

THE SIMPLE MATHEMATICS OF JESUS

The simple mathematics of Jesus

Thomas Colignatus

With thanks to E.F.

The Greek o-mega can be written as ω or oh.

The spelling of English is generally from the UK but instead of “maths” we prefer “math” as in the USA and there can be other cases like that.

The unit of ten is used also in the pronunciation and transcription of numbers.

Thus ten-one = eleven, ten-two = twelve, ..., two-ten = twenty,

See <http://thomascool.eu/Papers/Math/2012-04-16-NiceNumbers.pdf>

A mixed fraction is written as $2 + \frac{1}{2}$ (two and a half) and not as $2\frac{1}{2}$ (two times a half).

For the measurement of circles and angles a longer explanation can be found on p124.

Angles can be measured with the plane as the unit of account. A half plane gives an angle of $\frac{1}{2}$. A quarter plane gives an angle of $\frac{1}{4}$. This can be translated to turns and arcs. Thus 1 turn = 360 degrees. A turn can also be measured as the *uma* = *unit measure around* such as for example a circle with a circumference of a *meter*. A half turn = $\frac{1}{2}$ uma = 180 degrees, a quarter turn = $\frac{1}{4}$ uma = 90 degrees.

The circumference of a circle with radius r is $C = \Theta r$, with $\Theta = 2\pi = 6.28\dots$, written with Greek capital letter theta, and pronounced as “archi” (from Archimedes). The surface of a circle with radius r then is $S = \frac{1}{2} \Theta r^2$.

Thomas Cool uses the name Colignatus for his scientific work, see <http://thomascool.eu>

The cover is “Ecce homo!” by Antonio Ciseri (1821–1891)

Wikipedia commons <http://en.wikipedia.org/wiki/File:Eccehomo1.jpg>

Antonio Ciseri's depiction of Pontius Pilate presenting a scourged Christ to the people Ecce homo! (Behold the man!).

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683 Oudheid (tot 500) (Antiquity till 500 AD)

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Appendix p136: 97C02 Psychology of mathematics education, research in mathematics

Prologue

When I was 16 my preference was to study archeology: the research into the origin (archè) of civilisation ... Ancient languages and the keys to decipher them ... How the things were discovered that shape our environment ... Alas there was also a tv-broadcast about Biafra that was hit by war and hunger, with the dying of innocent children. Are we actually a civilisation ? Mankind is put upon the anvil of violence again and again, against which the innocent are helpless. Politics is often determined by economic conditions and hence my decision was to study econometrics, in which economic theories are translated into mathematical models and tested statistically. Eventually I succeeded in developing an econometric approach such that future Biafra's can be prevented.¹ It is up to voters and politicians whether they are willing to look into this solution approach, and this is beyond my influence. Since this solution approach has been formulated, I have some moral liberty to consider other issues. This essay is a response to that old interest in archeology. Over the years I have at least kept some notes and this essay collects those. I cannot decipher potsherds but I can try to apply some math. My other degree in teaching and didactics of mathematics can be put to good use. Anyhow, by all means: a *salute* to all who share that original passion. It remains striking that, quite unintentionally, in these collected notes about the *archè* there still arises something in relation to Biafra, namely that neighbourly love by that Jesus.

¹ <http://thomascool.eu/Papers/Drgtpe/Index.html>

Prologue	5
1. ANGEL	9
Introduction	11
3000 years is long	13
Timeline	14
The Jewish midrash	15
Levels of understanding	16
Math of story-telling and theatre	17
The fish of Ter Heide	19
Frazer's golden bough and sacrifice of the king	20
2. BIRTH	23
Day and night	25
The great One	26
Genesis	27
The holy number seven	28
The life of Jesus	29
40 days in the desert	30
The zodiac	31
The hours	32
Decans, star time, solar time and sidereal time	33
Season and tide of the Nile	34
Solstice and equinox	35
Death and resurrection of the Egyptian god Osiris	36
Precession of the equinoxes	37
Great-year and world-year	39
3. ADULTHOOD	41
Pythagoras and Plato	43
Capricorn as scapegoat	44
Jesus as human sacrifice	45
True, coincidence or conspiracy	46
Dodecans, pentagram, Septuagint and Shemhamphorasch	48
The Therapeutae	49
Egyptian theory on the soul	50
Maat and the balance	51
Thoth and power	52
Virginal conception	53
Eat my body and drink my blood	54
Calendar in Canaan	55
Jubilee	58
Messianism	59
Table with historical dates	60
The great mystery is solved	61
The highest command: Love your neighbour as yourself	62
The cross	63
4. DEATH	67
Math gives, math takes	69
There is something strange	70
Patterns in belief – Abraham and the 12 tribes	73
Patterns in belief – Israel and Judah	74

