 4.46194E-06 TTT 5.91723E-13* 3.35272E-21 6.07473E-11 TTC 1.37724E-28 0.001968687* 4.12383E-08* TTG 0.981600137* 4.65451E-15 4.29338E-23 TAG 0.000171664* 0.0008092* 0.0008092* TGA 5.0687E-10* 8.24932E-10 4.14736E-60 TGG 0.014598301 1.49799E-09* 2.83406E-07* TGC 0.019495242* 1.35218E-37 4.4806E-27 TGT 0.025445335* 1.87482E-10 2.07463E-11 GAA 1.85645E-21* 2.66916E-11* 2.57306E-30 GAC 1.4373E-32 1.76059E-24* 8.6831E-34*	TAA	2.45186E-15*	1.54798E-28	2.62831E-60
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TCT 7.79446E-08* 0.574033387* 0.083747644* TCG 1.00597E-07* N/A N/A TAT 1.91224E-30 1.51128E-08* 5.68855E-11 TTA 5.84873E-12 3.7283E-15 4.46194E-06 TTT 5.91723E-13* 3.3527E-21 6.07473E-11 TTC 1.37724E-28 0.001968687* 4.12383E-08* TTG 0.981600137* 4.65451E-15 4.29383E-23 TAG 0.000171764* 0.068379023* 0.0008092* TGA 5.0687E-10* 8.24932E-10 4.14736E-60 TGG 0.014598301 1.49799E-09* 2.83406E-07* TGC 0.019495242* 1.35218E-37 4.4806E-27 TGT 0.025445335* 1.87482E-10 2.07463E-11 GAA 1.85645E-21* 2.66916E-11* 2.57306E-30 GAC 1.4373E-32 1.76059E-24* 8.6831E-34* GCA 2.3865E-11 2.1577E-12 5.24235E-06 GCG N/A 4.30287E-10* N/A GCT	TCA	4.16722E-48*	6.27949E-10*	9.52412E-45
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TGT 0.025445335* 1.87482E-10 2.07463E-11 GAA 1.85645E-21* 2.66916E-11* 2.57306E-30 GAC 1.4373E-32 1.76059E-24* 8.6831E-34* GCA 2.3865E-11 2.21577E-12 5.24235E-06 GCC 4.09952E-19* N/A N/A GCT 1.00929E-23* 6.53521E-16 2.35488E-26 GCG N/A 4.30287E-10* N/A GAT 5.93954E-16* 3.21042E-21 1.04213E-08 GTT 1.26492E-15* 8.6537E-36 2.48183E-09* GTC 2.53594E-13* 2.733E-25* 3.57506E-17 GTG N/A 0.000976928* N/A GAG N/A 4.56534E-33 N/A GGA 3.57942E-06* 4.99242E-20 7.60976E-13* GGG 0.209268032* 4.38836E-12* 3.8279E-10*	TTG TAG TGA	0.981600137* 0.000171764* 5.0687E-10*	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60
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GAC 1.4373E-32 1.76059E-24* 8.6831E-34* GCA 2.3865E-11 2.21577E-12 5.24235E-06 GCC 4.09952E-19* N/A N/A GCT 1.00929E-23* 6.53521E-16 2.35488E-26 GCG N/A 4.30287E-10* N/A GAT 5.93954E-16* 3.21042E-21 1.04213E-08 GTA 1.96631E-07 2.77654E-10 1.58E-28 GTT 1.26492E-15* 8.6537E-36 2.48183E-09* GTC 2.53594E-13* 2.733E-25* 3.57506E-17 GTG N/A 4.56534E-33 N/A GAG N/A 4.56534E-33 N/A GAG N/A 4.56534E-33 N/A GAG N/A 4.56534E-33 N/A GAG N/A 4.36534E-20 7.60976E-13* GGG 0.209268032* 4.38836E-12* 3.8279E-10*	TTG TAG TGA TGG TGC	0.981600137* 0.000171764* 5.0687E-10* 0.014598301 0.019495242*	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10 1.49799E-09* 1.35218E-37	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60 2.83406E-07* 4.4806E-27
GCA 2.3865E-11 2.21577E-12 5.24235E-06 GCC 4.09952E-19* N/A N/A GCT 1.00929E-23* 6.53521E-16 2.35488E-26 GCG N/A 4.30287E-10* N/A GAT 5.93954E-16* 3.21042E-21 1.04213E-08 GTA 1.96631E-07 2.77654E-10 1.58E-28 GTT 1.26492E-15* 8.6537E-36 2.48183E-09* GTC 2.53594E-13* 2.733E-25* 3.57506E-17 GTG N/A 4.56534E-33 N/A GAG N/A 4.36534E-33 N/A GGA 3.57942E-06* 4.99242E-20 7.60976E-13* GGG 0.209268032* 4.38836E-12* 3.8279E-10*	TTG TAG TGA TGG TGC TGT	0.981600137* 0.000171764* 5.0687E-10* 0.014598301 0.019495242* 0.025445335*	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10 1.49799E-09* 1.35218E-37 1.87482E-10	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60 2.83406E-07* 4.4806E-27 2.07463E-11
GCC 4.09952E-19* N/A N/A GCT 1.00929E-23* 6.53521E-16 2.35488E-26 GCG N/A 4.30287E-10* N/A GAT 5.93954E-16* 3.21042E-21 1.04213E-08 GTA 1.96631E-07 2.77654E-10 1.58E-28 GTT 1.26492E-15* 8.6537E-36 2.48183E-09* GTC 2.53594E-13* 2.733E-25* 3.57506E-17 GTG N/A 0.000976928* N/A GAG N/A 4.56534E-33 N/A GGA 3.57942E-06* 4.99242E-20 7.60976E-13* GGG 0.209268032* 4.38836E-12* 3.8279E-10*	TTG TAG TGA TGG TGC TGT GAA	0.981600137* 0.000171764* 5.0687E-10* 0.014598301 0.019495242* 0.025445335* 1.85645E-21*	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10 1.49799E-09* 1.35218E-37 1.87482E-10 2.66916E-11*	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60 2.83406E-07* 4.4806E-27 2.07463E-11 2.57306E-30
GCT 1.00929E-23* 6.53521E-16 2.35488E-26 GCG N/A 4.30287E-10* N/A GAT 5.93954E-16* 3.21042E-21 1.04213E-08 GTA 1.96631E-07 2.77654E-10 1.58E-28 GTT 1.26492E-15* 8.6537E-36 2.48183E-09* GTC 2.53594E-13* 2.733E-25* 3.57506E-17 GTG N/A 0.000976928* N/A GAG N/A 4.56534E-33 N/A GGA 3.57942E-06* 4.99242E-20 7.60976E-13* GGG 0.209268032* 4.38836E-12* 3.8279E-10*	TTG TAG TGA TGC TGC GAA GAC	0.981600137* 0.000171764* 5.0687E-10* 0.014598301 0.019495242* 0.025445335* 1.85645E-21* 1.4373E-32	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10 1.49799E-09* 1.35218E-37 1.87482E-10 2.66916E-11* 1.76059E-24*	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60 2.83406E-07* 4.4806E-27 2.07463E-11 2.57306E-30 8.6831E-34*
GCG N/A 4.30287E-10* N/A GAT 5.93954E-16* 3.21042E-21 1.04213E-08 GTA 1.96631E-07 2.77654E-10 1.58E-28 GTT 1.26492E-15* 8.6537E-36 2.48183E-09* GTC 2.53594E-13* 2.733E-25* 3.57506E-17 GTG N/A 0.000976928* N/A GAG N/A 4.56534E-33 N/A GGA 3.57942E-06* 4.99242E-20 7.60976E-13* GGG 0.209268032* 4.38836E-12* 3.8279E-10*	TTG TAG TGA TGC TGC GAA GAC GCA	0.981600137* 0.000171764* 5.0687E-10* 0.014598301 0.025445335* 1.85645E-21* 1.4373E-32 2.3865E-11	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10 1.49799E-09* 1.35218E-37 1.87482E-10 2.66916E-11* 1.76059E-24* 2.21577E-12	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60 2.83406E-07* 4.4806E-27 2.07463E-11 2.57306E-30 8.6831E-34* 5.24235E-06
GAT 5.93954E-16* 3.21042E-21 1.04213E-08 GTA 1.96631E-07 2.77654E-10 1.58E-28 GTT 1.26492E-15* 8.6537E-36 2.48183E-09* GTC 2.53594E-13* 2.733E-25* 3.57506E-17 GTG N/A 0.000976928* N/A GAG N/A 4.56534E-33 N/A GGA 3.57942E-06* 4.99242E-20 7.60976E-13* GGG 0.209268032* 4.38836E-12* 3.8279E-10*	TTG TAG TGA TGG TGC GAA GAC GCA GCC	0.981600137* 0.000171764* 5.0687E-10* 0.014598301 0.019495242* 0.025445335* 1.85645E-21* 1.4373E-32 2.3865E-11 4.09952E-19*	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10 1.49799E-09* 1.35218E-37 1.87482E-10 2.66916E-11* 1.76059E-24* 2.21577E-12 N/A	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60 2.83406E-07* 4.4806E-27 2.07463E-11 2.57306E-30 8.6831E-34* 5.24235E-06 N/A
GTT 1.26492E-15* 8.6537E-36 2.48183E-09* GTC 2.53594E-13* 2.733E-25* 3.57506E-17 GTG N/A 0.000976928* N/A GAG N/A 4.56534E-33 N/A GGA 3.57942E-06* 4.99242E-20 7.60976E-13* GGG 0.209268032* 4.38836E-12* 3.8279E-10*	TTG TAG TGA TGC TGC TGT GAA GAC GCA GCC GCT	0.981600137* 0.000171764* 5.0687E-10* 0.014598301 0.019495242* 0.025445335* 1.85645E-21* 1.4373E-32 2.3865E-11 4.09952E-19* 1.00929E-23*	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10 1.49799E-09* 1.35218E-37 1.87482E-10 2.66916E-11* 1.76059E-24* 2.21577E-12 N/A 6.53521E-16	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60 2.83406E-07* 4.4806E-27 2.07463E-11 2.57306E-30 8.6831E-34* 5.24235E-06 N/A 2.35488E-26
GTC 2.53594E-13* 2.733E-25* 3.57506E-17 GTG N/A 0.000976928* N/A GAG N/A 4.56534E-33 N/A GGA 3.57942E-06* 4.99242E-20 7.60976E-13* GGG 0.209268032* 4.38836E-12* 3.8279E-10*	TTG TGA TGG TGC TGT GAA GAC GCC GCC GCT GCG	0.981600137* 0.000171764* 5.0687E-10* 0.014598301 0.019495242* 0.025445335* 1.85645E-21* 1.4373E-32 2.3865E-11 4.09952E-19* 1.60929E-23* N/A	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10 1.49799E-09* 1.35218E-37 1.87482E-10 2.66916E-11* 1.76059E-24* 2.21577E-12 N/A 6.53521E-16 4.30287E-10*	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60 2.83406E-07* 4.4806E-27 2.07463E-11 2.57306E-30 8.6831E-34* 5.24235E-06 N/A 2.35488E-26 N/A
GTG N/A 0.000976928* N/A GAG N/A 4.56534E-33 N/A GGA 3.57942E-06* 4.99242E-20 7.60976E-13* GGG 0.209268032* 4.38836E-12* 3.8279E-10*	TTG TAG TGA TGC TGC GAA GAA GCA GCC GCT GCT GCT GCG GCG GCG GCG GCG GCG GAT	0.981600137* 0.000171764* 5.0687E-10* 0.014598301 0.019495242* 0.025445335* 1.85645E-21* 1.4373E-32 2.3865E-11 4.09952E-19* 1.00929E-23* N/A 5.93954E-16*	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10 1.49799E-09* 1.35218E-37 1.87482E-10 2.66916E-11* 1.76059E-24* 2.21577E-12 N/A 6.53521E-16 4.30287E-10* 3.21042E-21	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60 2.83406E-07* 4.4806E-27 2.07463E-11 2.57306E-30 8.6831E-34* 5.24235E-06 N/A 2.35488E-26 N/A 1.04213E-08
GAG N/A 4.56534E-33 N/A GGA 3.57942E-06* 4.99242E-20 7.60976E-13* GGG 0.209268032* 4.38836E-12* 3.8279E-10*	TTG TAG TGA TGC TGT GAA GAC GCC GCT GCG GCT GCG GCT GCG GCT GCA GCT GCG GAT GTA GTA	0.981600137* 0.000171764* 5.0687E-10* 0.014598301 0.019495242* 0.025445335* 1.85645E-21* 1.4373E-32 2.3865E-11 4.09952E-19* 1.00929E-23* N/A 5.93954E-16* 1.96631E-07	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10 1.49799E-09* 1.35218E-37 1.87482E-10 2.66916E-11* 1.76059E-24* 2.21577E-12 N/A 6.53521E-16 4.30287E-10* 3.21042E-21 2.77654E-10	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60 2.83406E-07* 4.4806E-27 2.07463E-11 2.57306E-30 8.6831E-34* 5.24235E-06 N/A 2.35488E-26 N/A 1.04213E-08 1.58E-28
GGA 3.57942E-06* 4.99242E-20 7.60976E-13* GGG 0.209268032* 4.38836E-12* 3.8279E-10*	TTG TAG TGA TGC TGT GAA GAC GCC GCT GTT GTC	0.981600137* 0.000171764* 5.0687E-10* 0.014598301 0.019495242* 0.025445335* 1.85645E-21* 1.4373E-32 2.3865E-11 4.09952E-19* 1.00929E-23* N/A 5.93954E-16* 1.96631E-07 1.26492E-15* 2.53594E-13*	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10 1.49799E-09* 1.35218E-37 1.87482E-10 2.66916E-11* 1.76059E-24* 2.21577E-12 N/A 6.53521E-16 4.30287E-10* 3.21042E-21 2.77654E-10 8.6537E-36 2.733E-25*	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60 2.83406E-07* 4.4806E-27 2.07463E-11 2.57306E-30 8.6831E-34* 5.24235E-06 N/A 2.35488E-26 N/A 1.04213E-08 1.58E-28 2.48183E-09* 3.57506E-17
GGG 0.209268032* 4.38836E-12* 3.8279E-10*	TTG TAG TGA TGC TGT GAA GCC GCC GCT GCG GCT GCG GCT GCG GCT GCG GCT GCG GCT GCG GTT GTG	0.981600137* 0.000171764* 5.0687E-10* 0.014598301 0.019495242* 0.025445335* 1.85645E-21* 1.4373E-32 2.3865E-11 4.09952E-19* 1.00929E-23* N/A 5.93954E-16* 1.96631E-07 1.26492E-15* 2.53594E-13* N/A	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10 1.49799E-09* 1.35218E-37 1.87482E-10 2.66916E-11* 1.76059E-24* 2.21577E-12 N/A 6.53521E-16 4.30287E-10* 3.21042E-21 2.77654E-10 8.6537E-36 2.733E-25* 0.000976928*	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60 2.83406E-07* 4.4806E-27 2.07463E-11 2.57306E-30 8.6831E-34* 5.24235E-06 N/A 2.35488E-26 N/A 1.04213E-08 1.58E-28 2.48183E-09* 3.57506E-17 N/A
	TTG TAG TGA TGC TGC TGT GAA GCA GCC GCT GCG GCT GCG GCT GCG GAT GTC GTG GAG	0.981600137* 0.000171764* 5.0687E-10* 0.014598301 0.019495242* 0.025445335* 1.85645E-21* 1.4373E-32 2.3865E-11 4.09952E-19* 1.00929E-23* N/A 5.93954E-16* 1.96631E-07 1.26492E-15* 2.53594E-13* N/A	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10 1.49799E-09* 1.35218E-37 1.87482E-10 2.66916E-11* 1.76059E-24* 2.21577E-12 N/A 6.53521E-16 4.30287E-10* 3.21042E-21 2.77654E-10 8.6537E-36 2.733E-25* 0.000976928* 4.56534E-33	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60 2.83406E-07* 4.4806E-27 2.07463E-11 2.57306E-30 8.6831E-34* 5.24235E-06 N/A 1.04213E-08 1.58E-28 2.48183E-09* 3.57506E-17 N/A N/A
	TTG TAG TGA TGC TGT GAA GAC GCC GCT GCG GCT GCG GAT GTA GTG GAG GAG GAG	0.981600137* 0.000171764* 5.0687E-10* 0.014598301 0.019495242* 0.025445335* 1.85645E-21* 1.4373E-32 2.3865E-11 4.09952E-19* 1.00929E-23* N/A 5.93954E-16* 1.96631E-07 1.26492E-15* 2.53594E-13* N/A N/A N/A N/A 3.57942E-06*	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10 1.49799E-09* 1.35218E-37 1.87482E-10 2.66916E-11* 1.76059E-24* 2.21577E-12 N/A 6.53521E-16 4.30287E-10* 3.21042E-21 2.77654E-10 8.6537E-36 2.733E-25* 0.000976928* 4.56534E-33 4.99242E-20	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60 2.83406E-07* 4.4806E-27 2.07463E-11 2.57306E-30 8.6831E-34* 5.24235E-06 N/A 1.04213E-08 1.58E-28 2.48183E-09* 3.57506E-17 N/A N/A 7.60976E-13*
	TTG TAG TGA TGC TGT GAA GAC GCC GCT GCG GCT GCG GCT GCG GCT GCG GCT GCG GAT GTA GTC GTG GAG GCG	0.981600137* 0.000171764* 5.0687E-10* 0.014598301 0.019495242* 0.025445335* 1.85645E-21* 1.4373E-32 2.3865E-11 4.09952E-19* 1.00929E-23* N/A 5.93954E-16* 1.96631E-07 1.26492E-15* 2.53594E-13* N/A N/A N/A 3.57942E-06* 0.209268032*	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10 1.49799E-09* 1.35218E-37 1.87482E-10 2.66916E-11* 1.76059E-24* 2.21577E-12 N/A 6.53521E-16 4.30287E-10* 3.21042E-21 2.77654E-10 8.6537E-36 2.733E-25* 0.000976928* 4.56534E-33 4.99242E-20 4.38836E-12*	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60 2.83406E-07* 4.4806E-27 2.07463E-11 2.57306E-30 8.6831E-34* 5.24235E-06 N/A 1.04213E-08 1.58E-28 2.48183E-09* 3.57506E-17 N/A N/A 7.60976E-13* 3.8279E-10*
GGT 7.94153E-06* 1.48212E-28 1.90916E-08	TTG TAG TGG TGC TGT GAA GAC GCC GCT GCG GCT GCG GCT GCG GCT GCG GCT GCG GCT GCG GAT GTC GTG GAG GGG GGG GGG GGC	0.981600137* 0.000171764* 5.0687E-10* 0.014598301 0.019495242* 0.025445335* 1.85645E-21* 1.4373E-32 2.3865E-11 4.09952E-19* 1.00929E-23* N/A 5.93954E-16* 1.96631E-07 1.26492E-15* 2.53594E-13* N/A N/A 3.57942E-06* 0.209268032* N/A	0.001968687* 4.65451E-15 0.068379023* 8.24932E-10 1.49799E-09* 1.35218E-37 1.87482E-10 2.66916E-11* 1.76059E-24* 2.21577E-12 N/A 6.53521E-16 4.30287E-10* 3.21042E-21 2.77654E-10 8.6537E-36 2.733E-25* 0.000976928* 4.56534E-33 4.99242E-20 4.38836E-12* 3.09797E-28	4.12383E-08* 4.29383E-23 0.0008092* 4.14736E-60 2.83406E-07* 4.4806E-27 2.07463E-11 2.57306E-30 8.6831E-34* 5.24235E-06 N/A 1.04213E-08 1.58E-28 2.48183E-09* 3.57506E-17 N/A N/A 7.60976E-13* 3.8279E-10* N/A

*Kolmogorov-Smirnov test performed and generally consistent with the Chi Square test.

Appendix V — Comparisons of Frames to Different Dye Chemistries

The following table is an example of the processed data using the bioinformatics tools to statistically evaluate each of the 64 frames using a 2 x 6 Chi Square analysis comparing the results from data for the same samples using different dye chemistries produced in the same laboratory. These results demonstrate that the distribution of patterns from the different dye chemistries is not equivalent. Comparisons were made between dRhodamine and BigDye v1.1.