Patterns in belief – S, F, E, T, Q and C	75
Influence on and from Pythagoras and Plato	77
How simple is that math of Jesus ?	79
By the beard of Jesus	80
5. HERE-AFTER	81
How did Jesus get his name Jesus ?	83
Joseph ben Matityahu – Flavius Josephus	85
The Egyptian	88
The court session	89
Was Jesus in a conspiracy himself ?	90
Jewish views about Christianity – Nozrim	92
Focus on the calendar in Canaan	93
The zodiac as the deep structure	95
Julius Caesar and the New Isis	98
View from a film maker	99
Influence from Mesopotamia	101
How can it have gone or been done ?	104
It remains speculation	107
Concluding: Occam's razor	110
APPENDICES	113
Epilogue	115
Van Manen, Niemojewski, Drews, Ellegård, Hamlet's Mill	116
Semiotics and signification	117
Testimonium Flavianum and Emmaus travellers	118
Nazoraio: from Nazareth or monk or freedom fighter ?	121
A tragic king	123
Measuring angles by turns or uma	124
Extra notes	125
Contemplations	127
Loose ends	128
The news	131
With respect to the simple math	131
With respect to the guesstimath	131
Is there still hope for neighbourly love ?	133
High priests of high treason	135
Brain research and mathematics education: some comments	136
Introduction	136
Prolegomena	137
Our concept of reality	138
Consciousness as a primitive concept	139
Terminology	139
Consciousness as an experience	140
Mind – body equivalence	141
A note on the flash of insight	143
Consciousness and free will	143
Proper versus 'realistic' mathematics	143
Conclusions	144
References	145
Literature	146
Index	147
BY THE SAME AUTHOR	151

1. Angel

Introduction

We can apply mathematics to all kinds of areas such as space, numbers, physics, biology, and so on. This essay applies math to the story of Jesus. We will consider these questions: (1) What math is hidden in the Bible ? (2) How did the Bible come about ? (3) Has Jesus existed as a historical person or not ? These questions are strongly related but also somewhat different.

This book is an essay, an effort at clarifying a subject, not a full study. This essay collects notes and insights that grew on me over the years. These have been ordered and made coherent and consistent such that the whole might be of interest to others as well. The cause for that ordering lies in math and notably in the didactics of mathematics. This essay can be seen in the context of my other books on the latter, *Elegance with Substance* (2009) and *Conquest of the Plane* (2011).

It seems that I may have stumbled on some new insights compared to texts by others. That news is listed on p131. Some final points are in the epilogue, p115.

Whether Jesus is the Son of God is a matter of faith. Everyone must determine this for himself or herself, and every choice can only be respected. This holds actually for any faith, for example also for astrology and homeopathy. However, claims that derive from a faith and that concern reality and views of others will be confronted with reality and those views of others: and then such claims may fail.

Science assumes that there is no *deus ex machina*: there is no god from the machine. There is only nature and what mankind creates. Texts have been written by people. We therefor distinguish:

- astrology: relying on traditional ideas and superstitions (*logos* = word)
- astronomy: relying on science (*nomos* = law)
- theology: relying on traditional ideas and superstitions
- theonomy: relying on science (e.g. this essay).

Clearly geology will be a science, thus our distinction applies to these four. For these, we do not mind that “x-ologies” contain all kinds of inconsistencies. We just register what is asserted. Only the “x-onomies” have to be sound.