	A	В	С	D	E	F	TOTAL	1
AAA	50.00	21.00	7.00	10.00	15.00	10.00	113.00	
AAA	31.00	5.00	94.00	2.00	21.00	25.00	178.00	
TOTAL	81.00	26.00	101.00	12.00	36.00	35.00	291.00	
Exp.	31.45	10.10	39.22	4.66	13.98	13.59		p-value
Exp.	49.55	15.90	61.78	7.34	22.02	21.41		2.45507E-18
X^2	10.94	11.78	26.47	6.12	0.07	0.95	56.32	
X^2	6.94	7.48	16.80	3.89	0.05	0.60	35.76	
								1
AAC	14.00	7.00	9.00	8.00	12.00	6.00	56.00	T
AAC	116.00	1.00	26.00	0.00	87.00	4.00	234.00	
TOTAL	130.00	8.00	35.00	8.00	99.00	10.00	290.00	
Exp.	25.10	1.54	6.76	1.54	19.12	1.93		p-value
Exp.	104.90	6.46	28.24	6.46	79.88	8.07		1.97785E-15
X^2	4.91	19.26	0.74	26.97	2.65	8.57	63.12	
X^2	1.18	4.61	0.18	6.46	0.63	2.05	15.10	1
						,		4
ACA	6.00	6.00	12.00	17.00	7.00	12.00	60.00	T
ACA	31.00	166.00	1.00	122.00	32.00	27.00	379.00	
TOTAL	37.00	172.00	13.00	139.00	39.00	39.00	439.00	
Exp.	5.06	23.51	1.78	19.00	5.33	5.33		p-value
Exp.	31.94	148.49	11.22	120.00	33.67	33.67		9.88894E-19
X^2	0.18	13.04	58.82	0.21	0.52	8.35	81.12	51000512 15
X^2	0.03	2.06	9.31	0.03	0.08	1.32	12.84	
<u> </u>	0.05	2.00	5.51	0.05	0.00	1.52	12.04	1
ACC	51.00	7.00	4.00	3.00	5.00	2.00	72.00	T
ACC	77.00	41.00	13.00	28.00	8.00	34.00	201.00	
TOTAL	128.00	48.00	17.00	31.00	13.00	36.00	273.00	
Exp.	33.76	12.66	4.48	8.18	3.43	9.49	270100	p-value
Exp.	94.24	35.34	12.52	22.82	9.57	26.51		2.39207E-05
X^2	8.81	2.53	0.05	3.28	0.72	5.92	21.30	2.002072 00
X^2	3.15	0.91	0.02	1.17	0.26	2.12	7.63	
<u>^</u>	5.15	0.01	0.02	2127	0.20		,	<u>1</u>
ACT	9.00	13.00	9.00	9.00	7.00	5.00	52.00	T
ACT	13.00	14.00	18.00	49.00	0.00	4.00	98.00	
TOTAL	22.00	27.00	27.00	58.00	7.00	9.00	150.00	
Exp.	7.63	9.36	9.36	20.11	2.43	3.12		p-value
Exp.	14.37	17.64	17.64	37.89	4.57	5.88		6.01095E-05
X^2	0.25	1.42	0.01	6.14	8.62	1.13	17.56	
X^2	0.13	0.75	0.01	3.26	4.57	0.60	9.32	1
	0.10	0.75	0.01	0.20		0.00		4
ACG	4.00	8.00	5.00	10.00	6.00	8.00	41.00	T
ACG	0.00	1.00	0.00	60.00	0.00	27.00	88.00	
TOTAL	4.00	9.00	5.00	70.00	6.00	35.00	129.00	
Exp.	1.27	2.86	1.59	22.25	1.91	11.12	229.00	p-value
Exp.	2.73	6.14	3.41	47.75	4.09	23.88		5.29652E-11*
X^2	5.86	9.23	7.32	6.74	8.79	0.88	38.82	
· · ·	5.00	5.25	1.52	0.74	0.75	0.00	30.02	1

Table A. 2 x 6 Chi-square analysis comparing the results between dRhodamine and BigDye v1.1 for PrimerC1.

Appendices

X^2 2.73 4.30 3.41 3.14 4.09 0.41 18.09 AAT 9.00 16.00 11.00 79.00 16.00 25.00 303.00 AAT 8.00 40.00 2.00 32.00 81.00 140.00 303.00 TOTAL 17.00 56.00 13.00 111.00 97.00 165.00 459.00 Exp. 5.78 19.03 4.42 37.73 32.97 56.08 459.00 X^2 1.80 0.48 9.80 45.16 8.73 17.22 83.20 X^2 0.93 0.25 5.05 23.25 4.50 8.87 42.83 ATA 70.00 10.00 71.00 11.00 34.00 22.00 218.00 Z1.00 24.00 82.00 21.00 5.43 12.15 7.24 Exp. 68.22 17.80 60.80 15.57 34.85 20.76 X^2 0.05 3.42 1.	<pre>p-value 1.65255E-25 p-value 0.000108357 p-value 1.02567E-31</pre>
AAT 9.00 16.00 11.00 79.00 16.00 25.00 36.00 AAT 8.00 40.00 2.00 32.00 81.00 140.00 303.00 TOTAL 17.00 55.00 13.00 111.00 97.00 165.00 459.00 Exp. 5.78 19.03 4.42 37.73 32.97 56.08 Exp. 11.22 36.97 8.58 73.27 64.03 108.92 X^2 0.93 0.25 5.05 23.25 4.50 8.87 42.83 ATA 79.00 10.00 71.00 11.00 34.00 22.00 218.00 ATA 79.00 14.00 11.00 13.00 6.00 76.00 ATA 79.00 10.00 71.00 11.00 34.80 22.00 218.00 Exp. 23.78 6.20 21.20 5.43 12.15 7.24 Exp. Exp. 68.22 17.80 60.80	1.65255E-25 p-value 0.000108357 p-value
AAT 8.00 40.00 2.00 32.00 81.00 140.00 303.00 TOTAL 17.00 56.00 13.00 111.00 97.00 165.00 459.00 Exp. 5.78 19.03 4.42 37.73 32.97 56.08 Kp. 11.22 36.97 8.58 73.27 64.03 108.92 X^2 0.93 0.25 5.05 23.25 4.50 8.87 42.83 ATA 20.00 14.00 11.00 10.00 13.00 6.00 21.80 ATA 20.00 14.00 11.00 10.00 34.00 22.00 21.80 Exp. 23.78 6.20 21.20 5.43 12.15 7.24 Exp. 68.22 17.80 60.80 15.57 34.85 20.76 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 MT 79.00 19.00 41.00 17.06 30	1.65255E-25 p-value 0.000108357 p-value
AAT 8.00 40.00 2.00 32.00 81.00 140.00 303.00 TOTAL 17.00 56.00 13.00 111.00 97.00 165.00 459.00 Exp. 5.78 19.03 4.42 37.73 32.97 56.08 Kp. 11.22 36.97 8.58 73.27 64.03 108.92 X^2 0.93 0.25 5.05 23.25 4.50 8.87 42.83 ATA 20.00 14.00 11.00 10.00 13.00 6.00 21.80 ATA 20.00 14.00 11.00 10.00 34.00 22.00 21.80 Exp. 23.78 6.20 21.20 5.43 12.15 7.24 Exp. 68.22 17.80 60.80 15.57 34.85 20.76 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 MT 79.00 19.00 41.00 17.06 30	1.65255E-25 p-value 0.000108357 p-value
TOTAL 17.00 56.00 13.00 111.00 97.00 165.00 459.00 Exp. 5.78 19.03 4.42 37.73 32.97 56.08 Exp. 11.22 36.97 8.58 73.27 64.03 108.92 X^2 1.80 0.48 9.80 45.16 8.73 17.22 83.29 X^2 0.93 0.25 5.05 23.25 4.50 8.87 42.83 MAA 70.00 11.00 10.00 13.00 6.00 21.80 22.00 21.80 22.00 21.80 22.00 21.80 22.00 21.80 22.00 24.00 24.00 82.00 21.00 47.00 28.00 294.00 294.00 294.00 294.00 24.00 24.00 44.91 3.85 0.06 0.21 18.96 34.00 22.00 24.00 294.00 294.00 294.00 294.00 294.00 294.00 294.00 294.00 20.76 56.51 56.	1.65255E-25 p-value 0.000108357 p-value
Exp. 5.78 19.03 4.42 37.73 32.97 56.08 Exp. 11.22 36.97 8.58 73.27 64.03 108.92 X^2 1.80 0.48 9.80 45.16 8.73 17.22 83.20 X^2 0.93 0.25 5.05 23.25 4.50 8.87 42.83 X^2 0.93 0.25 5.05 23.25 4.50 8.87 42.83 X^2 0.93 0.25 5.06 23.25 4.50 8.87 42.83 X^2 0.90 14.00 11.00 10.00 13.00 6.00 21.8.00 X72 0.00 24.00 82.00 21.00 47.00 28.00 294.00 Exp. 68.22 17.80 60.80 15.57 34.85 20.76 24.00 X^2 0.13 9.80 4.91 3.85 0.06 0.21 18.96 X^2 0.05 3.42 1.71	1.65255E-25 p-value 0.000108357 p-value
Exp. 11.22 36.97 8.58 73.27 64.03 108.92 X^2 1.80 0.48 9.80 45.16 8.73 17.22 83.20 X^2 0.93 0.25 5.05 23.25 4.50 8.87 42.83 ATA 22.00 14.00 11.00 10.00 13.00 6.00 21.8.00 ATA 70.00 10.00 71.00 11.00 34.00 22.00 218.00 Exp. 23.78 6.20 21.20 5.43 12.15 7.24 Kxp. 68.22 17.80 60.80 15.57 34.85 20.76 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 X^2 0.05 3.42 1.71 1.34 0	1.65255E-25 p-value 0.000108357 p-value
X^2 0.93 0.25 5.05 23.25 4.50 8.87 42.83 ATA 22.00 14.00 11.00 10.00 13.00 6.00 76.00 ATA 70.00 10.00 71.00 11.00 34.00 22.00 218.00 OTOTAL 92.00 24.00 82.00 21.00 47.00 28.00 294.00 Exp. 23.78 6.20 21.20 5.43 12.15 7.24 Exp. 68.22 17.80 60.80 15.57 34.85 20.76 X^2 0.13 9.80 4.91 3.85 0.06 0.21 18.96 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 X^2 0.09 19.00 41.00 17.00 30.00 12.00 198.00 X^2 0.90 29.00 94.00	0.000108357 p-value
ATA 22.00 14.00 11.00 10.00 13.00 6.00 76.00 ATA 70.00 10.00 71.00 11.00 34.00 22.00 218.00 OTAL 92.00 24.00 82.00 21.00 47.00 28.00 294.00 Exp. 23.78 6.20 21.20 5.43 12.15 7.24 Exp. 68.22 17.80 60.80 15.57 34.85 20.76 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 MTT 79.00 19.00 41.00 17.00 30.00 12.00 349.00 ATT 30.00 10.00 53.00 4.00 156.00 96.00 349.00 ATT 39.46 10.50 34.03 7.60 67.33 39.09 47.00 Exp. 69.54 18.50 59.97 13.40 118.67 68.91 X^2 39.63 6.89 1.43 <	0.000108357 p-value
ATA 70.00 10.00 71.00 11.00 34.00 22.00 218.00 TOTAL 92.00 24.00 82.00 21.00 47.00 28.00 294.00 Exp. 23.78 6.20 21.20 5.43 12.15 7.24 Exp. 68.22 17.80 60.80 15.57 34.85 20.76 X^2 0.13 9.80 4.91 3.85 0.06 0.21 18.96 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 X^2 0.05 3.42 1.71 1.34 0.02 0.97 6.61 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 X 10.90 19.00 41.00 17.00 30.00 12.00 198.00 349.00 XT 39.00 10.00	0.000108357 p-value
ATA 70.00 10.00 71.00 11.00 34.00 22.00 218.00 TOTAL 92.00 24.00 82.00 21.00 47.00 28.00 294.00 Exp. 23.78 6.20 21.20 5.43 12.15 7.24 Exp. 68.22 17.80 60.80 15.57 34.85 20.76 X^2 0.13 9.80 4.91 3.85 0.06 0.21 18.96 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 X^2 0.05 3.42 1.71 1.34 0.02 0.97 6.61 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 X^2 0.90 9.00 41.00 17.00 30.00 12.00 198.00 349.00 XT 39.00 10.00 5	0.000108357 p-value
TOTAL 92.00 24.00 82.00 21.00 47.00 28.00 294.00 Exp. 23.78 6.20 21.20 5.43 12.15 7.24 Exp. 68.22 17.80 60.80 15.57 34.85 20.76 X^2 0.13 9.80 4.91 3.85 0.06 0.21 18.96 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 Main 79.00 19.00 41.00 17.00 30.00 12.00 198.00 ATT 30.00 10.00 53.00 4.00 156.00 96.00 349.00 Exp. 39.46 10.50 34.03 7.60 67.33 39.09 547.00 Exp. 69.54 18.50 59.97 13.40 118.67 68.91 47.00 X^2 39.63 6.89 1.43 11.62 20.69 18.78 99.04 X^2 22.49 3.91	0.000108357 p-value
Exp. 23.78 6.20 21.20 5.43 12.15 7.24 Exp. 68.22 17.80 60.80 15.57 34.85 20.76 X^2 0.13 9.80 4.91 3.85 0.06 0.21 18.96 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 X^2 0.00 19.00 41.00 17.00 30.00 12.00 198.00 34.9.00 XT 39.00 10.00 53.00 4.00 156.00 96.00 547.00 Exp. 69.54 18.50 59.97 <th>0.000108357 p-value</th>	0.000108357 p-value
Exp. 68.22 17.80 60.80 15.57 34.85 20.76 X^2 0.13 9.80 4.91 3.85 0.06 0.21 18.96 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 X^1 0.00 19.00 41.00 17.00 30.00 12.00 34.93 61.80 T 39.46 10.50 34.03 7.60 67.33 39.09 37.89 99.04 X^2 39.63 <	0.000108357 p-value
X^2 0.13 9.80 4.91 3.85 0.06 0.21 18.96 X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 ATT 79.00 19.00 41.00 17.00 30.00 12.00 198.00 ATT 30.00 10.00 53.00 4.00 156.00 96.00 349.00 ATT 39.46 10.50 34.03 7.60 67.33 39.09 547.00 Exp. 39.46 10.50 34.03 7.60 67.33 39.09 547.00 X^2 39.63 6.89 1.43 11.62 20.69 18.78 99.04 X^2 39.63 6.89 1.43 11.62 20.69 18.78 99.04 X^2 39.63 6.89 1.43 11.62 20.69 18.78 99.04 X^2 3.91 0.81 6.59 11.74 10.65 56.19 X^2 3.91 0.81	p-value
X^2 0.05 3.42 1.71 1.34 0.02 0.07 6.61 ATT 79.00 19.00 41.00 17.00 30.00 12.00 198.00 ATT 30.00 10.00 53.00 4.00 156.00 96.00 349.00 TOTAL 109.00 29.00 94.00 21.00 186.00 108.00 349.00 Exp. 39.46 10.50 34.03 7.60 67.33 39.09 547.00 Exp. 69.54 18.50 59.97 13.40 118.67 68.91 99.04 X^2 39.63 6.89 1.43 11.62 20.69 18.78 99.04 X^2 39.63 6.89 1.43 11.62 20.69 18.78 99.04 X^2 22.49 3.91 0.81 6.59 11.74 10.65 56.19 X^2 22.49 3.91 0.81 6.59 11.74 10.65 50.19 X^2 <t< th=""><th></th></t<>	
ATT 79.00 19.00 41.00 17.00 30.00 12.00 198.00 ATT 30.00 10.00 53.00 4.00 156.00 96.00 349.00 TOTAL 109.00 29.00 94.00 21.00 186.00 108.00 547.00 Exp. 39.46 10.50 34.03 7.60 67.33 39.09 Exp. 69.54 18.50 59.97 13.40 118.67 68.91 X^2 39.63 6.89 1.43 11.62 20.69 18.78 99.04 X^2 39.63 6.89 1.43 11.62 20.69 18.78 99.04 X^2 22.49 3.91 0.81 6.59 11.74 10.65 56.19 X^2 17.00 10.00 19.00 12.00 10.00 7.00 150.00 X^2 1.00 6.00 0.00 81.00 0.00 62.00 150.00 X^2 1.00 10.00	
ATT 30.00 10.00 53.00 4.00 156.00 96.00 349.00 TOTAL 109.00 29.00 94.00 21.00 186.00 108.00 547.00 Exp. 39.46 10.50 34.03 7.60 67.33 39.09 Exp. 69.54 18.50 59.97 13.40 118.67 68.91 X^2 39.63 6.89 1.43 11.62 20.69 18.78 99.04 X^2 39.10 0.81 6.59 11.74 10.65 56.19 ATC 17.00 10.00 19.00 12.00 10.00 7.00 75.00 ATC 1.00 6.00 0.00 81.00 0.00 62.00 150.00 Exp. 6.00 5.33 6.33 31.00 3.33 23.00	
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TOTAL 109.00 29.00 94.00 21.00 186.00 108.00 547.00 Exp. 39.46 10.50 34.03 7.60 67.33 39.09 Exp. 69.54 18.50 59.97 13.40 118.67 68.91 X^2 39.63 6.89 1.43 11.62 20.69 18.78 99.04 X^2 22.49 3.91 0.81 6.59 11.74 10.65 56.19 ATC 17.00 10.00 19.00 12.00 10.00 7.00 75.00 ATC 1.00 6.00 0.00 81.00 0.00 62.00 150.00 Exp. 6.00 5.33 6.33 31.00 3.33 23.00	
Exp. 39.46 10.50 34.03 7.60 67.33 39.09 Exp. 69.54 18.50 59.97 13.40 118.67 68.91 X^2 39.63 6.89 1.43 11.62 20.69 18.78 99.04 X^2 22.49 3.91 0.81 6.59 11.74 10.65 56.19 Mathematical Action 10.00 19.00 12.00 10.00 7.00 75.00 ATC 17.00 10.00 19.00 12.00 10.00 7.00 75.00 TOTAL 18.00 16.00 19.00 3.00 3.00 3.33 23.00	
Exp. 69.54 18.50 59.97 13.40 118.67 68.91 X^2 39.63 6.89 1.43 11.62 20.69 18.78 99.04 X^2 22.49 3.91 0.81 6.59 11.74 10.65 56.19 ATC 17.00 10.00 19.00 12.00 10.00 7.00 75.00 ATC 1.00 6.00 0.00 81.00 0.00 62.00 150.00 Composition 16.00 19.00 3.00 3.00 3.33 23.00	
X^2 39.63 6.89 1.43 11.62 20.69 18.78 99.04 X^2 22.49 3.91 0.81 6.59 11.74 10.65 56.19 ATC 17.00 10.00 19.00 12.00 10.00 7.00 75.00 ATC 1.00 6.00 0.00 81.00 0.00 62.00 150.00 TOTAL 18.00 16.00 19.00 93.00 10.00 69.00 225.00	
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ATC 1.00 6.00 0.00 81.00 0.00 62.00 150.00 TOTAL 18.00 16.00 19.00 93.00 10.00 69.00 225.00 Exp. 6.00 5.33 6.33 31.00 3.33 23.00	1
Exp. 6.00 5.33 6.33 31.00 3.33 23.00	
Exp 12.00 10.67 12.67 62.00 6.67 46.00	p-value
Exp. 12.00 10.07 12.00 0.07 40.00	4.86079E-26
X^2 20.17 4.08 25.33 11.65 13.33 11.13 85.69	
X^2 10.08 2.04 12.67 5.82 6.67 5.57 42.85	
	l
ATG 10.00 9.00 25.00 12.00 70.00 18.00 144.00	
ATG 79.00 1.00 35.00 0.00 0.00 0.00 115.00	
TOTAL 89.00 10.00 60.00 12.00 70.00 18.00 259.00	-
Exp. 49.48 5.56 33.36 6.67 38.92 10.01	p-value
Exp. 39.52 4.44 26.64 5.33 31.08 7.99 X^2 31.50 2.13 2.09 4.26 24.82 6.38 71.19	8.44338E-33
X^2 31.36 2.13 2.69 4.26 24.62 6.38 71.19 X^2 39.45 2.67 2.62 5.33 31.08 7.99 89.14	
X 2 33.43 2.07 2.02 3.33 31.00 7.33 03.14	
AAG 55.00 21.00 58.00 7.00 18.00 16.00 175.00	1
AAG 8.00 4.00 13.00 17.00 4.00 8.00 54.00	
TOTAL 63.00 25.00 71.00 24.00 22.00 24.00 229.00	
Exp. 48.14 19.10 54.26 18.34 16.81 18.34	p-value
Exp. 14.86 5.90 16.74 5.66 5.19 5.66	4.9977E-07
X^2 0.98 0.19 0.26 7.01 0.08 0.30 8.82	
X^2 3.16 0.61 0.84 22.72 0.27 0.97 28.57	
AGA 7.00 65.00 16.00 66.00 8.00 16.00 178.00	
AGA 9.00 0.00 91.00 0.00 0.00 2.00 102.00	
TOTAL 16.00 65.00 107.00 66.00 8.00 18.00 280.00	
Exp. 10.17 41.32 68.02 41.96 5.09 11.44	p-value
Exp. 5.83 23.68 38.98 24.04 2.91 6.56	1.54464E-40
X^2 0.99 13.57 39.78 13.78 1.67 1.81 71.60 XA2 1.72 1.24 0.6 1.4 1.4 1.4 0.6	
X^2 1.73 23.68 69.43 24.04 2.91 3.17 124.96	l
AGG 11.00 37.00 8.00 48.00 10.00 38.00 152.00	
AGG 11.00 37.00 8.00 48.00 10.00 38.00 152.00 AGG 9.00 0.00 49.00 0.00 0.00 0.00 58.00	
TOTAL 20.00 37.00 57.00 48.00 10.00 38.00 210.00	
Exp. 14.48 26.78 41.26 34.74 7.24 27.50	p-value
Exp. 5.52 10.22 15.74 13.26 2.76 10.50	8.85743E-31
X^2 0.83 3.90 26.81 5.06 1.05 4.00 41.66	
X^2 2.19 10.22 70.26 13.26 2.76 10.50 109.18	
	l I
AGC 8.00 18.00 11.00 88.00 9.00 16.00 150.00	1
AGC 0.00 0.00 84.00 2.00 37.00 42.00 165.00	
TOTAL 8.00 18.00 95.00 90.00 46.00 58.00 315.00	
Exp. 3.81 8.57 45.24 42.86 21.90 27.62	p-value
Exp. 4.19 9.43 49.76 47.14 24.10 30.38	1.03736E-39
X^2 4.61 10.37 25.91 47.55 7.60 4.89 100.93 X^2 4.19 9.43 23.56 43.23 6.91 4.44 91.76	

AGT	13.00	8.00	11.00	4.00	10.00	8.00	54.00	T
AGT	2.00	10.00	6.00	12.00	37.00	1.00	68.00	
TOTAL	15.00	18.00	17.00	16.00	47.00	9.00	122.00	
Exp.	6.64	7.97	7.52	7.08	20.80	3.98	122.00	p-value
Exp.	8.36	10.03	9.48	8.92	26.20	5.02		2.9264E-06
X^2	6.09	0.00	1.61	1.34	5.61	4.05	18.70	2152012 00
X^2	4.84	0.00	1.27	1.07	4.46	3.22	14.85	
X 2	4.04	0.00	1.27	1.07	4.40	5.22	14.05	<u>1</u>
CAA	45.00	12.00	8.00	4.00	14.00	17.00	100.00	T
CAA	0.00	51.00	0.00	13.00	68.00	64.00	196.00	
TOTAL	45.00	63.00	8.00	17.00	82.00	81.00	296.00	
Exp.	15.20	21.28	2.70	5.74	27.70	27.36	230.00	p-value
Exp.	29.80	41.72	5.30	11.26	54.30	53.64		1.05113E-25
X^2	58.40	4.05	10.38	0.53	6.78	3.93	84.07	1.051152 25
X^2	29.80	2.07	5.30	0.27	3.46	2.00	42.89	
X 2	25.00	2.07	5.50	0.27	5.40	2.00	42.05	<u>1</u>
CAC	5.00	14.00	14.00	8.00	48.00	9.00	98.00	T
CAC	49.00	45.00	85.00	0.00	98.00	24.00	301.00	
TOTAL	54.00	59.00	99.00	8.00	146.00	33.00	399.00	
Exp.	13.26	14.49	24.32	1.96	35.86	8.11	000.00	p-value
Exp.	40.74	44.51	74.68	6.04	110.14	24.89	1	4.0599E-08
X^2	5.15	0.02	4.38	18.54	4.11	0.10	32.29	
X^2	1.68	0.01	1.42	6.04	1.34	0.03	10.51	1
-1 -	1.00	0.01	1,72	0.04	1.94	0.05	20.92	1
CCA	9.00	9.00	6.00	15.00	6.00	53.00	98.00	T
CCA	7.00	0.00	34.00	108.00	16.00	42.00	207.00	
TOTAL	16.00	9.00	40.00	123.00	22.00	95.00	305.00	
Exp.	5.14	2.89	12.85	39.52	7.07	30.52	200.00	p-value
Exp.	10.86	6.11	27.15	83.48	14.93	64.48	1	6.64381E-15
X^2	2.90	12.90	3.65	15.21	0.16	16.55	51.38	
X^2	1.37	6.11	1.73	7.20	0.08	7.83	24.32	1
								4
CCC	5.00	17.00	3.00	15.00	4.00	15.00	59.00	T
CCC	0.00	5.00	0.00	91.00	0.00	42.00	138.00	
TOTAL	5.00	22.00	3.00	106.00	4.00	57.00	197.00	
Exp.	1.50	6.59	0.90	31.75	1.20	17.07		p-value
Exp.	3.50	15.41	2.10	74.25	2.80	39.93		1.40869E-12*
X^2	8.19	16.45	4.92	8.83	6.55	0.25	45.20	
X^2	3.50	7.03	2.10	3.78	2.80	0.11	19.32	
								-
ССТ	9.00	22.00	13.00	39.00	7.00	13.00	103.00	Ĩ
ССТ	15.00	36.00	6.00	15.00	39.00	76.00	187.00	
TOTAL	24.00	58.00	19.00	54.00	46.00	89.00	290.00	
Exp.	8.52	20.60	6.75	19.18	16.34	31.61		p-value
Exp.	15.48	37.40	12.25	34.82	29.66	57.39		6.30199E-13
X^2	0.03	0.10	5.79	20.48	5.34	10.96	42.69	
X^2	0.01	0.05	3.19	11.28	2.94	6.03	23.51	
								_
CCG	1.00	4.00	6.00	12.00	6.00	7.00	36.00	Ĩ
CCG	3.00	32.00	16.00	0.00	2.00	32.00	85.00	
TOTAL	4.00	36.00	22.00	12.00	8.00	39.00	121.00	
Exp.	1.19	10.71	6.55	3.57	2.38	11.60		p-value
Exp.	2.81	25.29	15.45	8.43	5.62	27.40		1.54692E-08*
X^2	0.03	4.20	0.05	19.90	5.51	1.83	31.52	
X^2	0.01	1.78	0.02	8.43	2.33	0.77	13.35	l
								-
CAT	11.00	10.00	11.00	8.00	14.00	8.00	62.00	
CAT	36.00	84.00	21.00	3.00	66.00	21.00	231.00	
TOTAL	47.00	94.00	32.00	11.00	80.00	29.00	293.00	
Exp.	9.95	19.89	6.77	2.33	16.93	6.14]	p-value
Exp.	37.05	74.11	25.23	8.67	63.07	22.86		2.74849E-05
X^2	0.11	4.92	2.64	13.82	0.51	0.57	22.57	
X^2	0.03	1.32	0.71	3.71	0.14	0.15	6.06	l
								•
СТА	3.00	7.00	5.00	11.00	8.00	7.00	41.00	
СТА	20.00	2.00	40.00	16.00	45.00	9.00	132.00	
TOTAL	23.00	9.00	45.00	27.00	53.00	16.00	173.00	
Exp.	5.45	2.13	10.66	6.40	12.56	3.79		p-value
Exp.	17.55	6.87	34.34	20.60	40.44	12.21		1.47031E-05
X^2	1.10	11.11	3.01	3.31	1.66	2.71	22.90	4
X^2	0.34	3.45	0.93	1.03	0.51	0.84	7.11	1

	1							
CTT	24.00	23.00	14.00	11.00	9.00	9.00	90.00	
СТТ	56.00	47.00	24.00	0.00	35.00	32.00	194.00	
TOTAL	80.00	70.00	38.00	11.00	44.00	41.00	284.00	
Exp.	25.35	22.18	12.04	3.49	13.94	12.99		p-value
Exp.	54.65	47.82	25.96	7.51	30.06	28.01		2.6684E-05
X^2	0.07	0.03	0.32	16.20	1.75	1.23	19.60	
X^2	0.03	0.01	0.15	7.51	0.81	0.57	9.09	
<u> </u>	0.05	0.01	0.15	7.51	0.01	0.57	5.05	1
								7
CTC	6.00	10.00	11.00	14.00	15.00	8.00	64.00	
CTC	0.00	12.00	1.00	24.00	0.00	24.00	61.00	
TOTAL	6.00	22.00	12.00	38.00	15.00	32.00	125.00	
Exp.	3.07	11.26	6.14	19.46	7.68	16.38		p-value
Exp.	2.93	10.74	5.86	18.54	7.32	15.62		1.42705E-07
X^2	2.79	0.14	3.84	1.53	6.98	4.29	19.57	1.42/052 0/
X^2	2.93	0.15	4.03	1.61	7.32	4.50	20.53	<u>l</u>
		•			•	•		-
CTG	4.00	5.00	4.00	10.00	5.00	53.00	81.00	
CTG	115.00	0.00	45.00	0.00	28.00	4.00	192.00	
TOTAL	119.00	5.00	49.00	10.00	33.00	57.00	273.00	
Exp.	35.31	1.48	14.54	2.97	9.79	16.91		p-value
Exp.	83.69	3.52	34.46	7.03	23.21	40.09	1	5.34485E-41
							120 70	J.J440JL-41
X^2	27.76	8.34	7.64	16.67	2.34	77.01	139.76	4
X^2	11.71	3.52	3.22	7.03	0.99	32.49	58.96	1
								_
CAG	17.00	14.00	54.00	5.00	11.00	8.00	109.00	Ī
CAG	2.00	2.00	0.00	35.00	8.00	139.00	186.00	
TOTAL	19.00	16.00	54.00	40.00	19.00	147.00	295.00	
							233.00	
Exp.	7.02	5.91	19.95	14.78	7.02	54.32	4	p-value
Exp.	11.98	10.09	34.05	25.22	11.98	92.68		3.9521E-43
X^2	14.19	11.07	58.10	6.47	2.26	39.49	131.57	
X^2	8.31	6.48	34.05	3.79	1.32	23.14	77.10	
CGA	3.00	8.00	6.00	6.00	10.00	10.00	43.00	Ĩ
CGA	3.00	0.00	61.00	0.00	25.00	0.00	89.00	
TOTAL	6.00	8.00	67.00	6.00	35.00	10.00	132.00	
							152.00	
Exp.	1.95	2.61	21.83	1.95	11.40	3.26		p-value
Exp.	4.05	5.39	45.17	4.05	23.60	6.74		2.96881E-13*
X^2	0.56	11.16	11.48	8.37	0.17	13.96	45.70	
X^2	0.27	5.39	5.54	4.05	0.08	6.74	22.08	
CGG	19.00	39.00	3.00	10.00	5.00	8.00	84.00	Ĩ
CGG	11.00	2.00	1.00	0.00	31.00	0.00	45.00	
TOTAL	30.00	41.00	4.00	10.00	36.00	8.00	129.00	
							125.00	
Exp.	19.53	26.70	2.60	6.51	23.44	5.21		p-value
Exp.	10.47	14.30	1.40	3.49	12.56	2.79		3.08516E-13*
X^2	0.01	5.67	0.06	1.87	14.51	1.50	23.62	
X^2	0.03	10.58	0.11	3.49	27.08	2.79	44.08	
								-
CGC	4.00	6.00	10.00	3.00	11.00	11.00	45.00	T
CGC	1.00	1.00	53.00	52.00	32.00	33.00	172.00	
TOTAL	5.00	7.00	63.00	55.00	43.00	44.00	217.00	
							217.00	
Exp.	1.04	1.45	13.06	11.41	8.92	9.12	4	p-value
Exp.	3.96	5.55	49.94	43.59	34.08	34.88		3.01308E-07
X^2	8.47	14.25	0.72	6.19	0.49	0.39	30.51	
X^2			0.19	1.62	0.13	0.10	7.98	I
	2.22	3.73	0.19	1.02	0.10			-
	2.22	3./3	0.19	1.02	0120			
CGT						9 00	79 00	T
CGT	51.00	1.00	11.00	5.00	2.00	9.00	79.00 42.00	
CGT	51.00 0.00	1.00 0.00	11.00 21.00	5.00 0.00	2.00 21.00	0.00	42.00	
CGT TOTAL	51.00 0.00 51.00	1.00 0.00 1.00	11.00 21.00 32.00	5.00 0.00 5.00	2.00 21.00 23.00	0.00 9.00		
CGT TOTAL Exp.	51.00 0.00 51.00 33.30	1.00 0.00 1.00 0.65	11.00 21.00 32.00 20.89	5.00 0.00 5.00 3.26	2.00 21.00 23.00 15.02	0.00 9.00 5.88	42.00	p-value
CGT TOTAL Exp. Exp.	51.00 0.00 51.00 33.30 17.70	1.00 0.00 1.00	11.00 21.00 32.00	5.00 0.00 5.00	2.00 21.00 23.00	0.00 9.00	42.00 121.00	p-value 4.96619E-16*
CGT TOTAL Exp.	51.00 0.00 51.00 33.30	1.00 0.00 1.00 0.65	11.00 21.00 32.00 20.89	5.00 0.00 5.00 3.26	2.00 21.00 23.00 15.02	0.00 9.00 5.88	42.00	
CGT TOTAL Exp. Exp.	51.00 0.00 51.00 33.30 17.70	1.00 0.00 1.00 0.65 0.35	11.00 21.00 32.00 20.89 11.11 4.68	5.00 0.00 5.00 3.26 1.74	2.00 21.00 23.00 15.02 7.98	0.00 9.00 5.88 3.12	42.00 121.00	
CGT TOTAL Exp. X^2	51.00 0.00 51.00 33.30 17.70 9.41	1.00 0.00 1.00 0.65 0.35 0.18	11.00 21.00 32.00 20.89 11.11	5.00 0.00 5.00 3.26 1.74 0.92	2.00 21.00 23.00 15.02 7.98 11.28	0.00 9.00 5.88 3.12 1.66	42.00 121.00 28.15	
CGT TOTAL Exp. Exp. X^2 X^2	51.00 0.00 51.00 33.30 17.70 9.41 17.70	1.00 0.00 1.00 0.65 0.35 0.18 0.35	11.00 21.00 32.00 20.89 11.11 4.68 8.81	5.00 0.00 5.00 3.26 1.74 0.92 1.74	2.00 21.00 23.00 15.02 7.98 11.28 21.22	0.00 9.00 5.88 3.12 1.66 3.12	42.00 121.00 28.15 52.94	
CGT TOTAL Exp. Exp. X^2 X^2 TAA	51.00 0.00 51.00 33.30 17.70 9.41 17.70 8.00	1.00 0.00 1.00 0.65 0.35 0.18 0.35 12.00	11.00 21.00 32.00 20.89 11.11 4.68 8.81 6.00	5.00 0.00 5.00 3.26 1.74 0.92 1.74 1.74	2.00 21.00 23.00 15.02 7.98 11.28 21.22 15.00	0.00 9.00 5.88 3.12 1.66 3.12 8.00	42.00 121.00 28.15 52.94 63.00	
CGT TOTAL Exp. Exp. X^2 X^2 TAA TAA	51.00 0.00 51.00 33.30 17.70 9.41 17.70 8.00 35.00	1.00 0.00 1.00 0.65 0.35 0.18 0.35 12.00 110.00	11.00 21.00 32.00 20.89 11.11 4.68 8.81 6.00 5.00	5.00 0.00 5.00 3.26 1.74 0.92 1.74 1.74 1.74	2.00 21.00 23.00 15.02 7.98 11.28 21.22 15.00 0.00	0.00 9.00 5.88 3.12 1.66 3.12 8.00 37.00	42.00 121.00 28.15 52.94 63.00 308.00	
CGT TOTAL Exp. Exp. X^2 X^2 TAA TAA TOTAL	51.00 0.00 51.00 33.30 17.70 9.41 17.70 8.00 35.00 43.00	1.00 0.00 1.00 0.65 0.35 0.18 0.35 12.00 110.00 122.00	11.00 21.00 32.00 20.89 11.11 4.68 8.81 6.00 5.00 11.00	5.00 0.00 5.00 3.26 1.74 0.92 1.74 14.00 121.00 135.00	2.00 21.00 23.00 15.02 7.98 11.28 21.22 15.00 0.00 15.00	0.00 9.00 5.88 3.12 1.66 3.12 8.00 37.00 45.00	42.00 121.00 28.15 52.94 63.00	4.96619E-16*
CGT TOTAL Exp. Exp. X^2 X^2 TAA TAA	51.00 0.00 51.00 33.30 17.70 9.41 17.70 8.00 35.00	1.00 0.00 1.00 0.65 0.35 0.18 0.35 12.00 110.00	11.00 21.00 32.00 20.89 11.11 4.68 8.81 6.00 5.00	5.00 0.00 5.00 3.26 1.74 0.92 1.74 1.74 1.74	2.00 21.00 23.00 15.02 7.98 11.28 21.22 15.00 0.00	0.00 9.00 5.88 3.12 1.66 3.12 8.00 37.00	42.00 121.00 28.15 52.94 63.00 308.00	
CGT TOTAL Exp. Exp. X^2 X^2 TAA TAA TOTAL	51.00 0.00 51.00 33.30 17.70 9.41 17.70 8.00 35.00 43.00	1.00 0.00 1.00 0.65 0.35 0.18 0.35 12.00 110.00 122.00	11.00 21.00 32.00 20.89 11.11 4.68 8.81 6.00 5.00 11.00	5.00 0.00 5.00 3.26 1.74 0.92 1.74 14.00 121.00 135.00	2.00 21.00 23.00 15.02 7.98 11.28 21.22 15.00 0.00 15.00	0.00 9.00 5.88 3.12 1.66 3.12 8.00 37.00 45.00	42.00 121.00 28.15 52.94 63.00 308.00	4.96619E-16*
CGT TOTAL Exp. Exp. X^2 X^2 TAA TAA TOTAL Exp.	51.00 0.00 51.00 33.30 17.70 9.41 17.70 8.00 35.00 43.00 7.30	1.00 0.00 1.00 0.65 0.35 0.18 0.35 12.00 110.00 122.00 20.72 101.28	11.00 21.00 32.00 20.89 11.11 4.68 8.81 6.00 5.00 11.00 1.87	5.00 0.00 5.00 3.26 1.74 0.92 1.74 14.00 121.00 135.00 22.92	2.00 21.00 23.00 15.02 7.98 11.28 21.22 15.00 0.00 15.00 2.55	0.00 9.00 5.88 3.12 1.66 3.12 8.00 37.00 45.00 7.64	42.00 121.00 28.15 52.94 63.00 308.00	4.96619E-16*
CGT TOTAL Exp. Exp. X^2 X^2 X^2 TAA TAA TAA TOTAL Exp. Exp. X^2	51.00 0.00 51.00 33.30 17.70 9.41 17.70 8.00 35.00 43.00 7.30 35.70 0.07	1.00 0.00 1.00 0.65 0.35 0.18 0.35 12.00 110.00 122.00 20.72 101.28 3.67	11.00 21.00 32.00 20.89 11.11 4.68 8.81 6.00 5.00 11.00 1.87 9.13 9.14	5.00 0.00 5.00 3.26 1.74 0.92 1.74 14.00 121.00 135.00 22.92 112.08 3.47	2.00 21.00 23.00 15.02 7.98 11.28 21.22 15.00 0.00 15.00 2.55 12.45 60.88	0.00 9.00 5.88 3.12 1.66 3.12 8.00 37.00 45.00 7.64 37.36 0.02	42.00 121.00 28.15 52.94 63.00 308.00 371.00 77.25	4.96619E-16*
CGT TOTAL Exp. Exp. X^2 X^2 TAA TAA TAA TOTAL Exp. Exp.	51.00 0.00 51.00 33.30 17.70 9.41 17.70 8.00 35.00 43.00 7.30 35.70	1.00 0.00 1.00 0.65 0.35 0.18 0.35 12.00 110.00 122.00 20.72 101.28	11.00 21.00 32.00 20.89 11.11 4.68 8.81 6.00 5.00 11.00 1.87 9.13	5.00 0.00 5.00 3.26 1.74 0.92 1.74 14.00 121.00 135.00 22.92 112.08	2.00 21.00 23.00 15.02 7.98 11.28 21.22 15.00 0.00 15.00 2.55 12.45	0.00 9.00 5.88 3.12 1.66 3.12 8.00 37.00 45.00 7.64 37.36	42.00 121.00 28.15 52.94 63.00 308.00 371.00	4.96619E-16*
CGT TOTAL Exp. Exp. X^2 X^2 X^2 TAA TAA TAA TOTAL Exp. Exp. X^2	51.00 0.00 51.00 33.30 17.70 9.41 17.70 8.00 35.00 43.00 7.30 35.70 0.07	1.00 0.00 1.00 0.65 0.35 0.18 0.35 12.00 110.00 122.00 20.72 101.28 3.67	11.00 21.00 32.00 20.89 11.11 4.68 8.81 6.00 5.00 11.00 1.87 9.13 9.14	5.00 0.00 5.00 3.26 1.74 0.92 1.74 14.00 121.00 135.00 22.92 112.08 3.47	2.00 21.00 23.00 15.02 7.98 11.28 21.22 15.00 0.00 15.00 2.55 12.45 60.88	0.00 9.00 5.88 3.12 1.66 3.12 8.00 37.00 45.00 7.64 37.36 0.02	42.00 121.00 28.15 52.94 63.00 308.00 371.00 77.25	4.96619E-16*