The references here, such as to Wikipedia, are not intended as evidence. They only provide potential points of departure to look for sources and evidence. A reference can hardly prove something anyway. Real evidence in this matter may only be found with years of study, and some hypotheses seem rather impossible to prove anyway.

The Bible gives the life of Jesus: the announcement by the angel, birth and escape to Egypt, his visit to the Temple when he is 12 and causes amazement with the teachers there, his 30th year of life that ends on the cross, and the resurrection. Nothing else. Some historians calculate that Jesus would have died at age 33 or perhaps 37. Here we allow for the possibility that Jesus is a theological concept. The flight by Joseph and Mary with Jesus to Egypt is not without meaning: the theological concept may originate from Egypt.

The essay is divided in the following themes:

- (1) Angel: the core notions required to follow the discussion
- (2) Birth: astronomy and calendar as astro-theological base of the Bible
- (3) Adulthood: the cultural layer above that in Egypt, Canaan and Greece
- (4) Death: recognition of (mathematical) patterns in the above
- (5) Here-after: evaluation and final judgement.

Each page provides a “panel” with key information. As a reader you are free to ask your own questions and decide what you regard as evidence. Only towards the evaluation the essay may impose more strictness on what can logically be accepted.

There is a difference between pure math and applied math. For example engineers and judges have to make practical decisions. Franklin (2001) describes the genesis of the mathematics of probability in the history till Pascal, and in this he focusses on law. Is the defendant guilty or not ? Witnesses might not speak the truth. While a scientist has the luxury to maintain doubt forever, a judge really has to make a decision. You as a reader have to decide whether you go to church. Famous is Pascal's wager: to believe seems safer since not-believing comes with the risk of hell. However, there is also Occam's razor, see the concluding remarks at the end of this essay.

The core notions start with the Jewish *midrash*. The New Testament (NT) with the teachings by Jesus arose in the context of the Old Testament (OT), the Hebrew Bible. The Jewish belief already has the tradition that texts require more explanation. It is a relief that not all texts have to be taken literally. This gives the base of the *midrash* or traditional exegesis. This traditional base will be extended with the didactics of mathematics, information theory by Claude Shannon and text analysis, and we will also encounter insights from Theatre Studies. The NT namely looks like a Greek Tragedy. In sociology there is etnomethodology but we keep this approach as something for the future or something for sociologists.

Organised religion arose in the change from hunting-gathering to agriculture and husbandry. Hard math is found in the development of the calendar and astronomy. The heavenly bodies were were observed for travelling and time-keeping, not just for the birthdays of the children but also for sowing and reaping.

When mankind started with star-gazing and the mapping of regularities, the question arose how to describe all of this, and actually remember it. The early astronomers might say "this star such, and that star so" but if you want to make progress in an age without photography then one of the obvious methods is to use metaphors and the techniques of story-telling. A star that announces sunrise, the Morning Star Venus, can be labelled as a goddess that gives birth to the sun. Other people who hear those stories, and who do not understand what they are about, can become impressed about all the knowledge that they contain, and start to regard them as true stories about gods and goddesses who rule in heaven and hell, and who determine the events down on earth. In that manner myths and legends are born.

The mechanism thus is: (1) Astrologers have some real knowledge about the stars, (2) That knowledge is packaged into stories to facilitate communication and memory, (3) Outsiders hear those stories but do not understand what it is all about, (4) Priests are tempted to guard a "mystery" vis-à-vis the faithfuls.

Still, there remain the abstract questions of faith. If the soul is an abstract concept then the soul is eternal, just like a circle as an abstract concept has some perfect properties. Next to mathematics for astronomy we apply it for abstraction.

	<i>Man and world</i>	<i>Man and gods</i>
<i>Concrete tangible</i>	Round things such as a ball	Human body
<i>Concrete intangible</i>	Radius drawn with a compass	Consciousness, breath
<i>Abstract</i>	Perfect circle and sphere ²	Soul, psyche (Gr. "breath")

The calendar and the astro-theological base of the Bible can be seen as the **simple math** of Jesus. It would be incorrect to limit the discussion to these aspects only. The story of Jesus is more than just the calendar. Did or didn't there exist a person who preached in that manner about neighbourly love ? We then enter the area of guesstimation or **guesstimath** that uses probability theory, statistics, cryptography, chaos theory, information theory and text analysis. We will keep the astronomy and guesstimath simple here, without formula's and with only references. Thus the title of this essay covers the approach here: that the mathematics is simple.