Tot 73.60 7.2.7.2 7.2.7.2.7.2.7.2.7.2.7.2.7.2.7.2.7.2.7.2									
TOTAL 75,08 7,08 62,08 5,00 12,08 9,08 120,09 5,244 1.44 12,75 100,05 <	TAC	70.00	2.00	F9 00	1 00	2 00	1 00	125 00	1
Epp. 13, 44 1.44 13, 76 1.83 2.47 1.85 prvalue X2 7.06 4.79 6.02 4.57 17.15 7.15 5.26 17.25 X2 7.06 4.79 6.02 4.57 17.25 7.05 5.20 17.75 TA 1.10 2.228 1.56 7.22 4.47 5.20 17.75 TA 1.60 0.00 7.00 4.00 0.00 118.00 23.00 4.44 4.33 4.33 455.27 7.47 24.63 4.44 4.33 4.33 455.27 7.97 7.97 7.97 7.97 7.97 7.97 7.97 7.97 7.97 7.97 7.97									
5x0 55.56 5.56 47.24 1.97 9.53 7.15 5.366.05 X22 7.16 6.77 6.07 6.57 17.26 28.39 66.60 X2 1.83 2.28 1.56 2.22 4.47 5.28 17.36 66.09 16.6 1.60 1.2.60 2.1.60 9.00 11.80 9.00 170AL 2.2.60 5.1.00 7.00 2.4.60 4.44 5.60 113.00 5.90 11.14 27.63 14.37 4.33 65.27 33.00 7.10 11.37.00 7.3726 11.350 11.3								170.00	
X*2 7.86 8.79 6.82 8.57 17.26 72.6 72.6 72.6 72.65 TCA 1.83 2.28 1.56 2.22 4.47 5.29 17.05 TCA 1.8.00 51.00 12.00 24.00 14.00 9.00 118.00 113.00 13.00 <th< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th<>									
X°2 1, 3. 2, 2.8 1, 5.0 2, 2.2 4, 4.7 5, 7.9 17.65 TCA 8, 0.0 51, 0.0 12, 0.0 24, 0.0 14, 0.0 0, 0.0 113, 0.0 113, 0.0 TOTAL 22, 0.0 51, 0.0 73, 0.0 0, 0.0 14, 0.0 0, 0.0 23, 0.0 23, 0.0 23, 0.0 23, 0.0 23, 0.0 23, 0.0 23, 0.0 23, 0.0 23, 0.0 24, 733 44, 237 4, 4, 33 45, 2.7 3, 73, 0.0 25, 730 113, 0.0									5.26601E-1/*
TCA 5.00 51.00 12.00 24.00 14.00 9.00 115.80 TCA 14.00 6.00 57.00 6.00 34.00 9.00 15.00 7.00		7.06	8.79	6.02	8.57	17.26	20.39		
TCA 14.00 0.00 0.00 34.00 0.00 11.00 233.00 Exp. 11.14 25.83 40.01 12.15 24.31 4.56 7.94746 Stop 10.86 25.17 38.90 11.85 23.80 4.44 5.7 7.94746 X2 0.91 23.17 7.90 11.94 4.73 4.33 65.27 TCC 3.69 7.268 15.69 5.69 11.69 13.69 14.69 13.69 16.69 16.69 16.69 16.69 <th>X^2</th> <th>1.83</th> <th>2.28</th> <th>1.56</th> <th>2.22</th> <th>4.47</th> <th>5.29</th> <th>17.65</th> <th></th>	X^2	1.83	2.28	1.56	2.22	4.47	5.29	17.65	
TCA 14.00 0.00 0.00 34.00 0.00 11.00 233.00 Exp. 11.14 25.83 40.01 12.15 24.31 4.56 7.94746 Stop 10.86 25.17 38.90 11.85 23.80 4.44 5.7 7.94746 X2 0.91 23.17 7.90 11.94 4.73 4.33 65.27 TCC 3.69 7.268 15.69 5.69 11.69 13.69 14.69 13.69 16.69 16.69 16.69 16.69 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>-</th>									-
TCA 14.00 0.00 0.00 34.00 0.00 11.00 233.00 Exp. 11.14 25.83 40.01 12.15 24.31 4.56 7.94746 Stop 10.86 25.17 38.90 11.85 23.80 4.44 5.7 7.94746 X2 0.91 23.17 7.90 11.94 4.73 4.33 65.27 TCC 3.69 7.268 15.69 5.69 11.69 13.69 14.69 13.69 16.69 16.69 16.69 16.69 <th>TCA</th> <th>8.00</th> <th>51.00</th> <th>12.00</th> <th>24.00</th> <th>14.00</th> <th>9.00</th> <th>118.00</th> <th>T</th>	TCA	8.00	51.00	12.00	24.00	14.00	9.00	118.00	T
TOTAL 22.08 51.00 79.00 22.08 48.00 9.00 23.00 79.00 <th7< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th7<>									
Exp. 11.14 17.53 24.31 4.56 p-value Exp. 10.86 25.17 38.99 11.85 23.69 4.45 7.97265-27 X*2 0.81 25.17 38.99 11.85 23.69 4.43 65.27 X*2 0.81 25.17 28.21 21.55 4.49 4.44 66.97 TCC 18.99 23.69 12.69 11.8.90 11.8.90 11.8.90 11.8.90 TCC 13.95 25.69 13.95 14.60 37.32 14.40 28.78 12.43 X*2 7.74 7.72 0.61 3.38 13.69 26.69 5.60 12.60 13.00 27.60 28.78 X*2 6.15 6.12 0.61 3.79 3.6 0.60 28.78 X*2 6.13 0.61 12.69 2.69 3.60 27.60 28.78 X*2 7.34 7.93 3.6 3.60 28.79 28.82 <									
Eyp. 10.8.6 22,17 13.8.9 11.85 23.6.9 4.44 7.94784E-27 X^2 0.8.9 22,4.33 19.61 11.54 4.37 4.33 65.27 X^2 0.91 23.17 29.12 11.85 4.49 4.44 65.97 TCC 18.69 53.66 16.69 2.09 54.09 2.7.98 18.99 TOTAL 22.68 18.09 13.69 12.69 14.89 18.99 Y^2 7.74 7.71 0.15 1.49 31.63 11.97 0.90 28.78 Y^2 7.74 7.71 0.91 1.69 1.69 28.78 9.78 28.78 Y^2 7.74 7.71 0.91 1.69 1.09 28.90 28.90 27.60 28.90 Y2 1.13 0.11.3 0.13.9 1.39 21.68 2.78 2.88 2.155 Y2 1.13 0.13.9 28.90 7.80 2.80								233.00	
X*2 0.89 24.53 19.61 11.54 4.37 4.33 65.77 CC 18.09 52.17 20.12 11.85 4.49 4.44 66.97 TCC 18.09 22.17 20.12 11.85 4.49 4.44 66.97 TCC 3.09 27.69 16.09 6.09 13.09 11.00 118.09 TCC 3.08 27.69 18.09 55.09 14.00 138.09 Exp. 11.36 44.37 18.09 56.09 22.00 257.00 97.91 K*2 7.24 7.21 0.61 3.36 11.02 0.60 28.78 K*2 7.24 7.21 0.61 17.69 29.09 60.00 26.09 28.09 27.80 TCT 17.90 32.09 73.00 35.5 2.00 28.09 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>									
X*2 0.91 25,17 20.12 11.85 4.49 4.44 66.97 TCC 18.00 53,00 16.00 6,00 13.00 22.00 18.00 19.00 TCC 3.00 27.00 16.00 27.00 18.00 27.00 18.00 27.00									/.94/84E-2/
TCC 13.00 13.00 12.00 118.00 13.00 TCC 3.00 27.60 16.00 56.00 14.00 139.00 TCT 3.00 27.60 16.00 56.00 16.00 237.00 Exp. 11.35 44.37 15.01 12.40 31.65 11.94 3.03135-10 X2 7.24 7.24 7.21 6.01 2.80 3.55 6.00 28.78 X2 7.24 7.21 6.01 2.00 3.56 0.00 28.00 28.78 TCT 17.00 2.00 21.60 77.80 4.55 27.78 24.43 TOTAL 32.00 32.10 137.00 68.49 5.22 27.80 21.00 135.00 78.00 28.02 X2 0.72 0.22 0.74 5.85 1.62 5.22 15.37 28.02 X2 0.72 0.22 0.74 5.86 1.62 5.22 15.35 28.02 </th <th></th> <th></th> <th></th> <th></th> <th></th> <th>1</th> <th></th> <th></th> <th></th>						1			
TCC 3.00 27.00 19.00 21.00 55.00 14.00 139.00 Exp. 1.36 43.27 15.61 12.40 31.65 11.94 PValue X22 7.24 7.21 0.81 3.30 11.02 0.80 22.00 22.00 25.00 24.03 X22 7.24 7.21 0.81 3.30 11.02 0.80 24.13 TCT 15.60 5.12 0.81 2.280 9.53 0.80 24.14 TCT 15.60 2.00 21.00 15.00 8.00 26.00 26.00 27.00 20.00 TCT 17.00 23.00 78.00 4.00 79.00 0.00 180.00 27.00 TCT 13.3 0.11.13 11.13 27.13 7.30 365.52 2.78 22.00 22.	X^2	0.91	25.17	20.12	11.85	4.49	4.44	66.97	
TCC 3.00 27.00 18.00 21.00 55.00 14.00 139.00 Exp. 9.64 36.73 15.61 12.48 31.68 11.94 3.0114.68 37.32 14.66 37.50 15.61 22.78 3.011.02 0.00 27.60 55.00 27.60 55.00 27.60 3.011.02 0.00 3.011.02 0.00 3.011.02 0.00 3.011.02 0.00 27.60 17.00 27.60 17.00 27.60 17.00 27.60 17.00 27.60 17.00 0.00 17.00 27.60 17.00 0.00 17.00 27.60 17.00 0.00 17.00 27.60 17.00 0.00 17.00 27.60 17.00 0.00 17.00 27.60 17.00 27.60 17.00 27.60 17.00 27.60 17.00 27.60 17.00 27.60 17.00 27.60 17.00 27.60 17.00 27.60 17.00 27.60 17.00 27.60 17.00 27.60 <									
TOTAL 21.00 89.00 34.00 27.00 527.00 257.00 257.00 Exp. 9.64 35.73 15.61 12.40 31.65 11.94 357.00 X^2 7.24 47.21 18.13 14.60 37.32 14.40 35.135	тсс	18.00	53.00	16.00	6.00	13.00	12.00	118.00	T
Exp. 9.64 36.73 13.56 12.48 11.94 P-value X^2 7.24 7.21 8.13 14.69 3.639 14.69 3.639935-18 X^2 6.15 6.12 8.01 3.28 9.35 0.060 28.78 TCT 17.00 23.00 57.00 4.06 79.00 0.060 24.43 TOTAL 32.00 57.00 4.06 79.00 0.00 180.00 276.69 276.69 276.69 276.69 278.69 288.22 278 288.22 278.69 278.69 278.69 278.69 278.69 278.69 278.69 278.69 288.62 278.69 278.69 288.62 278.69 288.62	ТСС	3.00	27.00	18.00	21.00	56.00	14.00	139.00	
Exp. 9.64 36.73 13.56 12.48 11.94 P-value X^2 7.24 7.21 8.13 14.69 3.639 14.69 3.639935-18 X^2 6.15 6.12 8.01 3.28 9.35 0.060 28.78 TCT 17.00 23.00 57.00 4.06 79.00 0.060 24.43 TOTAL 32.00 57.00 4.06 79.00 0.00 180.00 276.69 276.69 276.69 276.69 278.69 288.22 278 288.22 278.69 278.69 278.69 278.69 278.69 278.69 278.69 278.69 288.62 278.69 278.69 288.62 278.69 288.62	TOTAL	21.00	80.00	34.00	27.00	69.00	26.00	257.00	
Exp. 11.36 43.27 18.39 14.60 37.32 14.46 3.39198-10 X^2 6.15 6.12 0.81 2.80 9.35 0.60 28.78 X^2 6.15 6.12 0.81 2.80 9.35 0.60 28.78 TCT 17.60 9.00 21.00 27.00 26.00 8.00 27.60 9.00 TOTA 17.80 32.00 78.90 21.00 15.52 2.78 27.600									n-value
X ² 2 7.2 7.2 7.2 7.2 6.15 6.12 9.85 9.85 9.60 24.43 TCT 15.98 9.60 21.60 17.60 7.60 7.60 8.00 188.66 7.60 188.66 TOTAL 32.96 78.00 21.60 17.60 7.80 9.60 27.68 7.60 2.76 7.60 2.76 7.60 2.76.67 7.60 7.60 7.60 7.60 7.60 7.60 7.60 7.60 7.60 7.60 7.60 7.60 7.60 7.60 7.7									
X^2 6,15 6,12 9,81 2,80 9,35 9,00 24.43 TCT 15,00 9,00 12,00 17,00 26,00 18,00 96,00 18,00 TOTA 32,00 72,00 21,00 17,00 27,00 18,00 276,00 277,05 272 276,51 </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>20 70</th> <th>J.0J1JJL 10</th>								20 70	J.0J1JJL 10
TT 15.08 9.68 21.68 17.88 26.89 96.89 188.89 TOTAL 32.69 57.69 4.09 79.80 9.69 276.60 188.89 Exp. 11.13 11.13 27.13 7.38 36.52 2.76 276.80 276.87 X^2 1.35 8.41 1.39 12.87 3.63 9.78 28.82 2.11557E-88 X^2 0.72 0.22 0.74 6.86 1.62 5.22 15.37 TG 0.00 9.00 6.98 4.00 3.00 8.00 78.00 78.00 TOTAL 5.00 9.00 8.00 5.00 36.00 78.00 78.00 78.00 TOTAL 5.00 9.00 8.00 5.00 78.00 78.00 78.00 78.00 78.00 78.00 78.00 78.00 78.00 78.00 78.00 78.00 78.00 78.00 78.00 78.00 78.00 78.00 78.00									
TCT 17.08 23.08 57.08 4.08 79.08 8.08 180.08 Exp. 11.13 11.13 27.13 7.38 36.52 27.88 276.08 2.11567E-08 X^2 1.35 0.41 1.39 12.87 3.83 9.78 28.87 2.11567E-08 X^2 1.35 0.41 1.39 12.87 3.83 9.78 28.87 2.11567E-08 X^2 0.73 0.22 0.74 6.86 1.62 5.22 2.78 2.8.97 2.8.97 2.8.97 2.8.97 2.8.97 2.8.97 2.8.97 2.8.97 2.8.97 2.8.97 2.8.97 3.9.97 2.8.97 3.9.97 7.9.97 2.8.97 3.9.97 7.9.97 3.9.97 3.9.97 7.9.97 3.9.97	X^2	6.15	6.12	0.01	2.80	9.35	0.00	24.43	
TCT 17.08 23.08 57.08 4.08 79.08 8.08 180.08 Exp. 11.13 11.13 27.13 7.38 36.52 27.88 276.08 2.11567E-08 X^2 1.35 0.41 1.39 12.87 3.83 9.78 28.87 2.11567E-08 X^2 1.35 0.41 1.39 12.87 3.83 9.78 28.87 2.11567E-08 X^2 0.73 0.22 0.74 6.86 1.62 5.22 2.78 2.8.97 2.8.97 2.8.97 2.8.97 2.8.97 2.8.97 2.8.97 2.8.97 2.8.97 2.8.97 2.8.97 3.9.97 2.8.97 3.9.97 7.9.97 2.8.97 3.9.97 7.9.97 3.9.97 3.9.97 7.9.97 3.9.97									-
TOTAL 32.00 32.00 78.00 21.00 105.00 8.00 276.00 Exp. 20.87 20.87 50.87 13.70 66.48 5.22 2.115 2.11567E-08 X^2 1.35 0.41 1.39 12.87 3.03 9.78 28.82 2.11567E-08 X^2 0.72 0.22 0.74 6.86 1.62 5.22 15.37 TGG 5.09 9.00 6.00 4.00 3.00 8.00 78.00 78.00 TOTAL 5.09 9.00 6.00 4.00 3.00 8.00 78.00 78.00 TOTAL 5.00 3.48 5.96 3.62 40.00 78.00 <t< th=""><th></th><th>15.00</th><th></th><th>21.00</th><th>17.00</th><th>26.00</th><th>8.00</th><th>96.00</th><th></th></t<>		15.00		21.00	17.00	26.00	8.00	96.00	
Exp. 11.13 11.13 27.13 7.30 36.52 2.78 p-value X^2 1.35 0.41 1.39 12.87 3.03 9.78 28.82 X^2 0.72 0.22 0.74 6.86 1.62 5.22 15.37 TGG 5.00 9.00 6.00 4.00 3.00 8.00 78.00 TGG 0.00 9.00 6.00 4.00 3.00 8.00 78.00 TGG 0.00 9.00 8.00 5.00 36.00 78.00 13.00 TGG 0.00 9.00 8.00 5.00 36.00 13.00 28.00 13.23 TGA 7.69 13.84 5.01 3.88 3.62 40.00 32.2366E-11* X^2 3.45 6.21 5.22 3.45 24.85 34.51 3.2356E-11* TAT 7.69 13.84 5.01 2.06 27.00 29.00 211.00 388.00	ТСТ	17.00	23.00	57.00	4.00	79.00	0.00	180.00	
Exp. 11.13 11.13 27.13 7.30 36.52 2.78 p-value X^2 1.35 0.41 1.39 12.87 3.03 9.78 28.82 X^2 0.72 0.22 0.74 6.86 1.62 5.22 15.37 TGG 5.00 9.00 6.00 4.00 3.00 8.00 78.00 TGG 0.00 9.00 6.00 4.00 3.00 8.00 78.00 TGG 0.00 9.00 8.00 5.00 36.00 78.00 13.00 TGG 0.00 9.00 8.00 5.00 36.00 13.00 28.00 13.23 TGA 7.69 13.84 5.01 3.88 3.62 40.00 32.2366E-11* X^2 3.45 6.21 5.22 3.45 24.85 34.51 3.2356E-11* TAT 7.69 13.84 5.01 2.06 27.00 29.00 211.00 388.00	TOTAL	32.00	32.00	78.00	21.00	105.00	8.00	276.00	
Exp. 20.87 20.87 50.87 13.70 68.48 5.22 2 2 2 2 2 1.139 12.87 3.63 9.78 28.82 2 2 1.53 7 1.63 9.78 28.82 2 2 1.53 7 1.53 7 1.53 2 1.53 7 1.53 2 1.55 1.00 3.00 42.00 78.0									p-value
X ² 1.35 0.41 1.39 12.87 3.03 9.78 28.02 X ² 0.72 0.22 0.74 6.86 1.62 5.22 15.37 TGG 5.00 9.00 6.00 4.00 3.00 8.00 73.00 78.00 78.00 TGG 0.00 0.00 2.00 1.00 30.00 42.00 78.00 78.00 TOTAL 5.00 9.00 8.00 5.00 36.00 50.00 11.15 15.49 9 Exp. 3.45 6.21 5.52 3.45 24.85 34.51 78.00 78.00 78.00 78.00 X ² 3.45 6.21 2.25 1.1.55 16.23 77.75 78.00									
X*2 9.72 9.22 9.74 6.86 1.62 5.22 15.37 TCG 5.00 9.00 6.00 4.00 3.00 8.00 73.00 TCG 0.00 0.00 2.00 1.00 33.00 42.00 78.00 TOTAL 5.02 2.79 2.48 1.55 11.15 15.49 8.223 3.451 3.223666-11* X*2 7.69 13.84 5.01 3.88 5.96 3.62 40.06 3.223666-11* X*2 7.69 13.84 5.01 3.88 5.96 3.62 40.06 3.23666-11* X*2 7.69 13.84 5.01 3.80 2.00 21.00 177.90 TAT 72.00 162.00 10.00 16.00 2.00 8.00 21.00 21.00 21.00 21.00 21.00 21.00 21.00 21.00 21.00 270.00 23.00 24.00 21.00 270.00 23.00 270.00 270.0								78.97	2.1150/2 00
ICG 5.00 9.00 6.00 2.00 8.00 35.00 76.00 TOTAL 5.00 9.00 8.00 5.00 33.00 42.00 78.00 TOTAL 5.00 9.00 8.00 5.00 36.00 50.00 113.00 P-value Exp. 3.45 6.21 5.52 3.45 24.48 34.51 3.2356E-11* X^2 7.69 13.84 5.01 3.88 5.95 3.62 40.00 X^2 3.45 6.21 2.25 1.74 2.67 1.62 17.95 TAT 73.00 102.00 10.00 10.00 16.00 2.00 8.00 211.00 211.00 211.00 211.00 211.00 27.00 28.00 38.00 27.00 3.236E-16 8.54536E-16 8.54536E-1						1			-
TCG 0.09 0.09 2.09 1.09 33.09 42.09 78.09 Exp. 1.55 2.79 2.48 1.55 11.15 15.49 p-value Exp. 3.45 6.21 5.52 3.45 24.65 34.51 3.23366-11* X^2 3.45 6.21 2.25 1.74 2.67 1.62 17.95 X^2 3.45 6.21 2.25 1.74 2.67 1.62 17.95 TAT 73.00 12.08 14.00 16.00 27.09 29.00 38.00 TAT 73.00 12.08 14.00 38.00 27.09 29.00 38.00 TAT 73.00 12.08 14.00 36.00 27.09 38.00 27.00 38.00 21.00 38.00 21.00 13.00 21.00 21.00 21.00 21.00 21.00 27.00 3.45 6.43 43.48 3.45 6.43 43.00 27.00 21.00 27.00	X^2	0.72	0.22	0.74	6.86	1.62	5.22	15.3/	1
TCG 0.09 0.09 2.09 1.09 33.09 42.09 78.09 Exp. 1.55 2.79 2.48 1.55 11.15 15.49 p-value Exp. 3.45 6.21 5.52 3.45 24.65 34.51 3.23366-11* X^2 3.45 6.21 2.25 1.74 2.67 1.62 17.95 X^2 3.45 6.21 2.25 1.74 2.67 1.62 17.95 TAT 73.00 12.08 14.00 16.00 27.09 29.00 38.00 TAT 73.00 12.08 14.00 38.00 27.09 29.00 38.00 TAT 73.00 12.08 14.00 36.00 27.09 38.00 27.00 38.00 21.00 38.00 21.00 13.00 21.00 21.00 21.00 21.00 21.00 27.00 3.45 6.43 43.48 3.45 6.43 43.00 27.00 21.00 27.00					•				-
TOTAL 5.00 9.00 8.00 5.00 36.00 50.00 113.00 Exp. 1.55 2.79 2.48 1.55 11.15 15.49 p-value Exp. 3.45 6.21 5.52 3.45 24.85 34.51 3.22366E-11* X^2 7.69 13.84 5.01 3.88 5.96 3.62 40.60 X^2 3.45 6.21 2.25 1.74 2.67 1.62 17.95 TAT 72.00 155.00 34.00 16.00 2.60 8.00 211.00 TOTAL 95.00 155.00 44.00 38.00 27.00 23.00 388.00 Exp. 51.66 84.29 23.93 20.66 14.68 15.77 X^2 8.54536E-16 X^2 8.81 3.72 8.11 1.05 10.96 3.83 36.48 X^2 8.00 113.00 5.00 9.00 13.00 270.00 143.00									
Exp. 1.55 2.79 2.48 1.55 11.15 15.49 p-value 2x0. 3.45 6.21 5.52 3.45 24.85 34.51 32366E-11* X^2 7.69 13.84 5.01 3.88 5.96 3.62 40.00 X^2 3.45 6.21 2.25 1.74 2.67 1.62 17.95 TAT 22.00 53.00 34.00 22.00 25.00 21.00 177.00 TAT 73.00 102.00 10.00 16.00 2.00 88.00 21.100 TAT 73.00 155.00 44.00 38.00 27.00 388.00 27.00 388.00 27.00 388.00 27.00 388.00 27.00 43.48 14.300 65.42 3.03 20.66 14.68 15.77 8.5436E-16 43.48 574.00 43.48 574.00 43.48 5.448 5.77 8.5436E-16 574.00 143.00 26.00 113.00 5.00 9.0	TCG	0.00	0.00	2.00	1.00	33.00	42.00	78.00	
Exp. 3.45 6.21 5.52 3.45 24.85 34.51 3.23366E-11* X^2 7.69 13.84 5.01 3.88 5.96 3.62 40.00 X^2 3.45 6.21 2.25 1.74 2.67 1.62 17.95 TAT 73.00 102.00 10.00 16.00 2.00 21.00 21.00 21.00 TAT 73.00 102.00 17.34 12.32 13.23 p-value Exp. 43.34 70.71 20.07 17.34 12.32 13.23 p-value Exp. 51.66 84.29 23.93 20.66 14.68 15.77 8.56 43.48 X^2 10.51 4.44 9.66 1.26 13.86 43.65 43.80 Z^2 10.51 4.41.90 6.00 9.00 13.00 270.00 13.00 TA 10.40 6.00 119.00 47.00 30.00 40.00 41.00 270.00	TOTAL	5.00	9.00	8.00	5.00	36.00	50.00	113.00	
Exp. 3.45 6.21 5.52 3.45 24.85 34.51 3.23366E-11* X^2 7.69 13.84 5.01 3.88 5.96 3.62 40.00 X^2 3.45 6.21 2.25 1.74 2.67 1.62 17.95 TAT 73.00 102.00 10.00 16.00 2.00 21.00 21.00 21.00 TAT 73.00 102.00 17.34 12.32 13.23 p-value Exp. 43.34 70.71 20.07 17.34 12.32 13.23 p-value Exp. 51.66 84.29 23.93 20.66 14.68 15.77 8.56 43.48 X^2 10.51 4.44 9.66 1.26 13.86 43.65 43.80 Z^2 10.51 4.41.90 6.00 9.00 13.00 270.00 13.00 TA 10.40 6.00 119.00 47.00 30.00 40.00 41.00 270.00	Exp.	1.55	2.79	2.48	1.55	11.15	15.49		p-value
X^2 7.69 13.84 5.01 3.88 5.96 3.62 40.69 X^2 3.45 6.21 2.25 1.74 2.67 1.62 17.95 TAT 22.00 53.06 34.06 22.00 25.00 21.00 17.06 TAT 73.00 102.00 10.00 16.00 2.00 8.00 211.00 388.00 TAT 73.00 105.00 44.00 38.00 27.00 29.00 388.00 Exp. 43.34 70.71 20.07 17.34 12.32 13.23 p-value X^2 10.51 4.44 9.66 1.26 13.06 4.56 43.48 X^2 8.81 3.72 8.11 1.05 10.96 3.83 36.48 TA 10.00 37.06 6.00 42.00 21.00 27.00 143.00 62.1848 X^2 22.60 113.00 5.00 9.00 13.00 270.00 143.00 62.18458-40 X^2 22.01 10.57 30.08 40.67 10.8		3.45		5.52	3.45	24.85	34.51		
X^2 3.45 6.21 2.25 1.74 2.67 1.62 17.95 TAT 22.00 53.00 34.00 22.00 25.00 21.00 177.00 TAT 73.00 102.00 10.00 16.00 2.00 8.00 211.00 211.00 TOTAL 95.00 44.00 38.00 27.00 29.00 388.00 211.00 Exp. 43.34 70.71 20.07 17.34 12.32 13.23 p-value Exp. 51.66 84.29 23.93 20.66 14.68 15.77 X*2 8.81 3.72 8.11 1.05 1.26 13.06 4.56 43.48 X*2 8.81 3.72 8.11 1.06 9.00 13.00 270.00 270.00 TA 10.00 27.00 13.00 77.00 30.31 10.114.00 6.208 10.26 13.30 270.00 143.00 X*2 22.01 10.57 30.08 40.6								40,00	
TAT 22.00 53.00 34.00 22.00 25.00 21.00 177.00 TAT 73.00 102.00 10.00 16.00 25.00 21.00 177.00 TOTAL 95.00 155.00 44.00 38.00 27.00 29.00 38.00 Exp. 51.66 84.29 23.93 20.66 14.68 15.77 8.54536E-16 X^2 10.51 4.44 9.66 1.26 13.86 4.56 43.48 X^2 10.51 4.44 9.66 1.26 13.86 4.56 43.48 X^2 8.81 3.72 8.11 1.05 10.96 27.00 27.00 TA 10.00 27.00 113.00 5.00 9.00 13.00 270.00 TA 10.00 26.00 113.00 5.00 9.00 13.00 270.00 TA 10.00 6.00 47.00 30.00 40.00 413.00 X^2 22.01						1			
TAT 73.00 102.00 10.00 16.00 2.00 8.00 211.00 TOTAL 95.00 155.00 44.00 38.00 27.00 29.00 388.00 Exp. 43.34 70.71 20.07 17.34 12.32 13.23 p-value X^2 10.51 4.44 9.66 1.26 13.06 4.56 43.48 X^2 8.11 3.72 8.11 1.05 10.96 3.83 36.48 TA 10.00 37.00 6.00 42.00 21.00 27.00 143.00 TA 10.00 37.00 6.00 42.00 20.00 30.00 40.00 413.00 Exp. 39.47 21.81 41.20 16.27 10.39 13.85 p-value Exp. 74.53 41.19 77.80 30.73 19.61 26.15 6.21245E-40 TTT 96.00 101.00 46.00 125.90 17.90 19.00 303.00 13.85 TTT 96.00 101.00 46.00 10.50 10.00 <th><u> </u></th> <th>5.45</th> <th>0.21</th> <th>2.25</th> <th>1.74</th> <th>2.07</th> <th>1.02</th> <th>17.55</th> <th>1</th>	<u> </u>	5.45	0.21	2.25	1.74	2.07	1.02	17.55	1
TAT 73.00 102.00 10.00 16.00 2.00 8.00 211.00 TOTAL 95.00 155.00 44.00 38.00 27.00 29.00 388.00 Exp. 43.34 70.71 20.07 17.34 12.32 13.23 p-value X^2 10.51 4.44 9.66 1.26 13.06 4.56 43.48 X^2 8.11 3.72 8.11 1.05 10.96 3.83 36.48 TA 10.00 37.00 6.00 42.00 21.00 27.00 143.00 TA 10.00 37.00 6.00 42.00 20.00 30.00 40.00 413.00 Exp. 39.47 21.81 41.20 16.27 10.39 13.85 p-value Exp. 74.53 41.19 77.80 30.73 19.61 26.15 6.21245E-40 TTT 96.00 101.00 46.00 125.90 17.90 19.00 303.00 13.85 TTT 96.00 101.00 46.00 10.50 10.00 <th>TAT</th> <th>22.00</th> <th>52.00</th> <th>24.00</th> <th>22.00</th> <th>25.00</th> <th>21.00</th> <th>177 00</th> <th>T</th>	TAT	22.00	52.00	24.00	22.00	25.00	21.00	177 00	T
TOTAL 95.00 155.00 44.00 38.00 27.00 29.00 388.00 Exp. 43.34 70.71 20.07 17.34 12.32 13.23 p-value Exp. 51.66 84.29 23.93 20.66 14.68 15.77 8.5436E-16 X^2 8.81 3.72 8.11 1.05 19.96 3.83 36.48 X^2 8.81 3.72 8.11 1.05 19.96 27.00 143.00 TTA 10.00 37.00 6.00 42.00 21.00 27.00 143.00 TTA 104.00 26.00 113.00 47.00 30.00 40.00 413.00 Exp. 39.47 21.81 41.20 16.27 10.33 13.85 p-value K^2 22.01 10.57 30.08 40.67 19.84 12.49 126.65 X^2 11.65 5.60 15.93 21.54 5.74 6.61 67.08 TT </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>									
Exp. 43.34 70.71 20.07 17.34 12.32 13.23 p-value Exp. 51.66 84.29 23.93 20.66 14.68 15.77 8.5436E-16 X^2 10.51 4.44 9.66 1.26 13.06 4.56 43.48 X^2 8.81 3.72 8.11 1.05 10.96 3.83 36.48 TA 10.00 37.00 6.00 42.00 21.00 27.00 143.00 TTA 104.00 26.00 113.00 5.00 9.00 13.00 270.00 TTA 114.00 63.00 119.00 47.00 30.00 40.00 413.00 Exp. 39.47 21.81 41.20 16.77 10.83 126.65 6.21845E-40 X^2 22.01 10.57 30.08 40.67 10.84 12.49 126.65 TT 96.00 101.00 46.00 17.00 19.00 303.00 TTT 96									
Exp. 51.66 84.29 23.93 20.66 14.68 15.77 8.54536E-16 X^2 10.51 4.44 9.66 1.26 13.06 4.56 43.48 X^2 8.81 3.72 8.11 1.05 10.96 3.83 36.48 X^2 8.81 3.72 8.11 1.05 10.96 3.83 36.48 TTA 10.00 37.00 6.00 42.00 21.00 27.00 143.00 TTA 104.00 26.00 113.00 47.00 30.00 40.00 413.00 Exp. 39.47 21.81 41.20 16.27 10.39 13.85 p-value K^2 22.01 10.57 30.08 40.67 10.84 12.49 126.65 X^2 22.01 10.57 30.08 40.67 10.84 12.49 126.65 X^2 22.01 10.97 30.98 40.67 10.84 12.49 126.65 X^2 22.01 142.00 46.00 105.06 17.00 90.00 497.00								388.00	
X^2 10.51 4.44 9.66 1.26 13.06 4.56 43.48 X^2 8.81 3.72 8.11 1.05 10.96 3.83 36.48 TTA 10.00 37.00 6.00 42.00 21.00 27.00 143.00 270.00 143.00 TTA 104.00 26.00 113.00 5.00 9.00 13.00 270.00 413.00 Exp. 39.47 21.81 41.20 16.27 10.39 13.85 p-value K^2 20.1 105.77 30.08 40.67 10.84 12.49 126.65 X^2 21.165 5.60 15.93 21.54 5.74 6.61 67.08 TTT 1.00 41.00 0.00 81.00 0.00 71.00 194.00 194.00 TTT 1.00 41.00 0.00 81.00 0.00 71.00 194.00 194.00 194.00 TTT 1.00 41.00 0.00 81.00 0.00 71.00 194.00 194.00 13.3585E-47 89.59									
X^2 8.81 3.72 8.11 1.05 10.96 3.83 36.48 TA 10.00 37.00 6.00 42.00 21.00 27.00 143.00 TA 104.00 26.00 113.00 5.00 9.00 13.00 270.00 TA 104.00 63.00 119.00 47.00 30.00 40.00 413.00 Exp. 39.47 21.81 41.20 16.27 10.39 13.85 p-value K^2 22.01 10.57 30.08 40.67 10.84 12.49 126.65 K^2 21.165 5.60 15.93 21.54 5.74 6.61 6.21845E-40 TTT 96.00 101.00 46.00 24.00 17.00 19.00 303.00 TTT 1.06 41.20 0.00 81.00 0.00 71.00 194.00 K^2 22.98 2.40 11.50 25.01 4.25 23.45 89.59 K^2 23.83 3.76 17.96 39.07 6.64 35.13 73.389 <t< th=""><th>Exp.</th><th>51.66</th><th>84.29</th><th>23.93</th><th>20.66</th><th>14.68</th><th>15.77</th><th></th><th>8.54536E-16</th></t<>	Exp.	51.66	84.29	23.93	20.66	14.68	15.77		8.54536E-16
TTA 10.00 37.00 6.00 42.00 21.00 27.00 143.00 TTA 104.00 26.00 113.00 5.00 9.00 13.00 270.00 413.00 TOTAL 114.00 63.00 119.00 47.00 30.00 40.00 413.00 Exp. 39.47 21.81 41.20 16.27 10.39 13.85 p-value K^2 22.01 10.57 30.08 40.67 10.84 12.49 126.65 X^2 11.65 5.60 15.93 21.54 5.74 6.61 67.08 TTT 96.00 101.00 46.00 24.00 17.00 19.00 194.00 TTA 96.00 101.00 46.00 105.00 17.00 194.00 497.00 TTA 96.00 142.00 46.00 105.00 17.00 194.00 497.00 TTA 96.00 142.00 46.00 105.00 17.00 194.00 135.00	X^2	10.51	4.44	9.66	1.26	13.06	4.56	43.48	
TTA 104.00 26.00 113.00 5.00 9.00 13.00 270.00 TOAL 114.00 63.00 119.00 47.00 30.00 40.00 413.00 Exp. 39.47 21.81 41.20 16.27 10.39 13.85 p-value K2p. 74.53 41.19 77.80 30.73 19.61 26.15 6.21845E-40 X^2 22.01 10.57 30.08 40.67 10.84 12.49 126.65 X^2 11.65 5.60 15.93 21.54 5.74 6.61 67.08 TTT 96.00 101.00 46.00 24.00 17.00 19.00 303.00 TTT 96.00 101.00 46.00 105.00 17.00 90.00 497.00 TTT 96.00 13.00 46.00 105.00 17.00 90.00 497.00 Exp. 57.41 86.57 28.04 64.01 10.36 54.87 89.59 X^2 22.98 2.40 11.50 25.01 4.25 23.45 8	X^2	8.81	3.72	8.11	1.05	10.96	3.83	36.48	
TTA 104.00 26.00 113.00 5.00 9.00 13.00 270.00 TOAL 114.00 63.00 119.00 47.00 30.00 40.00 413.00 Exp. 39.47 21.81 41.20 16.27 10.39 13.85 p-value K2p. 74.53 41.19 77.80 30.73 19.61 26.15 6.21845E-40 X^2 22.01 10.57 30.08 40.67 10.84 12.49 126.65 X^2 11.65 5.60 15.93 21.54 5.74 6.61 67.08 TTT 96.00 101.00 46.00 24.00 17.00 19.00 303.00 TTT 96.00 101.00 46.00 105.00 17.00 90.00 497.00 TTT 96.00 13.00 46.00 105.00 17.00 90.00 497.00 Exp. 57.41 86.57 28.04 64.01 10.36 54.87 89.59 X^2 22.98 2.40 11.50 25.01 4.25 23.45 8					·				
TTA 104.00 26.00 113.00 5.00 9.00 13.00 270.00 TOAL 114.00 63.00 119.00 47.00 30.00 40.00 413.00 Exp. 39.47 21.81 41.20 16.27 10.39 13.85 p-value K2p. 74.53 41.19 77.80 30.73 19.61 26.15 6.21845E-40 X^2 22.01 10.57 30.08 40.67 10.84 12.49 126.65 X^2 11.65 5.60 15.93 21.54 5.74 6.61 67.08 TTT 96.00 101.00 46.00 24.00 17.00 19.00 303.00 TTT 96.00 101.00 46.00 105.00 17.00 90.00 497.00 TTT 96.00 13.00 46.00 105.00 17.00 90.00 497.00 Exp. 57.41 86.57 28.04 64.01 10.36 54.87 89.59 X^2 22.98 2.40 11.50 25.01 4.25 23.45 8	TTA	10 00	37 00	6.00	42 00	21 00	27 00	143 00	T
TOTAL 114.00 63.00 119.00 47.00 30.00 40.00 413.00 Exp. 39.47 21.81 41.20 16.27 10.39 13.85 p-value Exp. 74.53 41.19 77.80 30.73 19.61 26.15 6.21845E-40 X^2 22.01 10.57 30.08 40.67 10.84 12.49 126.65 X^2 11.65 5.60 15.93 21.54 5.74 6.61 67.08 TTT 96.00 101.00 46.00 24.00 17.00 19.00 303.00 TTT 1.00 412.00 46.00 105.00 17.00 194.00 TTT 1.00 41.00 0.00 81.00 0.00 71.00 194.00 Exp. 59.14 86.57 28.04 64.01 10.36 54.87 1.35895E-47 X^2 22.98 2.40 11.50 25.01 4.25 23.45 89.59 X^2 35.89 3.76 17.96 39.07 6.64 36.62 139.93									
Exp. 39.47 21.81 41.20 16.27 10.39 13.85 p-value Exp. 74.53 41.19 77.80 30.73 19.61 26.15 6.21845E-40 X^2 22.01 10.57 30.08 40.67 10.84 12.49 126.65 X^2 11.65 5.60 15.93 21.54 5.74 6.61 67.08 TTT 96.00 101.00 46.00 24.00 17.00 19.00 303.00 TTT 1.00 41.00 6.600 105.00 17.00 19.00 303.00 TTT 96.00 142.00 46.00 105.00 17.00 90.00 497.00 Exp. 59.14 86.57 28.04 64.01 10.36 54.87 P-value X^2 235.89 3.76 17.96 40.99 6.64 35.13 13.959 X^2 25.93 3.76 17.96 39.07 6.64 36.62 139.93 <									
Exp. 74.53 41.19 77.80 30.73 19.61 26.15 X^2 22.01 10.57 30.08 40.67 10.84 12.49 126.65 X^2 11.65 5.60 15.93 21.54 5.74 6.61 67.08 TTT 96.00 101.00 46.00 24.00 17.00 19.00 303.00 TTT 1.00 41.00 0.00 81.00 0.00 71.00 194.00 TTT 1.00 41.00 0.00 81.00 0.00 71.00 194.00 txp. 59.14 86.57 28.04 64.01 10.36 54.87 54.87 Exp. 37.86 55.43 17.96 40.99 6.64 35.13 1.35895E-47 X^2 35.89 3.76 17.96 39.07 6.64 36.62 139.93 TTC 15.00 13.00 45.00 32.00 20.00 17.00 142.00 TTC 15.00 13.00 46.00 44.00 34.00 132.00 33.00								415.00	
X^2 22.01 10.57 30.08 40.67 10.84 12.49 126.65 X^2 11.65 5.60 15.93 21.54 5.74 6.61 67.08 TTT 96.00 101.00 46.00 24.00 17.00 19.00 303.00 TTT 97.00 142.00 46.00 105.00 17.00 90.00 497.00 Exp. 59.14 86.57 28.04 64.01 10.36 54.87 97.00 Exp. 37.86 55.43 17.96 40.99 6.64 35.13 97.00 X^2 35.89 3.76 17.96 39.07 6.64 36.62 139.93 X^2 35.89 3.76 17.96 39.07 6.64 36.62 139.93 TTC 15.00 13.00 45.00 32.00 20.00 17.00 142.00 TTC 15.09 13.00 45.00 32.00 20.00 17.00 191.00 TC 15.09 13.00 45.00 32.00 33.00 33.00 94.67497E-31									
X^2 11.65 5.60 15.93 21.54 5.74 6.61 67.08 TTT 96.00 101.00 46.00 24.00 17.00 19.00 303.00 TTT 1.00 41.00 0.00 81.00 0.00 71.00 194.00 TTT 1.00 142.00 46.00 105.00 17.00 90.00 497.00 Exp. 59.14 86.57 28.04 64.01 10.36 54.87 1.35895E-47 Exp. 37.86 55.43 17.96 40.99 6.64 35.13 1.35895E-47 X^2 22.98 2.40 11.50 25.01 4.25 23.45 89.59 X^2 35.89 3.76 17.96 39.07 6.64 36.62 139.93 TTC 15.00 13.00 45.00 32.00 20.00 17.00 142.00 TTC 49.90 0.00 1.00 12.00 14.00 132.00 333.00 Exp. 27.29 5.54 19.62 18.76 14.50									6.21845E-40
TTT 96.00 101.00 46.00 24.00 17.00 19.00 303.00 TTT 1.00 41.00 0.00 81.00 0.00 71.00 194.00 TOTAL 97.00 142.00 46.00 105.00 17.00 90.00 497.00 Exp. 59.14 86.57 28.04 64.01 10.36 54.87 p-value X^2 37.86 55.43 17.96 40.99 6.64 35.13 89.59 X^2 22.98 2.40 11.50 25.01 4.25 23.45 89.59 X^2 35.89 3.76 17.96 39.07 6.64 36.62 139.93 TTC 15.00 13.00 45.00 32.00 20.00 17.00 142.00 TTC 49.00 0.00 1.00 12.00 14.00 115.00 191.00 TTC 49.00 13.00 46.00 44.00 34.00 132.00 333.00 Exp. 27.29 5.54 19.62 18.76 14.50 56.29 p-value		-							
TTT 1.00 41.00 0.00 81.00 0.00 71.00 194.00 TOTAL 97.00 142.00 46.00 105.00 17.00 90.00 497.00 Exp. 59.14 86.57 28.04 64.01 10.36 54.87 p-value Exp. 37.86 55.43 17.96 40.99 6.64 35.13 p-value X^2 22.98 2.40 11.50 25.01 4.25 23.45 89.59 X^2 35.89 3.76 17.96 39.07 6.64 36.62 139.93 TTC 15.00 13.00 45.00 32.00 20.00 17.00 142.00 TTC 15.00 13.00 46.00 32.00 20.00 17.00 142.00 TTC 49.00 0.00 1.00 12.00 14.00 115.00 33.00 Exp. 27.29 5.54 19.62 18.76 14.50 56.29 p-value K^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26	X^2	11.65	5.60	15.93	21.54	5.74	6.61	67.08	
TTT 1.00 41.00 0.00 81.00 0.00 71.00 194.00 TOTAL 97.00 142.00 46.00 105.00 17.00 90.00 497.00 Exp. 59.14 86.57 28.04 64.01 10.36 54.87 p-value Exp. 37.86 55.43 17.96 40.99 6.64 35.13 p-value X^2 22.98 2.40 11.50 25.01 4.25 23.45 89.59 X^2 35.89 3.76 17.96 39.07 6.64 36.62 139.93 TTC 15.00 13.00 45.00 32.00 20.00 17.00 142.00 TTC 15.00 13.00 46.00 32.00 20.00 17.00 142.00 TTC 49.00 0.00 1.00 12.00 14.00 115.00 33.00 Exp. 27.29 5.54 19.62 18.76 14.50 56.29 p-value K^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26									_
TTT 1.00 41.00 0.00 81.00 0.00 71.00 194.00 TOTAL 97.00 142.00 46.00 105.00 17.00 90.00 497.00 Exp. 59.14 86.57 28.04 64.01 10.36 54.87 p-value Exp. 37.86 55.43 17.96 40.99 6.64 35.13 p-value X^2 22.98 2.40 11.50 25.01 4.25 23.45 89.59 X^2 35.89 3.76 17.96 39.07 6.64 36.62 139.93 TTC 15.00 13.00 45.00 32.00 20.00 17.00 142.00 TTC 15.00 13.00 46.00 32.00 20.00 17.00 142.00 TTC 49.00 0.00 1.00 12.00 14.00 115.00 33.00 Exp. 27.29 5.54 19.62 18.76 14.50 56.29 p-value K^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26	TTT	96.00	101.00	46.00	24.00	17.00	19.00	303.00	T
TOTAL 97.00 142.00 46.00 105.00 17.00 90.00 497.00 Exp. 59.14 86.57 28.04 64.01 10.36 54.87 p-value Exp. 37.86 55.43 17.96 40.99 6.64 35.13 p-value X^2 22.98 2.40 11.50 25.01 4.25 23.45 89.59 X^2 35.89 3.76 17.96 39.07 6.64 36.62 139.93 TTC 15.00 13.00 45.00 32.00 20.00 17.00 142.00 TTC 49.00 0.00 1.00 12.00 14.00 115.00 191.00 TTC 49.00 0.00 1.00 12.00 14.00 132.00 333.00 Exp. 27.29 5.54 19.62 18.76 14.50 56.29 9 Exp. 36.71 7.46 26.38 25.24 19.50 75.71 4.67497E-31 X^2									
Exp. 59.14 86.57 28.04 64.01 10.36 54.87 p-value Exp. 37.86 55.43 17.96 40.99 6.64 35.13 1.35895E-47 X^2 22.98 2.40 11.50 25.01 4.25 23.45 89.59 X^2 35.89 3.76 17.96 39.07 6.64 36.62 139.93 TTC 15.00 13.00 45.00 32.00 20.00 17.00 142.00 TTC 49.00 0.00 1.00 12.00 14.00 191.00 TTC 49.00 0.00 1.00 12.00 14.00 333.00 Exp. 27.29 5.54 19.62 18.76 14.50 56.29 p-value K^2 5.54 19.62 18.76 14.50 77.1 4.67497E-31 X^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26 X^2 4.12 7.46 24.42 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>									
Exp. 37.86 55.43 17.96 40.99 6.64 35.13 1.35895E-47 X^2 22.98 2.40 11.50 25.01 4.25 23.45 89.59 X^2 35.89 3.76 17.96 39.07 6.64 36.62 139.93 TTC 15.00 13.00 45.00 32.00 20.00 17.00 142.00 TTC 49.00 0.00 1.00 12.00 14.00 115.00 191.00 TTC 49.00 0.00 1.00 12.00 14.00 191.00 TTC 49.00 0.00 1.00 12.00 14.00 191.00 TTC 5.54 19.62 18.76 14.50 56.29 P-value Exp. 36.71 7.46 26.38 25.24 19.50 75.71 4.67497E-31 X^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26 X^2 4.12 7.46 24.42 6.94 1.55 20.39 64.88 TTG 6.00 16									n-voluo
X^2 22.98 2.40 11.50 25.01 4.25 23.45 89.59 X^2 35.89 3.76 17.96 39.07 6.64 36.62 139.93 TTC 15.00 13.00 45.00 32.00 20.00 17.00 142.00 TTC 4.00 1.00 12.00 14.00 115.00 191.00 TTC 4.00 13.00 46.00 44.00 34.00 132.00 333.00 TTC 9.09 5.54 19.62 18.76 14.50 56.29 p-value Exp. 36.71 7.46 26.38 25.24 19.50 75.71 4.67497E-31 X^2 4.12 7.46 24.42 6.94 1.55 20.39 64.88 TTG 6.00 16.00 9.00 26.00 20.00 77.00 154.00								1	
X^2 35.89 3.76 17.96 39.07 6.64 36.62 139.93 TTC 15.00 13.00 45.00 32.00 20.00 17.00 142.00 TTC 49.00 0.00 1.00 12.00 14.00 115.00 191.00 TTC 49.00 13.00 46.00 44.00 34.00 132.00 333.00 Exp. 27.29 5.54 19.62 18.76 14.50 56.29 p-value K^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26 K^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26 K^2 4.12 7.46 24.42 6.94 1.55 20.39 64.88 TTG 6.00 16.00 9.00 26.00 20.00 77.00 154.00								00 50	1.330335-4/
TTC 15.00 13.00 45.00 32.00 20.00 17.00 142.00 TTC 49.00 0.00 1.00 12.00 14.00 115.00 191.00 TTC 49.00 0.00 1.00 12.00 14.00 115.00 191.00 TOTAL 64.00 13.00 46.00 44.00 34.00 132.00 333.00 Exp. 27.29 5.54 19.62 18.76 14.50 56.29 p-value X^2 5.54 19.62 18.76 19.50 75.71 4.67497E-31 X^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26 X^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26 X^2 4.12 7.46 24.42 6.94 1.55 20.39 64.88 TTG 6.00 16.00 9.00 26.00 20.00 77.00 154.00		-							
TTC 49.00 0.00 1.00 12.00 14.00 115.00 191.00 TOTAL 64.00 13.00 46.00 44.00 34.00 132.00 33.00 Exp. 27.29 5.54 19.62 18.76 14.50 56.29 p-value K^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26 X^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26 TTG 6.00 16.00 9.00 26.00 20.00 77.00 154.00	X^2	35.89	3.76	17.96	39.07	6.64	36.62	139.93	l
TTC 49.00 0.00 1.00 12.00 14.00 115.00 191.00 TOTAL 64.00 13.00 46.00 44.00 34.00 132.00 33.00 Exp. 27.29 5.54 19.62 18.76 14.50 56.29 p-value K^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26 X^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26 TTG 6.00 16.00 9.00 26.00 20.00 77.00 154.00									_
TTC 49.00 0.00 1.00 12.00 14.00 115.00 191.00 TOTAL 64.00 13.00 46.00 44.00 34.00 132.00 33.00 Exp. 27.29 5.54 19.62 18.76 14.50 56.29 p-value K^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26 X^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26 TTG 6.00 16.00 9.00 26.00 20.00 77.00 154.00	TTC	15.00	13.00	45.00	32.00	20.00	17.00	142.00	T
TOTAL 64.00 13.00 46.00 44.00 34.00 132.00 333.00 Exp. 27.29 5.54 19.62 18.76 14.50 56.29 p-value Exp. 36.71 7.46 26.38 25.24 19.50 75.71 4.67497E-31 X^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26 X^2 4.12 7.46 24.42 6.94 1.55 20.39 64.88 TTG 6.00 16.00 9.00 26.00 20.00 77.00 154.00									
Exp. 27.29 5.54 19.62 18.76 14.50 56.29 p-value Exp. 36.71 7.46 26.38 25.24 19.50 75.71 4.67497E-31 X^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26 X^2 4.12 7.46 24.42 6.94 1.55 20.39 64.88 TTG 6.00 16.00 9.00 26.00 20.00 77.00 154.00									
Exp. 36.71 7.46 26.38 25.24 19.50 75.71 4.67497E-31 X^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26 X^2 4.12 7.46 24.42 6.94 1.55 20.39 64.88 TTG 6.00 16.00 9.00 26.00 20.00 77.00 154.00								555.00	n-volue
X^2 5.54 10.03 32.85 9.34 2.09 27.42 87.26 X^2 4.12 7.46 24.42 6.94 1.55 20.39 64.88 TTG 6.00 16.00 9.00 26.00 20.00 77.00 154.00								1	
X^2 4.12 7.46 24.42 6.94 1.55 20.39 64.88 TTG 6.00 16.00 9.00 26.00 20.00 77.00 154.00								07.04	4.0/49/E-31
TTG 6.00 16.00 9.00 26.00 20.00 77.00 154.00		-							
	X^2	4.12	7.46	24.42	6.94	1.55	20.39	64.88	
									_
	TTG	6.00	16.00	9.00	26.00	20.00	77.00	154.00	T
									-

TOTA								
	C0 00	10.00	00 00		20.00	77 00		1
TOTAL	68.00	16.00	96.00	26.00	20.00	77.00	303.00	_
Exp.	34.56	8.13	48.79	13.21	10.17	39.14		p-value
Exp.	33.44	7.87	47.21	12.79	9.83	37.86		1.16604E-51
X^2	23.60	7.61	32.45	12.37	9.52	36.64	122.19	
X^2	24.39	7.87	33.54	12.79	9.83	37.86	126.29	
								1
TAC	1.00	7.00	11 00	0.00	10.00	20.00	00.00	T
TAG	4.00	7.00	11.00	9.00	19.00	39.00	89.00	
TAG	0.00	0.00	1.00	49.00	2.00	3.00	55.00	
TOTAL	4.00	7.00	12.00	58.00	21.00	42.00	144.00	
Exp.	2.47	4.33	7.42	35.85	12.98	25.96		p-value
Exp.	1.53	2.67	4.58	22.15	8.02	16.04		1.42781E-17*
X^2	0.94	1.65	1.73	20.11	2.79	6.55	33.78	
X^2	1.53					10.60	54.66	
× 2	1.55	2.67	2.80	32.54	4.52	10.00	54.00	1
			-	-		•		-
TGA	5.00	8.00	6.00	6.00	17.00	5.00	47.00	
TGA	0.00	74.00	0.00	7.00	0.00	0.00	81.00	
TOTAL	5.00	82.00	6.00	13.00	17.00	5.00	128.00	
Exp.	1.84	30.11	2.20	4.77	6.24	1.84		p-value
Exp.	3.16	51.89	3.80	8.23	10.76	3.16		1.95185E-16*
							ED E4	1.551052 10
X^2	5.45	16.23	6.54	0.32	18.54	5.45	52.54	4
X^2	3.16	9.42	3.80	0.18	10.76	3.16	30.49	L
								-
TGG	15.00	46.00	7.00	46.00	6.00	43.00	163.00	
TGG	0.00	33.00	0.00	44.00	0.00	4.00	81.00	
TOTAL	15.00	79.00	7.00	90.00	6.00	47.00	244.00	
Exp.	10.02	52.77	4.68	60.12	4.01	31.40		p-value
Exp.	4.98	26.23	2.32	29.88	1.99	15.60	1	1.93418E-07*
							12.00	1.554101-07
X^2	2.47	0.87	1.15	3.32	0.99	4.29	13.09	1
X^2	4.98	1.75	2.32	6.68	1.99	8.63	26.35	1
								_
TGC	5.00	7.00	5.00	8.00	4.00	6.00	35.00	Ĩ
TGC	22.00	65.00	1.00	91.00	0.00	0.00	179.00	
TOTAL	27.00	72.00	6.00	99.00	4.00	6.00	214.00	
	4.42	11.78	0.98	16.19	0.65	0.98	221100	n_voluo
Exp.	22.58	60.22	5.02	82.81	3.35	5.02	-	p-value 2.01504E-15*
Exp.							65.00	2.01304E-15
X^2	0.08	1.94	16.46	4.14	17.11	25.67	65.39	
X^2	0.02	0.38	3.22	0.81	3.35	5.02	12.79	<u> </u>
								_
TGT	3.00	4.00	23.00	16.00	72.00	49.00	167.00	Ĩ
TGT	0.00	21.00	0.00	200.00	0.00	0.00	221.00	
TOTAL	3.00	25.00	23.00	216.00	72.00	49.00	388.00	
	1.29	10.76	9.90	92.97	30.99	21.09	500.00	n_volue
Exp.	1.71	10.70	9.90	92.97				p-value 1.04523E-65
Exp.		14 74	12 10	172 02				
		14.24	13.10	123.03	41.01	27.91		1.045251-05
X^2	2.26	4.25	17.34	63.72	54.27	36.93	178.77	1.045251-05
X^2 X^2							178.77 135.09	1.045252-05
	2.26	4.25	17.34	63.72	54.27	36.93		1.045251-05
	2.26	4.25 3.21	17.34	63.72	54.27 41.01	36.93		I.04J23L-05
X^2 GAA	2.26 1.71 29.00	4.25 3.21 13.00	17.34 13.10 61.00	63.72 48.15 9.00	54.27 41.01 48.00	36.93 27.91 57.00	135.09 217.00	1.045231-05
X^2 GAA GAA	2.26 1.71 29.00 1.00	4.25 3.21 13.00 43.00	17.34 13.10 61.00 0.00	63.72 48.15 9.00 2.00	54.27 41.01 48.00 5.00	36.93 27.91 57.00 34.00	135.09 217.00 85.00	1.043232-03
X^2 GAA GAA TOTAL	2.26 1.71 29.00 1.00 30.00	4.25 3.21 13.00 43.00 56.00	17.34 13.10 61.00 0.00 61.00	63.72 48.15 9.00 2.00 11.00	54.27 41.01 48.00 5.00 53.00	36.93 27.91 57.00 34.00 91.00	135.09 217.00	
X^2 GAA GAA TOTAL Exp.	2.26 1.71 29.00 1.00 30.00 21.56	4.25 3.21 13.00 43.00 56.00 40.24	17.34 13.10 61.00 0.00 61.00 43.83	63.72 48.15 9.00 2.00 11.00 7.90	54.27 41.01 48.00 5.00 53.00 38.08	36.93 27.91 57.00 34.00 91.00 65.39	135.09 217.00 85.00	p-value
X^2 GAA GAA TOTAL Exp. Exp.	2.26 1.71 29.00 1.00 30.00 21.56 8.44	4.25 3.21 13.00 43.00 56.00 40.24 15.76	17.34 13.10 61.00 0.00 61.00 43.83 17.17	63.72 48.15 9.00 2.00 11.00 7.90 3.10	54.27 41.01 48.00 5.00 53.00 38.08 14.92	36.93 27.91 57.00 34.00 91.00 65.39 25.61	135.09 217.00 85.00 302.00	
X^2 GAA GAA TOTAL Exp. Exp. X^2	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08	135.09 217.00 85.00 302.00 31.54	p-value
X^2 GAA GAA TOTAL Exp. Exp.	2.26 1.71 29.00 1.00 30.00 21.56 8.44	4.25 3.21 13.00 43.00 56.00 40.24 15.76	17.34 13.10 61.00 0.00 61.00 43.83 17.17	63.72 48.15 9.00 2.00 11.00 7.90 3.10	54.27 41.01 48.00 5.00 53.00 38.08 14.92	36.93 27.91 57.00 34.00 91.00 65.39 25.61	135.09 217.00 85.00 302.00	p-value
X^2 GAA GAA TOTAL Exp. Exp. X^2	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08	135.09 217.00 85.00 302.00 31.54	p-value
X^2 GAA GAA TOTAL Exp. Exp. X^2	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08	135.09 217.00 85.00 302.00 31.54	p-value
X^2 GAA GAA TOTAL Exp. X^2 X^2 GAC	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00	135.09 217.00 85.00 302.00 31.54 80.53 37.00	p-value
X^2 GAA GAA TOTAL Exp. X^2 X^2 GAC GAC	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 0.00	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00	p-value
X^2 GAA GAA TOTAL Exp. X^2 X^2 GAC GAC TOTAL	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 0.00 9.00	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00	135.09 217.00 85.00 302.00 31.54 80.53 37.00	p-value 1.49219E-22
X^2 GAA GAA TOTAL Exp. Exp. X^2 GAC GAC TOTAL Exp.	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 9.00 9.00 9.00 2.49	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00	p-value 1.49219E-22 p-value
X^2 GAA GAA TOTAL Exp. Exp. X^2 X^2 GAC GAC GAC TOTAL Exp. Exp.	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52 14.48	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84 44.16	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38 3.62	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56 22.44	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 9.00 9.00 2.49 6.51	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21 5.79	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00 134.00	p-value 1.49219E-22
X^2 GAA GAA TOTAL Exp. X^2 X^2 GAC GAC TOTAL Exp. X^2	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52 14.48 2.19	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84 44.16 9.79	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38 3.62 9.49	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56 22.44 3.61	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 0.00 9.00 2.49 6.51 17.08	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21 5.79 10.39	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00 134.00 52.55	p-value 1.49219E-22 p-value
X^2 GAA GAA TOTAL Exp. Exp. X^2 GAC GAC TOTAL Exp. GAC GAC Exp. Exp. Exp.	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52 14.48	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84 44.16	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38 3.62	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56 22.44	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 9.00 9.00 2.49 6.51	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21 5.79	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00 134.00	p-value 1.49219E-22 p-value
X^2 GAA GAA TOTAL Exp. X^2 X^2 GAC GAC TOTAL Exp. X^2	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52 14.48 2.19	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84 44.16 9.79	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38 3.62 9.49	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56 22.44 3.61	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 0.00 9.00 2.49 6.51 17.08	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21 5.79 10.39	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00 134.00 52.55	p-value 1.49219E-22 p-value
X^2 GAA GAA TOTAL Exp. X^2 X^2 GAC GAC TOTAL Exp. X^2	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52 14.48 2.19	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84 44.16 9.79 3.74	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38 3.62 9.49	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56 22.44 3.61 1.38	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 0.00 9.00 2.49 6.51 17.08 6.51	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21 5.79 10.39	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00 134.00 52.55	p-value 1.49219E-22 p-value
X^2 GAA GAA TOTAL Exp. X^2 X^2 GAC GAC Exp. Exp. X^2 GAC GAC Youth Exp. X^2 X^2 GAC GCA	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52 14.48 2.19 0.84	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84 44.16 9.79 3.74	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38 3.62 9.49 3.62 11.00	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56 22.44 3.61 1.38 3.00	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 0.00 9.00 2.49 6.51 17.08 6.51 17.08 6.51	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21 5.79 10.39 3.96	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00 134.00 52.55 20.05 92.00	p-value 1.49219E-22 p-value
X^2 GAA GAA TOTAL Exp. X^2 X^2 GAC GAC Exp. Exp. X^2 GAC GAC Youth GAC GCA GCA	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52 14.48 2.19 0.84 9.00 38.00	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84 44.16 9.79 3.74 6.00 65.00	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38 3.62 9.49 3.62 9.49 3.62 9.49 3.62	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56 22.44 3.61 1.38 3.00 23.00	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 0.00 9.00 2.49 6.51 17.08 6.51 17.08 6.51	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21 5.79 10.39 3.96 10.00 45.00	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00 134.00 52.55 20.05 92.00 218.00	p-value 1.49219E-22 p-value
X^2 GAA GAA TOTAL Exp. X^2 X^2 GAC GAC Exp. Exp. X^2 GAC TOTAL Exp. X^2 GCA GCA GCA TOTAL	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52 14.48 2.19 0.84 9.00 38.00 47.00	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84 44.16 9.79 3.74 6.00 65.00 71.00	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38 3.62 9.49 3.62 9.49 3.62 11.00 46.00 57.00	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56 22.44 3.61 1.38 3.00 23.00 23.00 26.00	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 0.00 9.00 2.49 6.51 17.08 6.51 17.08 6.51	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21 5.79 10.39 3.96 10.00 45.00 55.00	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00 134.00 52.55 20.05 92.00	p-value 1.49219E-22 p-value 2.94479E-14*
X^2 GAA GAA TOTAL Exp. Exp. X^2 GAC GAC GAC TOTAL Exp. X^2 GAC GAC GAC GAC GAC GAC TOTAL Exp. X^2 GCA GCA GCA TOTAL	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52 14.48 2.19 0.84 9.00 38.00 47.00 13.95	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84 44.16 9.79 3.74 6.00 65.00 71.00 21.07	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38 3.62 9.49 3.62 11.00 46.00 57.00 16.92	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56 22.44 3.61 1.38 3.00 23.00 23.00 23.00 26.00 7.72	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 0.00 9.00 2.49 6.51 17.08 6.51 17.08 6.51	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21 5.79 10.39 3.96 10.00 45.00 55.00 16.32	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00 134.00 52.55 20.05 92.00 218.00	p-value 1.49219E-22 p-value 2.94479E-14*
X^2 GAA GAA TOTAL Exp. Exp. X^2 GAC GAC GAC TOTAL Exp. X^2 GAC GAC GAC GAC GAC GAC GAC TOTAL Exp. X^2 GCA GCA TOTAL Exp. Exp. Exp.	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52 14.48 2.19 0.84 9.00 38.00 47.00 13.95 33.05	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84 44.16 9.79 3.74 6.00 65.00 71.00 21.07 49.93	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38 3.62 9.49 3.62 11.00 46.00 57.00 16.92 40.08	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56 22.44 3.61 1.38 3.00 23.00 23.00 23.00 23.00 23.00 24.00 7.72 18.28	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 0.00 9.00 2.49 6.51 17.08 6.51 17.08 6.51 53.00 1.00 54.00 16.03 37.97	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21 5.79 10.39 3.96 10.00 45.00 55.00 16.32 38.68	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00 134.00 52.55 20.05 92.00 218.00 310.00	p-value 1.49219E-22 p-value 2.94479E-14*
X^2 GAA GAA TOTAL Exp. Exp. X^2 GAC GAC GAC TOTAL Exp. X^2 X^2 X^2 CAC GAC TOTAL Exp. X^2 X^2 X^2 X^2 X^2 X^2 X^2 X^2	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52 14.48 2.19 0.84 9.00 38.00 47.00 13.95	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84 44.16 9.79 3.74 6.00 65.00 71.00 21.07	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38 3.62 9.49 3.62 11.00 46.00 57.00 16.92	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56 22.44 3.61 1.38 3.00 23.00 23.00 23.00 26.00 7.72	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 0.00 9.00 2.49 6.51 17.08 6.51 17.08 6.51	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21 5.79 10.39 3.96 10.00 45.00 55.00 16.32	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00 134.00 52.55 20.05 92.00 218.00 310.00 105.24	p-value 1.49219E-22 p-value 2.94479E-14*
X^2 GAA GAA TOTAL Exp. Exp. X^2 GAC GAC TOTAL Exp. X^2 GAC GAC GAC GAC GAC GAC GAC GAC TOTAL Exp. X^2 GCA GCA TOTAL Exp. Exp. Exp.	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52 14.48 2.19 0.84 9.00 38.00 47.00 13.95 33.05	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84 44.16 9.79 3.74 6.00 65.00 71.00 21.07 49.93	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38 3.62 9.49 3.62 11.00 46.00 57.00 16.92 40.08	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56 22.44 3.61 1.38 3.00 23.00 23.00 23.00 23.00 23.00 24.00 7.72 18.28	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 0.00 9.00 2.49 6.51 17.08 6.51 17.08 6.51 53.00 1.00 54.00 16.03 37.97	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21 5.79 10.39 3.96 10.00 45.00 55.00 16.32 38.68	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00 134.00 52.55 20.05 92.00 218.00 310.00	p-value 1.49219E-22 p-value 2.94479E-14*
X^2 GAA GAA TOTAL Exp. Exp. X^2 GAC GAC GAC TOTAL Exp. X^2 X^2 X^2 CAC GAC TOTAL Exp. X^2 X^2 X^2 X^2 X^2 X^2 X^2 X^2	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52 14.48 2.19 0.84 9.00 38.00 47.00 13.95 33.05 1.76	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84 44.16 9.79 3.74 6.00 65.00 71.00 21.07 49.93 10.78	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38 3.62 9.49 3.62 11.00 46.00 57.00 16.92 40.08 2.07	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56 22.44 3.61 1.38 3.00 23.00 23.00 23.00 23.00 23.00 24.00 7.72 18.28 2.88	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 0.00 9.00 2.49 6.51 17.08 6.51 17.08 6.51 53.00 1.00 54.00 16.03 37.97 85.31	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21 5.79 10.39 3.96 10.00 45.00 55.00 16.32 38.68 2.45	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00 134.00 52.55 20.05 92.00 218.00 310.00 105.24	p-value 1.49219E-22 p-value 2.94479E-14*
X^2 GAA GAA TOTAL Exp. Exp. X^2 GAC GAC GAC TOTAL Exp. X^2 X^2 GCA GCA GCA GCA GCA Exp. X^2 X^2 X^2	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52 14.48 2.19 0.84 9.00 38.00 47.00 13.95 33.05 1.76 0.74	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84 44.16 9.79 3.74 6.00 65.00 71.00 21.07 49.93 10.78 4.55	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38 3.62 9.49 3.62 11.00 46.00 57.00 16.92 40.08 2.07 0.87	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56 22.44 3.61 1.38 3.00 23.00 26.00 7.72 18.28 2.88 1.22	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 0.00 9.00 2.49 6.51 17.08 6.51 17.08 6.51 17.08 6.51 17.08 6.51 17.08 6.51 17.08 6.51	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21 5.79 10.39 3.96 10.00 45.00 55.00 16.32 38.68 2.45 1.03	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00 134.00 52.55 20.05 92.00 218.00 310.00 105.24 44.41	<pre>p-value 1.49219E-22 p-value 2.94479E-14* p-value</pre>
X^2 GAA GAA TOTAL Exp. X^2 X^2 GAC GAC Exp. X^2 X^2 GAC GAC GAC GAC GCA GCA TOTAL Exp. X^2 GCA GCA Exp. X^2 X^2 GCA GCC	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52 14.48 2.19 0.84 9.00 38.00 47.00 13.95 33.05 1.76 0.74 13.00	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84 44.16 9.79 3.74 6.00 65.00 71.00 21.07 49.93 10.78 4.55 8.00	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38 3.62 9.49 3.62 11.00 46.00 57.00 16.92 40.08 2.07 0.87 11.00	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56 22.44 3.61 1.38 3.00 23.00 23.00 26.00 7.72 18.28 2.88 1.22	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 0.00 9.00 2.49 6.51 17.08 6.51 17.08 6.51 53.00 1.00 54.00 16.03 37.97 85.31 36.00	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21 5.79 10.39 3.96 10.00 45.00 55.00 16.32 38.68 2.45 1.03	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00 134.00 52.55 20.05 92.00 218.00 310.00 105.24 44.41 52.00	<pre>p-value 1.49219E-22 p-value 2.94479E-14* </pre>
X^2 GAA GAA TOTAL Exp. Exp. X^2 GAC GAC GAC TOTAL Exp. X^2 X^2 GCA GCA GCA GCA GCA Exp. X^2 X^2 X^2	2.26 1.71 29.00 1.00 30.00 21.56 8.44 2.57 6.56 9.00 11.00 20.00 5.52 14.48 2.19 0.84 9.00 38.00 47.00 13.95 33.05 1.76 0.74	4.25 3.21 13.00 43.00 56.00 40.24 15.76 18.44 47.07 4.00 57.00 61.00 16.84 44.16 9.79 3.74 6.00 65.00 71.00 21.07 49.93 10.78 4.55	17.34 13.10 61.00 0.00 61.00 43.83 17.17 6.73 17.17 5.00 0.00 5.00 1.38 3.62 9.49 3.62 11.00 46.00 57.00 16.92 40.08 2.07 0.87	63.72 48.15 9.00 2.00 11.00 7.90 3.10 0.15 0.39 3.00 28.00 31.00 8.56 22.44 3.61 1.38 3.00 23.00 26.00 7.72 18.28 2.88 1.22	54.27 41.01 48.00 5.00 53.00 38.08 14.92 2.58 6.59 9.00 0.00 9.00 2.49 6.51 17.08 6.51 17.08 6.51 17.08 6.51 17.08 6.51 17.08 6.51 17.08 6.51	36.93 27.91 57.00 34.00 91.00 65.39 25.61 1.08 2.75 7.00 1.00 8.00 2.21 5.79 10.39 3.96 10.00 45.00 55.00 16.32 38.68 2.45 1.03	135.09 217.00 85.00 302.00 31.54 80.53 37.00 97.00 134.00 52.55 20.05 92.00 218.00 310.00 105.24 44.41	<pre>p-value 1.49219E-22 p-value 2.94479E-14* </pre>