² Some readers might want to check the appendix on p136. Consciousness gives both a concrete experience and a content that will be abstract like for circle and soul.

3000 years is long

Who looks back from our time to the year zero of our calendar, thus those 2000 years back into the past, sees how much time this is, and what can happen in such a long stretch of time.

From there we look back another 3000 years to the beginning of history. By *history* we mean what has been written. Before that it becomes prehistory. Those written and often chiseled texts in Egypt and Sumeria go back to at least 3000 BC.

Seen from our point of vantage those 5000 years are long. Seen from the vantage of Jesus the 3000 years of earlier history are a long period as well.

The point is that a lot can happen in 3000 years. It may seem that the Egyptian civilisation is a stable whole, but once you know more about it, the more chaotic it becomes. There were two kingdoms, North (lower) and South (upper) (since the Egyptians oriented themselves to the South). These kingdoms were united but later got separated again. The united kingdoms even called themselves the Two Kingdoms, as one name for a whole area, like the United Kingdom or the United States of America. Within the Two Kingdoms there were sensitive issues. Sometimes one city was more important and sometimes another, and that meant that also the god of such a city became more prominent. At some time the Hyksos invaded,³ then it were the Sea Peoples, and the original Egyptians had to adapt to changing times. Sometimes the whole civilisation collapsed, by unknown cause, and only gradually recovered. It seems that the head of the Sphinx has been slain off and replaced by another one, see below.

Thus there is much stability in Egypt but also a lot of dynamics.

For a proper understanding of this early period we apparently need knowledge about various languages and histories: Egyptian (hieroglyphs, demotic), Sumerian (cuneiform), Hebrew, Arameic, Greek, Latin. Subsequently, foreign researchers have used their own languages to report their results: French, German, Arabic, and so on. Even when English has been used to report results: how well do you understand English ?

Subsequently, even when you understand hieroglyphs and Greek, then meanings can shift gradually over the course of millennia, see for example the various calendars.

The author of this essay has neither command of all that knowledge.

For our investigation into the math of Jesus and the foundations of theonomy we better limit the questions to the most important ones:

- what do we want to know ?
- what can be proven ?

As said in the introduction: Each page below provides a “panel” with key information. As a reader you are free to determine what you want to know and decide what you regard as evidence. Only towards the final evaluation the essay may impose more strictness on what can logically be accepted.

Subsequently, that long duration of all that time has a special effect, namely the precession of the equinoxes - see below.

³ Probably there already lived many non-Egyptian peoples in the Nile delta, and they only gained power.

Timeline

A timeline helps clarify how far we are looking back in time.

Johann Gutenberg prints the Bible in 1455.

Alexander the Great conquers Egypt in 332 BC.

The Middle Bronze Age starts with the change of the Old Kingdom to the Middle Kingdom, around 2000 BC.⁴

The beginning of the Nile civilisation around 3500 BC coincides with the begin of the Bronze Age.

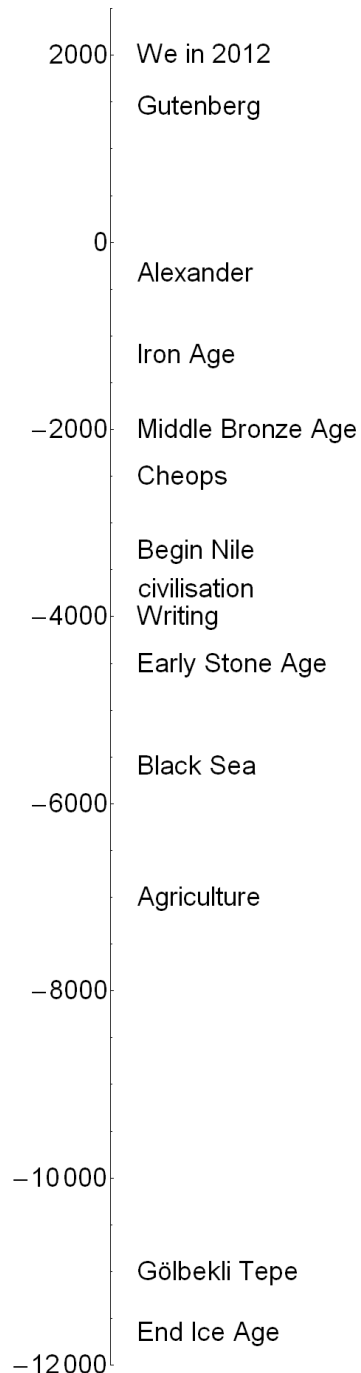
The development of writing is thought to start in Sumeria around 4000 BC.

There is mention of a possible flood in the Black Sea around 5.600 jaar BC. Is this the source for the Gilgamesh Epos or the Deluge in the Bible with Noah's Ark ?⁵ This is only one of the hypotheses. Another possible explanation is that the starry sky is seen as a lake, sea or ocean, that can flood all there is. In that case the precession (see below) can be seen as such a deluge, notably from Taurus to Aries (2150 BC), from Gemini to Taurus (4300 BC) and from Cancer to Gemini (6500 BC).

Serious agriculture is located around 7000 BC, in any case for Egypt.⁶

The end of the last Ice Age is dated between 10-15 thousand years ago.⁷ See also Gölbekli Tepe with a beginning of the Zodiac around 11.000 BC.⁸ There already is some agriculture here.

NB. A theory about the spread of agriculture (also to Europe) is that people relocate and resettle, generation by generation. For hunter-gatherers it is difficult to adopt agriculture since it is a complex technology. An important consequence then is that the farmers when they move also bring along their culture and mythology.



⁴ http://en.wikipedia.org/wiki/Bronze_Age

⁵ http://en.wikipedia.org/wiki/Black_Sea_deluge_hypothesis

⁶ <http://en.wikipedia.org/wiki/Agriculture>

⁷ http://en.wikipedia.org/wiki/Quaternary_glaciation

⁸ http://en.wikipedia.org/wiki/G%C3%B6lbekli_Tepe

The Jewish midrash

The New Testament (NT) with the life of Jesus exists in close relation to the Old Testament (OT). The OT is for the Jews the whole (Jewish) Bible, also called **Tanakh**. This consists of the *Torah* plus the book of the *Prophets* plus the *Writings* such as the Psalms. The Torah consists of the five books Genesis, Exodus, Leviticus, Numbers, Deuteronomy. Next there is the **Talmud**, consisting of oral tradition and interpretations. It is assumed that Jewish rabbis know the Tanakh by heart, so that texts can easily refer to each other. For those few this causes a compact code, for other people texts become unclear. In the Jewish tradition there thus is also a lot of explanation of texts. This is called *midrash*:⁹ “research of the Bible”. In Christian churches the reading of the Bible, by which God speaks to mankind, can also be followed by an explanation what he means to say. This explanation is called *homily*, and it causes the study of homiletics.¹⁰ The Christian explanation differs from the Jewish one, but the idea that explanation is needed remains the same.

The midrash may be ten times thicker than the Bible itself. When the Bible had been clearer to start with, the midrash would not have needed to be so extensive. On the other hand the human tendency to comment on things is unlimited. Also this essay can be seen as an effort to explain the Bible.

The midrash adheres to some system. For a sentence, proposition or paragraph there are generally four types of explanation, indicated by the label PaRDeS:¹¹

- *Peshat*: simple, direct meaning, literally, straightforward
- *Remez*: allegoric, symbolic, the text gives a hint
- *Derash, drush*: requires exegesis via the comparison of various texts, for example because one formulation refers to another text
- *Sod*: mystical, hidden, the meaning follows from deeper knowledge or inspiration.