Exp.	7.83	10.10	12.62	2.78	16.66	2.02		p-value
Exp.	23.17	29.90	37.38	8.22	49.34	5.98		4.52845E-14
X^2	3.42	0.44	0.21	24.35	12.90	12.28	53.60	
X^2	1.16	0.15	0.07	8.22	4.36	4.15	18.10	1
						•		-
GCT	3.00	6.00	6.00	2.00	5.00	3.00	25.00	ĭ
GCT	0.00	31.00	51.00	0.00	1.00	32.00	115.00	
TOTAL	3.00	37.00	57.00	2.00	6.00	35.00	140.00	
Exp.	0.54	6.61	10.18	0.36	1.07	6.25		p-value
Exp.	2.46	30.39	46.82	1.64	4.93	28.75		1.63107E-08*
X^2	11.34	0.06	1.72	7.56	14.40	1.69	36.76	
X^2	2.46	0.01	0.37	1.64	3.13	0.37	7.99	1
						•		-
GCG	14.00	7.00	28.00	8.00	45.00	12.00	114.00	Ĭ
GCG	0.00	2.00	13.00	23.00	1.00	57.00	96.00	
TOTAL	14.00	9.00	41.00	31.00	46.00	69.00	210.00	
Exp.	7.60	4.89	22.26	16.83	24.97	37.46		p-value
Exp.	6.40	4.11	18.74	14.17	21.03	31.54		4.91079E-20
X^2	5.39	0.91	1.48	4.63	16.06	17.30	45.78	
X^2	6.40	1.09	1.76	5.50	19.08	20.55	54.37	1
								_
GAT	12.00	6.00	13.00	7.00	54.00	8.00	100.00	T
GAT	0.00	42.00	0.00	0.00	0.00	42.00	84.00	
TOTAL	12.00	48.00	13.00	7.00	54.00	50.00	184.00	
Exp.	6.52	26.09	7.07	3.80	29.35	27.17		p-value
Exp.	5.48	21.91	5.93	3.20	24.65	22.83		1.42774E-27
X^2	4.60	15.47	4.99	2.68	20.71	13.53	61.98	
X^2	5.48	18.41	5.93	3.20	24.65	16.11	73.78	1
								-
GTA	20.00	8.00	38.00	13.00	8.00	18.00	105.00	
GTA	25.00	9.00	2.00	0.00	41.00	6.00	83.00	
TOTAL	45.00	17.00	40.00	13.00	49.00	24.00	188.00	
Exp.	25.13	9.49	22.34	7.26	27.37	13.40		p-value
Exp.	19.87	7.51	17.66	5.74	21.63	10.60		2.86269E-14
X^2	1.05	0.24	10.98	4.54	13.71	1.58	32.08	
X^2	1.33	0.30	13.89	5.74	17.34	1.99	40.58	
				-	-	-		-
GTT	93.00	31.00	8.00	17.00	6.00	4.00	159.00	
GTT	0.00	28.00	0.00	5.00	2.00	32.00	67.00	
TOTAL	93.00	59.00	8.00	22.00	8.00	36.00	226.00	
Exp.	65.43	41.51	5.63	15.48	5.63	25.33		p-value
Exp.	27.57	17.49	2.37	6.52	2.37	10.67		1.10057E-22
X^2	11.62	2.66	1.00	0.15	0.02	17.96	33.41	
X^2	27.57	6.31	2.37	0.36	0.06	42.62	79.29	<u> </u>
								-
GTC	46.00	15.00	14.00	7.00	6.00	2.00	90.00	
GTC	10.00	0.00	0.00	0.00	34.00	66.00	110.00	
TOTAL	56.00	15.00	14.00	7.00	40.00	68.00	200.00	
Exp.	25.20	6.75	6.30	3.15	18.00	30.60		p-value
Exp.	30.80	8.25	7.70	3.85	22.00	37.40	76.40	3.98886E-28
X^2	17.17	10.08	9.41	4.71	8.00	26.73	76.10	4
X^2	14.05	8.25	7.70	3.85	6.55	21.87	62.26	1
CTC	2.00	4.00	7.00	0.00	0.00	F 00	36.00	T
GTG	2.00	4.00	7.00	9.00	9.00	5.00	36.00 108.00	
CTC .		0 00	11 00		51 00	0 00	100.00	
GTG	10.00	0.00	44.00	0.00	54.00	0.00		
TOTAL	10.00 12.00	4.00	51.00	9.00	63.00	5.00	144.00	p. vol
TOTAL Exp.	10.00 12.00 3.00	4.00 1.00	51.00 12.75	9.00 2.25	63.00 15.75	5.00 1.25		p-value
TOTAL Exp. Exp.	10.00 12.00 3.00 9.00	4.00 1.00 3.00	51.00 12.75 38.25	9.00 2.25 6.75	63.00 15.75 47.25	5.00 1.25 3.75	144.00	p-value 5.25983E-12*
TOTAL Exp. Exp. X^2	10.00 12.00 3.00 9.00 0.33	4.00 1.00 3.00 9.00	51.00 12.75 38.25 2.59	9.00 2.25 6.75 20.25	63.00 15.75 47.25 2.89	5.00 1.25 3.75 11.25	144.00 46.32	
TOTAL Exp. Exp.	10.00 12.00 3.00 9.00	4.00 1.00 3.00	51.00 12.75 38.25	9.00 2.25 6.75	63.00 15.75 47.25	5.00 1.25 3.75	144.00	
TOTAL Exp. Exp. X ² X ²	10.00 12.00 3.00 9.00 0.33 0.11	4.00 1.00 3.00 9.00 3.00	51.00 12.75 38.25 2.59 0.86	9.00 2.25 6.75 20.25 6.75	63.00 15.75 47.25 2.89 0.96	5.00 1.25 3.75 11.25 3.75	144.00 46.32 15.44	
TOTAL Exp. Exp. X^2 X^2 GAG	10.00 12.00 3.00 9.00 0.33 0.11 32.00	4.00 1.00 3.00 9.00 3.00 13.00	51.00 12.75 38.25 2.59 0.86 74.00	9.00 2.25 6.75 20.25 6.75 6.00	63.00 15.75 47.25 2.89 0.96 18.00	5.00 1.25 3.75 11.25 3.75 15.00	144.00 46.32 15.44 158.00	
TOTAL Exp. Exp. X^2 X^2 GAG GAG	10.00 12.00 3.00 9.00 0.33 0.11 32.00 8.00	4.00 1.00 3.00 9.00 3.00 13.00 20.00	51.00 12.75 38.25 2.59 0.86 74.00 0.00	9.00 2.25 6.75 20.25 6.75 6.00 36.00	63.00 15.75 47.25 2.89 0.96 18.00 0.00	5.00 1.25 3.75 11.25 3.75 15.00 36.00	144.00 46.32 15.44 158.00 100.00	
TOTAL Exp. Exp. X^2 X^2 GAG GAG TOTAL	10.00 12.00 3.00 9.00 0.33 0.11 32.00 8.00 40.00	4.00 1.00 3.00 9.00 3.00 13.00 20.00 33.00	51.00 12.75 38.25 2.59 0.86 74.00 0.00 74.00	9.00 2.25 6.75 20.25 6.75 6.00 36.00 42.00	63.00 15.75 47.25 2.89 0.96 18.00 0.00 18.00	5.00 1.25 3.75 11.25 3.75 15.00 36.00 51.00	144.00 46.32 15.44 158.00	5.25983E-12*
TOTAL Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp.	10.00 12.00 3.00 9.00 0.33 0.11 32.00 8.00 40.00 24.50	4.00 1.00 3.00 9.00 3.00 13.00 20.00 33.00 20.21	51.00 12.75 38.25 2.59 0.86 74.00 0.00 74.00 45.32	9.00 2.25 6.75 20.25 6.75 6.00 36.00 42.00 25.72	63.00 15.75 47.25 2.89 0.96 18.00 0.00 18.00 11.02	5.00 1.25 3.75 11.25 3.75 15.00 36.00 51.00 31.23	144.00 46.32 15.44 158.00 100.00	5.25983E-12*
TOTAL Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp.	10.00 12.00 3.00 9.00 0.33 0.11 32.00 8.00 40.00 24.50 15.50	4.00 1.00 3.00 9.00 3.00 13.00 20.00 33.00 20.21 12.79	51.00 12.75 38.25 2.59 0.86 74.00 0.00 74.00 45.32 28.68	9.00 2.25 6.75 20.25 6.75 	63.00 15.75 47.25 2.89 0.96 18.00 0.00 18.00 11.02 6.98	5.00 1.25 3.75 11.25 3.75 15.00 36.00 51.00 31.23 19.77	144.00 46.32 15.44 158.00 100.00 258.00	5.25983E-12*
TOTAL Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2	10.00 12.00 3.00 9.00 0.33 0.11 32.00 8.00 40.00 24.50 15.50 2.30	4.00 1.00 3.00 9.00 3.00 13.00 20.00 33.00 20.21 12.79 2.57	51.00 12.75 38.25 2.59 0.86 74.00 0.00 74.00 45.32 28.68 18.15	9.00 2.25 6.75 20.25 6.75 6.00 36.00 42.00 25.72 16.28 15.12	63.00 15.75 47.25 2.89 0.96 18.00 0.00 18.00 11.02 6.98 4.42	5.00 1.25 3.75 11.25 3.75 15.00 36.00 51.00 31.23 19.77 8.44	144.00 46.32 15.44 158.00 100.00 258.00 51.00	5.25983E-12*
TOTAL Exp. Exp. X^2 GAG GAG TOTAL Exp. Exp.	10.00 12.00 3.00 9.00 0.33 0.11 32.00 8.00 40.00 24.50 15.50	4.00 1.00 3.00 9.00 3.00 13.00 20.00 33.00 20.21 12.79	51.00 12.75 38.25 2.59 0.86 74.00 0.00 74.00 45.32 28.68	9.00 2.25 6.75 20.25 6.75 	63.00 15.75 47.25 2.89 0.96 18.00 0.00 18.00 11.02 6.98	5.00 1.25 3.75 11.25 3.75 15.00 36.00 51.00 31.23 19.77	144.00 46.32 15.44 158.00 100.00 258.00	5.25983E-12*
TOTAL Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2	10.00 12.00 3.00 9.00 0.33 0.11 32.00 8.00 40.00 24.50 15.50 2.30 3.63	4.00 1.00 3.00 9.00 3.00 13.00 20.00 33.00 20.21 12.79 2.57 4.06	51.00 12.75 38.25 2.59 0.86 74.00 0.00 74.00 45.32 28.68 18.15 28.68	9.00 2.25 6.75 20.25 6.75 6.00 36.00 42.00 25.72 16.28 15.12 23.89	63.00 15.75 47.25 2.89 0.96 18.00 0.00 18.00 11.02 6.98 4.42 6.98	5.00 1.25 3.75 11.25 3.75 15.00 36.00 51.00 31.23 19.77 8.44 13.33	144.00 46.32 15.44 158.00 100.00 258.00 51.00 80.57	5.25983E-12*
TOTAL Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X*2	10.00 12.00 3.00 9.00 0.33 0.11 32.00 8.00 40.00 24.50 15.50 2.30 3.63 17.00	4.00 1.00 3.00 9.00 3.00 13.00 20.00 33.00 20.21 12.79 2.57 4.06	51.00 12.75 38.25 2.59 0.86 74.00 0.00 74.00 45.32 28.68 18.15 28.68 18.00	9.00 2.25 6.75 20.25 6.75 6.00 36.00 42.00 25.72 16.28 15.12 23.89 25.00	63.00 15.75 47.25 2.89 0.96 18.00 0.00 18.00 11.02 6.98 4.42 6.98 27.00	5.00 1.25 3.75 11.25 3.75 15.00 36.00 51.00 31.23 19.77 8.44 13.33	144.00 46.32 15.44 158.00 100.00 258.00 51.00 80.57 244.00	5.25983E-12*
TOTAL Exp. Exp. X^2 X^2 GAG GAG GAG GAG Exp. Exp. X^2 X^2 GAG GAG GAG GAG GAG GAG GAG GAG GGA GGA GGA	10.00 12.00 3.00 9.00 0.33 0.11 32.00 8.00 40.00 24.50 15.50 2.30 3.63 17.00 37.00	4.00 1.00 3.00 9.00 3.00 20.00 33.00 20.21 12.79 2.57 4.06 24.00 22.00	51.00 12.75 38.25 2.59 0.86 74.00 0.00 74.00 45.32 28.68 18.15 28.68 18.00 0.00	9.00 2.25 6.75 20.25 6.75 6.00 36.00 42.00 25.72 16.28 15.12 23.89 25.00 2.00	63.00 15.75 47.25 2.89 0.96 18.00 0.00 18.00 11.02 6.98 4.42 6.98 27.00 19.00	5.00 1.25 3.75 11.25 3.75 15.00 36.00 51.00 31.23 19.77 8.44 13.33 133.00 13.00	144.00 46.32 15.44 158.00 100.00 258.00 51.00 80.57 244.00 93.00	5.25983E-12*
TOTAL Exp. Exp. X^2 X^2 GAG GAG TOTAL Exp. Exp. X^2 X*2	10.00 12.00 3.00 9.00 0.33 0.11 32.00 8.00 40.00 24.50 15.50 2.30 3.63 17.00	4.00 1.00 3.00 9.00 3.00 13.00 20.00 33.00 20.21 12.79 2.57 4.06	51.00 12.75 38.25 2.59 0.86 74.00 0.00 74.00 45.32 28.68 18.15 28.68 18.00	9.00 2.25 6.75 20.25 6.75 6.00 36.00 42.00 25.72 16.28 15.12 23.89 25.00	63.00 15.75 47.25 2.89 0.96 18.00 0.00 18.00 11.02 6.98 4.42 6.98 27.00	5.00 1.25 3.75 11.25 3.75 15.00 36.00 51.00 31.23 19.77 8.44 13.33	144.00 46.32 15.44 158.00 100.00 258.00 51.00 80.57 244.00	5.25983E-12*