As a rule, a more complex explanation should not contradict the *peshat* explanation. The first three forms are called *exoteric* since they assume the natural world and human notions. The *sod* is called *esoteric* because anything could be used that apparently is hidden in (“eso”) the text.

The OT has no separation of church and state. It seems that this is actually what Jesus proposes. But the separation already exists in the explanation of the OT: *Halakha* is explanation for the law and *Aggadah* is explanation for the belief.

Wikipedia:¹² “Exegesis includes a wide range of critical disciplines: textual criticism is the investigation into the history and origins of the text, but exegesis may include the study of the historical and cultural backgrounds for the author, the text, and the original audience. Other analysis includes classification of the type of literary genres present in the text, and an analysis of grammatical and syntactical features in the text itself. (...) hermeneutics is a more widely defined discipline of interpretation theory: hermeneutics includes the entire framework of the interpretive process, encompassing all forms of communication: written, verbal and nonverbal, while exegesis focuses primarily on the written text.”

The discussions can be very metaphorical. There is a lot of discussion whether to believe some midrashim or not.

⁹ <http://en.wikipedia.org/wiki/Midrash>

¹⁰ <http://en.wikipedia.org/wiki/Homily>

¹¹ <http://en.wikipedia.org/wiki/PaRDeS>

¹² <http://en.wikipedia.org/wiki/Exegesis>

Levels of understanding

Math gives an amendment on the midrash. Pierre van Hiele distinguishes levels of understanding. The meaning of a word differs per level.¹³ In this, we include a distinction between material cases and the more abstract phenomena that are so typical for mathematics (and also God can be abstract).¹⁴

	<i>Level</i>	<i>Material cases</i>	<i>Abstract cases (perfection)</i>
0	visual and intuitive	Fröbel with marbles, paper sheets, stripes	point, line, plane, number, pattern
1	description, sorting, classification	2 marbles + 3 marbles = 5 marbles	two points give a line
2	formulas but informal deduction	a marbles + b marbles = $(a + b)$ marbles	$a x + b x = (a + b) x$
3	formal deduction	<i>does not apply</i>	deductive systems in math

A deduction at level 3 consists of: definitions, theorem, proof.

Another deductive order is: assumptions (definitions), argument (proof), conclusion (theorem). A conclusion can be based directly upon assumptions, provided that the whole remains a valid deduction and proof. For example:

Assumption: All humans are mortal
 Assumption: Socrates is human
 Conclusion: Socrates is mortal.

Classical Greek mathematics consists of the geometry of Euclid and the logic of Aristotle. Everything there is put in deductive form. Starting from principles or axioms, the theorems are derived. The method is called *axiomatics*. Teachers of mathematics used to think that this is good didactics but most have changed their mind. According to the theory of levels it is better to get acquainted with the topic of discussion so that you understand what it is all about.

When we apply this scheme to the story of Jesus then the questions about existence and meaning of Jesus can be assigned somewhat differently.

	<i>Level</i>	<i>Material cases</i>	<i>Abstract cases (perfection)</i>
0	visual and intuitive	Jesus was real	experience God as abstract
1	description, sorting, classification	When did he die ? Was Mary a virgin ?	God = nature. Consciousness is a natural phenomenon
2	formulas but informal deduction	Was there an Immaculate Conception ? Charity. Convert your neighbours, with violence if needed, save their souls.	Rules like "Love your neighbour as yourself". System of social security.
3	formal deduction	<i>does not apply</i>	Spinoza: discussion in geometric fashion ¹⁵

Conclusion: Even if Jesus / God is not historical then it is still possible to pose abstract questions, i.e. the normal questions about the gods that have been posed for millennia. This insight existed already before Christ and is called Gnostic or *Docetic* (Gr. *dokein* = seem). The teachings of Jesus consist partly of an explanation of the Gnosis, i.e. an explanation to the faithful what the priests keep hidden as abstraction.

¹³ http://en.wikipedia.org/wiki/Van_Hiele_model (there 5 levels, here 4)

¹⁴ The 'realistic mathematics' approach focusses on the first column.

¹⁵ http://en.wikipedia.org/wiki/Baruch_Spinoza