X^2 12.49 2.60 1.89 1.52 1.19 7.05 26.74 X^2 32.77 6.82 4.97 3.99 3.13 18.49 70.16 GGG 4.00 9.00 9.00 9.00 61.00 67.00 159.00 20.00 TOTAL 5.00 10.00 9.00 9.00 61.00 85.00 179.00 Exp. 4.44 8.88 7.99 7.99 54.18 75.50 p-value K^2 0.56 1.12 1.01 1.01 6.82 9.50 p.00.001 0.001994726* K^2 0.35 0.01 1.01 1.01 6.82 9.50 p-value GGC 7.09 4.40 0.00 0.13 0.13 0.86 0.96 2.11 X^2 0.35 0.01 1.01 1.01 6.82 7.50 p-value GGC 7.00 4.00 1.00 1.00 6.00 17.00 62.00 GGC 7.00 4.90 1.00 1.00 6.00 20.00									
X^2 32.77 6.82 4.97 3.99 3.13 18.49 70.16 GGG 4.00 9.00 9.00 9.00 61.00 67.00 159.00 20.00 TOTAL 5.00 10.00 9.00 9.00 61.00 85.00 179.00 Exp. 4.44 8.88 7.99 7.99 54.18 75.50 p-value K^2 0.04 0.00 0.13 0.13 0.86 0.96 2.11 X^2 0.35 0.01 1.01 1.01 6.82 7.61 16.80 GGC 7.00 4.00 11.00 10.00 6.00 17.00 55.00 CGC 0.04 0.00 0.00 1.00 6.82 7.61 16.80 CGC 0.00 2.00 0.00 1.00 6.00 17.00 55.00 62.00 TOTAL 7.00 33.00 11.00 10.00 6.00 17.00 52.00 62.00 Exp. 3.71 17.49 5.83 5.83 3.18 2.97	Exp.	14.90	12.69	4.97	7.45	12.69	40.29		2.37162E-19
GGG 4.00 9.00 9.00 61.00 67.00 159.00 GGG 1.00 1.00 0.00 0.00 0.00 18.00 20.00 TOTAL 5.00 10.00 9.00 9.00 61.00 85.00 179.00 Exp. 4.44 8.88 7.99 7.99 54.18 75.50 0.001994726* X^2 0.04 0.00 0.13 0.13 0.86 0.96 2.11 X^2 0.35 0.01 1.01 1.01 6.82 7.61 16.80 Concord 0.00 9.00 6.00 17.00 55.00 62.00 GGC 7.00 4.00 11.00 10.00 6.00 17.00 55.00 GGC 0.00 29.00 0.00 1.00 0.00 32.00 62.00 17.00 TOTAL 7.00 33.00 11.00 11.00 6.00 49.00 117.00 Exp. 3.71 17.49	X^2	12.49	2.60	1.89	1.52	1.19	7.05	26.74	
GGG 1.00 1.00 0.00 0.00 0.00 18.00 20.00 TOTAL 5.00 10.00 9.00 9.00 61.00 85.00 179.00 Exp. 4.44 8.88 7.99 7.99 54.18 75.50 p-value X^2 0.04 0.00 0.13 0.13 0.86 0.96 2.11 X^2 0.35 0.01 1.01 1.01 6.82 7.61 16.80 GGC 7.00 4.00 0.13 0.13 0.86 0.96 2.11 X^2 0.35 0.01 1.01 1.01 6.82 7.61 16.80 GGC 7.00 4.00 0.10.00 6.00 17.00 62.00 62.00 GGC 0.00 20.00 0.00 1.00 1.00 0.00 32.00 11.00 Exp. 3.29 15.51 5.17 5.17 2.82 23.03 28.97 X^2 3.71 17.49 5.83 5.83 3.18 1.58 28.97 X^2 </td <td>X^2</td> <td>32.77</td> <td>6.82</td> <td>4.97</td> <td>3.99</td> <td>3.13</td> <td>18.49</td> <td>70.16</td> <td></td>	X^2	32.77	6.82	4.97	3.99	3.13	18.49	70.16	
GGG 1.00 1.00 0.00 0.00 0.00 18.00 20.00 TOTAL 5.00 10.00 9.00 9.00 61.00 85.00 179.00 Exp. 4.44 8.88 7.99 7.99 54.18 75.50 p-value X^2 0.04 0.00 0.13 0.13 0.86 0.96 2.11 X^2 0.35 0.01 1.01 1.01 6.82 7.61 16.80 GGC 7.00 4.00 0.13 0.13 0.86 0.96 2.11 X^2 0.35 0.01 1.01 1.01 6.82 7.61 16.80 GGC 7.00 4.00 0.10.00 6.00 17.00 62.00 62.00 GGC 0.00 20.00 0.00 1.00 1.00 0.00 32.00 11.00 Exp. 3.29 15.51 5.17 5.17 2.82 23.03 28.97 X^2 3.71 17.49 5.83 5.83 3.18 1.58 28.97 X^2 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>									
TOTAL 5.00 10.00 9.00 9.00 61.00 85.00 179.00 Exp. 4.44 8.88 7.99 7.99 54.18 75.50 p-value Exp. 0.56 1.12 1.01 1.01 6.82 9.50 0.001994726* X^2 0.04 0.00 0.13 0.13 0.86 0.96 2.11 X^2 0.35 0.01 1.01 1.01 6.82 7.61 16.80 X^2 0.35 0.01 1.00 10.00 6.00 17.00 55.00 GGC 7.00 4.00 11.00 10.00 6.00 49.00 117.00 Exp. 3.29 15.51 5.17 5.17 2.82 23.03 P-value X^2 4.18 8.54 6.57 4.51 3.58 1.58 28.97 X^2 4.18 8.54 6.57 4.51 3.58 1.58 28.97 X^2 3.71 7	GGG	4.00	9.00	9.00	9.00	61.00	67.00	159.00	Ĩ
Exp. 4.44 8.88 7.99 7.99 54.18 75.50 p-value Exp. 0.56 1.12 1.01 1.01 6.82 9.50 0.001994726* X^2 0.04 0.00 0.13 0.13 0.86 0.96 2.11 X^2 0.35 0.01 1.01 1.01 6.82 7.61 16.80 GGC 7.00 4.00 11.00 10.00 6.00 17.00 62.00 GGC 0.00 29.00 0.00 1.00 0.00 32.00 62.00 TOTAL 7.00 33.00 11.00 10.00 6.00 49.00 117.00 Exp. 3.71 17.49 5.83 5.83 3.18 25.97 1.52492E-10* X^2 4.18 8.54 6.57 4.51 3.58 1.58 28.97 X^2 3.71 7.58 5.83 4.00 3.18 1.40 25.70 GGT 0.00	GGG	1.00	1.00	0.00	0.00	0.00	18.00	20.00	
Exp. 0.56 1.12 1.01 1.01 6.82 9.50 0.001994726* X^2 0.04 0.00 0.13 0.13 0.86 0.96 2.11 X^2 0.35 0.01 1.01 1.01 6.82 7.61 16.80 X^2 0.35 0.01 1.00 10.00 6.82 7.61 16.80 GGC 7.00 4.00 11.00 10.00 6.00 17.00 55.00 GGC 0.000 29.00 0.00 1.00 6.00 49.00 117.00 TOTAL 7.00 33.00 11.00 11.00 6.00 49.00 117.00 Exp. 3.71 17.49 5.83 5.83 3.18 25.97 1.52492E-10* X^2 4.18 8.54 6.57 4.51 3.58 1.58 28.97 X^2 3.71 7.58 5.83 4.00 3.18 1.40 25.70 GGT 0.00 0.00 0.00 33.00 0.00 2.00 35.00 GGT	TOTAL	5.00	10.00	9.00	9.00	61.00	85.00	179.00	
X^2 0.04 0.00 0.13 0.13 0.86 0.96 2.11 X^2 0.35 0.01 1.01 1.01 6.82 7.61 16.80 GGC 7.00 4.00 11.00 10.00 6.00 17.00 55.00 62.00 GGC 0.00 29.00 0.00 1.00 0.00 32.00 62.00 TOTAL 7.00 33.00 11.00 10.00 6.00 49.00 117.00 Exp. 3.29 15.51 5.17 5.17 2.82 23.03 p-value X^2 4.18 8.54 6.57 4.51 3.58 1.58 28.97 X^2 3.71 7.58 5.83 4.00 3.18 1.40 25.70 GGT 0.00 0.00 20.00 5.00 5.00 2.00 35.00 GGT 0.00 0.00 20.00 33.00 0.00 2.00 35.00 GGT 0.00 0.00 20.00 33.00 0.00 2.00 35.00 GG	Exp.	4.44	8.88	7.99	7.99	54.18	75.50		p-value
X^2 0.35 0.01 1.01 1.01 6.82 7.61 16.80 GGC 7.00 4.00 11.00 10.00 6.00 17.00 55.00 62.00 GGC 0.00 29.00 0.00 1.00 0.00 32.00 62.00 TOTAL 7.00 33.00 11.00 11.00 6.00 49.00 117.00 Exp. 3.29 15.51 5.17 5.17 2.82 23.03 p-value X^2 4.18 8.54 6.57 4.51 3.58 1.58 28.97 X^2 3.71 7.58 5.83 4.00 3.18 1.40 25.70 GGT 44.00 5.00 20.00 5.00 6.00 85.00 35.00 GGT 0.00 0.00 20.00 33.00 0.00 2.00 35.00 2.00 Common 5.00 2.00 5.00 5.00 6.00 35.00 35.00 GGT 0.00 0.00 20.00 33.00 5.00 8.00 120.00	Exp.	0.56	1.12	1.01	1.01	6.82	9.50		0.001994726*
GGC 7.00 4.00 11.00 10.00 6.00 17.00 55.00 62.00 GGC 0.00 29.00 0.00 1.00 0.00 32.00 62.00 TOTAL 7.00 33.00 11.00 11.00 6.00 49.00 117.00 Exp. 3.29 15.51 5.17 5.17 2.82 23.03 p-value X^2 4.18 8.54 6.57 4.51 3.58 1.58 28.97 GGT 44.00 5.00 20.00 33.00 0.00 33.00 0.00 33.00 0.00 9-value GGT 44.00 5.00 20.00 5.00 5.00 85.00 35.00 120.00 Exp. 31.17 3.54 14.17 26.92 3.54 5.67 2.00 2.00 35.00 35.00 35.00 35.00 35.00 35.00 35.00 35.00 35.00 35.00 35.00 35.00 35.00 35.00	X^2	0.04	0.00	0.13	0.13	0.86	0.96	2.11	
GGC 0.00 29.00 0.00 1.00 0.00 32.00 62.00 TOTAL 7.00 33.00 11.00 11.00 6.00 49.00 117.00 Exp. 3.29 15.51 5.17 5.17 2.82 23.03 p-value Exp. 3.71 17.49 5.83 5.83 3.18 25.97 1.52492E-10* X^2 4.18 8.54 6.57 4.51 3.58 1.58 28.97 X^2 3.71 7.58 5.83 4.00 3.18 1.40 25.70 GGT 44.00 5.00 20.00 5.00 6.00 35.00 35.00 TOTAL 44.00 5.00 20.00 33.00 0.00 2.00 35.00 120.00 Exp. 31.17 3.54 14.17 26.92 3.54 5.67 2.35 2.92027E-18* X^2 5.28 0.60 2.40 17.85 0.60 0.02 26.75	X^2	0.35	0.01	1.01	1.01	6.82	7.61	16.80	
GGC 0.00 29.00 0.00 1.00 0.00 32.00 62.00 TOTAL 7.00 33.00 11.00 11.00 6.00 49.00 117.00 Exp. 3.29 15.51 5.17 5.17 2.82 23.03 p-value Exp. 3.71 17.49 5.83 5.83 3.18 25.97 1.52492E-10* X^2 4.18 8.54 6.57 4.51 3.58 1.58 28.97 X^2 3.71 7.58 5.83 4.00 3.18 1.40 25.70 GGT 44.00 5.00 20.00 5.00 6.00 35.00 35.00 TOTAL 44.00 5.00 20.00 33.00 0.00 2.00 35.00 120.00 Exp. 31.17 3.54 14.17 26.92 3.54 5.67 2.35 2.92027E-18* X^2 5.28 0.60 2.40 17.85 0.60 0.02 26.75									
TOTAL 7.00 33.00 11.00 11.00 6.00 49.00 117.00 Exp. 3.29 15.51 5.17 5.17 2.82 23.03 p-value Exp. 3.71 17.49 5.83 5.83 3.18 25.97 1.52492E-10* X^2 4.18 8.54 6.57 4.51 3.58 1.58 28.97 X^2 3.71 7.58 5.83 4.00 3.18 1.40 25.70 GGT 44.00 5.00 20.00 5.00 5.00 6.00 35.00 GGT 0.00 0.00 20.00 38.00 5.00 8.00 120.00 Exp. 31.17 3.54 14.17 26.92 3.54 5.67 p-value Exp. 12.83 1.46 5.83 11.08 1.46 2.33 Z 2.8 0.60 2.40 17.85 0.60 0.02 26.75	GGC	7.00	4.00	11.00	10.00	6.00	17.00	55.00	Ĩ
Exp. 3.29 15.51 5.17 5.17 2.82 23.03 p-value Exp. 3.71 17.49 5.83 5.83 3.18 25.97 1.52492E-10* X^2 4.18 8.54 6.57 4.51 3.58 1.58 28.97 X^2 3.71 7.58 5.83 4.00 3.18 1.40 25.70 GGT 44.00 5.00 20.00 5.00 5.00 6.00 35.00 GGT 0.00 0.00 0.00 33.00 0.00 2.00 35.00 TOTAL 44.00 5.00 20.00 38.00 5.00 120.00 Exp. 31.17 3.54 14.17 26.92 3.54 5.67 Exp. 12.83 1.46 5.83 11.08 1.46 2.33 X^2 5.28 0.60 2.40 17.85 0.60 0.02 26.75	GGC	0.00	29.00	0.00	1.00	0.00	32.00	62.00	
Exp. 3.71 17.49 5.83 5.83 3.18 25.97 1.52492E-10* X^2 4.18 8.54 6.57 4.51 3.58 1.58 28.97 X^2 3.71 7.58 5.83 4.00 3.18 1.40 25.70 GGT 44.00 5.00 20.00 5.00 5.00 6.00 85.00 GGT 0.00 0.00 20.00 5.00 5.00 6.00 85.00 TOTAL 44.00 5.00 20.00 38.00 5.00 8.00 120.00 Exp. 31.17 3.54 14.17 26.92 3.54 5.67 p-value Exp. 12.83 1.46 5.83 11.08 1.46 2.33 2.92027E-18* X^2 5.28 0.60 2.40 17.85 0.60 0.02 26.75	TOTAL	7.00	33.00	11.00	11.00	6.00	49.00	117.00	
X^2 4.18 8.54 6.57 4.51 3.58 1.58 28.97 X^2 3.71 7.58 5.83 4.00 3.18 1.40 25.70 GGT 44.00 5.00 20.00 5.00 5.00 6.00 85.00 GGT 0.00 0.00 0.00 20.00 5.00 5.00 6.00 85.00 TOTAL 44.00 5.00 20.00 33.00 0.00 2.00 35.00 120.00 Exp. 31.17 3.54 14.17 26.92 3.54 5.67 p-value Exp. 12.83 1.46 5.83 11.08 1.46 2.33 2.92027E-18* X^2 5.28 0.60 2.40 17.85 0.60 0.02 26.75	Exp.	3.29	15.51	5.17	5.17	2.82	23.03		p-value
X^2 3.71 7.58 5.83 4.00 3.18 1.40 25.70 GGT 44.00 5.00 20.00 5.00 5.00 6.00 85.00 GGT 0.00 0.00 0.00 20.00 5.00 5.00 6.00 85.00 GGT 44.00 5.00 20.00 33.00 0.00 2.00 35.00 120.00 TOTAL 44.00 5.00 20.00 38.00 5.00 8.00 120.00 Exp. 31.17 3.54 14.17 26.92 3.54 5.67 p-value Exp. 12.83 1.46 5.83 11.08 1.46 2.33 2.92027E-18* X^2 5.28 0.60 2.40 17.85 0.60 0.02 26.75	Exp.	3.71	17.49	5.83	5.83	3.18	25.97		1.52492E-10*
GGT 44.00 5.00 20.00 5.00 5.00 6.00 85.00 GGT 0.00 0.00 0.00 33.00 0.00 2.00 35.00 TOTAL 44.00 5.00 20.00 38.00 5.00 8.00 120.00 Exp. 31.17 3.54 14.17 26.92 3.54 5.67 p-value Exp. 12.83 1.46 5.83 11.08 1.46 2.33 2.92027E-18* X^2 5.28 0.60 2.40 17.85 0.60 0.02 26.75	X^2	4.18	8.54	6.57	4.51	3.58	1.58	28.97	
GGT 0.00 0.00 0.00 33.00 0.00 2.00 35.00 TOTAL 44.00 5.00 20.00 38.00 5.00 8.00 120.00 Exp. 31.17 3.54 14.17 26.92 3.54 5.67 p-value Exp. 12.83 1.46 5.83 11.08 1.46 2.33 2.92027E-18* X^2 5.28 0.60 2.40 17.85 0.60 0.02 26.75	X^2	3.71	7.58	5.83	4.00	3.18	1.40	25.70	
GGT 0.00 0.00 0.00 33.00 0.00 2.00 35.00 TOTAL 44.00 5.00 20.00 38.00 5.00 8.00 120.00 Exp. 31.17 3.54 14.17 26.92 3.54 5.67 p-value Exp. 12.83 1.46 5.83 11.08 1.46 2.33 2.92027E-18* X^2 5.28 0.60 2.40 17.85 0.60 0.02 26.75									
TOTAL 44.00 5.00 20.00 38.00 5.00 8.00 120.00 Exp. 31.17 3.54 14.17 26.92 3.54 5.67 p-value Exp. 12.83 1.46 5.83 11.08 1.46 2.33 2.92027E-18* X^2 5.28 0.60 2.40 17.85 0.60 0.02 26.75	GGT	44.00				5.00		85.00	Ĩ
Exp. 31.17 3.54 14.17 26.92 3.54 5.67 p-value Exp. 12.83 1.46 5.83 11.08 1.46 2.33 2.92027E-18* X^2 5.28 0.60 2.40 17.85 0.60 0.02 26.75	GGT	0.00	0.00	0.00	33.00	0.00	2.00	35.00	
Exp. 12.83 1.46 5.83 11.08 1.46 2.33 2.92027E-18* X^2 5.28 0.60 2.40 17.85 0.60 0.02 26.75	TOTAL	44.00	5.00	20.00	38.00	5.00	8.00	120.00	
X^2 5.28 0.60 2.40 17.85 0.60 0.02 26.75	Exp.								
	Exp.		1.46	5.83	11.08	1.46	2.33		2.92027E-18*
X ² 12.83 1.46 5.83 43.34 1.46 0.05 64.97	X^2	5.28	0.60	=	17.85	0.60	0.02		
	X^2	12.83	1.46	5.83	43.34	1.46	0.05	64.97	

 $* Kolmogorov-Smirnov \ test \ performed \ and \ generally \ consistent \ with \ the \ Chi \ Square \ test.$

Table B. The p-values for the comparisons between dRhodamine and BigDye v1.1 dye chemistries for each of the primers, Primers A1, B1, C1, and D1. Any p-value < 7.8125E-4 (0.05/64) is considered statistically significant with an overall $\alpha = 0.05$ for that frame given the null hypothesis that the distribution of patterns is the same. All p-values exceeding 7.8125E-4 are black reversed; the null hypothesis is not rejected. Overall, comparisons between dye chemistries yielded statistically significant different distributions of patterns. All N/A correspond to no observations or too few observations for that frame.

		p-v	alue	
Frame	A1	B1	C1	D1
AAA	6.16016E-17	2.45218E-07*	2.45507E-18	5.68865E-05
AAC	7.42701E-14	2.53476E-12*	1.97785E-15	6.67162E-07
ACA	1.74519E-05	2.65634E-09*	9.88894E-19	2.80704E-27
ACC	0.898580318*	2.53989E-19*	2.39207E-05	8.55863E-17
ACT	2.40572E-12	9.36644E-47*	6.01095E-05	9.84718E-06
ACG	2.39647E-09*	8.44096E-28*	5.29652E-11*	3.47416E-10
AAT	8.55696E-15	2.99609E-25*	1.65255E-25	8.31074E-06
ATA	0.00014045	2.02584E-06*	0.000108357	8.39582E-11
ATT	9.231E-50	2.88039E-28	1.02567E-31	0.003788378
ATC	4.77926E-22	1.5425E-31	4.86079E-26	1.22799E-15
ATG	1.42378E-33	2.30898E-11	8.44338E-33	2.49644E-12
AAG	1.05149E-39	1.26433E-30	4.9977E-07	2.28566E-26
AGA	8.90613E-55*	5.64318E-17	1.54464E-40	2.21826E-62
AGG	1.1577E-39	3.22146E-70	8.85743E-31	6.58819E-60
AGC	9.93676E-38	5.9707E-29*	1.03736E-39	2.32074E-38
AGT	2.87085E-28	1.31455E-69	2.9264E-06	1.43778E-12
CAA	1.42852E-21	1.33925E-09*	1.05113E-25	1.09032E-13
CAC	0.495224527*	N/A	4.0599E-08	1.87137E-08
CCA	0.372296673*	5.75097E-11	6.64381E-15	2.36207E-09
CCC	6.62206E-30*	1.71613E-12	1.40869E-12*	3.32305E-06*
ССТ	2.0189E-18	0.00022521	6.30199E-13	5.02676E-34
CCG	9.40118E-16	8.44796E-07*	1.54692E-08*	0.047958378*
CAT	1.37468E-17*	1.51086E-31	2.74849E-05	1.4824E-17
CTA	1.14762E-08*	1.35099E-08	1.47031E-05	3.00249E-05
СТТ	2.12123E-25	2.72968E-30	2.6684E-05	1.06678E-28
СТС	6.88923E-16*	N/A#	1.42705E-07	4.80945E-26
СТС	5.62689E-60*	7.98395E-39	5.34485E-41	1.84013E-30
CAG	7.88052E-42	2.74303E-31	3.9521E-43	9.19128E-30
CGA	N/A	8.40556E-13*	2.96881E-13*	2.78319E-19
CGG	5.90774E-12*	7.48635E-07	3.08516E-13*	1.16316E-15
CGC	3.71598E-10*	N/A	3.01308E-07	1.22487E-07
CGT	1.3526E-07	6.73872E-13*	4.96619E-16*	0.024679084
TAA	1.17761E-09	3.51214E-27	1.53755E-18	0.001062979
TAC	4.2101E-31	1.1553E-09*	5.26601E-17*	1.74571E-11
TCA	1.77551E-33*	0.010295351*	7.94784E-27	6.76191E-13
TCC	1.00373E-25	4.51852E-45	3.05193E-10	6.76137E-11
тст	2.41946E-18	1.38466E-10	2.11567E-08	7.92172E-24
TCG	2.09432E-14*	N/A	3.22366E-11*	7.06554E-12
TAT	7.42205E-23	1.15031E-48	8.54536E-11	1.55971E-27
TTA	1.51034E-32	1.32654E-21	6.21845E-40	9.22466E-22
TTT	1.27486E-24	2.42045E-55	1.35895E-47	1.66901E-21
ттс	1.27486E-24 1.17765E-14	3.16892E-35	4.67497E-31	2.49665E-09
TTG				
	1.94128E-72 1.62758E-29	4.90151E-16 1.45973E-28*	1.16604E-51 1.42781E-17*	9.80693E-74 4.78699E-20
TAG TGA	1.71049E-65	8.46536E-79	1.42781E-17* 1.95185E-16*	1.92539E-09
TGG TGC	1.95282E-30 4.64701E-28	1.05512E-50* 0.002893949	1.93418E-07* 2.01504E-15*	2.03096E-65 2.26355E-55
TGT	6.72914E-45*	4.37992E-28		5.08113E-63
			1.04523E-65 1.49219E-22	2.7239E-19
GAA	0.002901578	8.04619E-34	2.94479E-14*	
GAC GCA	1.25675E-14* 2.41945E-12	2.00355E-20*	1.58114E-30	1.68173E-27 6.60941E-19
		1.38709E-19		
GCC GCT	3.33371E-15* 4.18256E-22*	N/A 3.13126E-13	4.52845E-14 1.63107E-08*	0.000411963 8.34279E-12
	4.18256E-22* N/A		4.91079E-20	
GCG		3.92678E-10* 9.9718E-06		9.31409E-20
GAT	1.77492E-44		1.42774E-27	7.42707E-40
GTA	5.26794E-08 6.73137E-37*	4.02333E-52*	2.86269E-14	1.01273E-09 1.24276E-86
GTT		2.92847E-07	1.10057E-22	
GTC	0.002355522	9.12813E-20	3.98886E-28	4.84494E-42
GTG	N/A	1.91843E-11*	5.25983E-12*	3.44158E-51
GAG	N/A	9.15203E-41	1.10443E-26	1.76721E-25
GGA	5.01032E-13	5.02106E-17	2.37162E-19	0.008376152
GGG	1.05882E-18*	8.02414E-31	0.001994726*	2.55739E-44
GGC	N/A	1.11532E-15	1.52492E-10*	1.68975E-13
GGT	8.69175E-25	2.74521E-23	2.92027E-18*	2.45509E-79

 $\ensuremath{^*\!Kolmogorov}\xspace$ Smirnov test performed and generally consistent with the Chi Square test.