

A scientist's adventure  
into pseudoscience

The strange case of the

B  
I  
B  
L  
C O D E S

Brendan McKay  
Australian National University

and a cast of dozens...



## Ivan Nicholayevich Panin

1855–1942

Mark 16:9–20

9 Ἀναστὰς δὲ πρῶτῃ σαββάτου ἐφάνη πρῶτον  
Μαρία τῇ Μαγδαληνῇ, παρ' ἧς ἐκβεβλήκει ἑπτὰ δαι-  
• • •  
20 Θεοῦ. ἐκεῖνοι δὲ ἐξελθόντες ἐκήρυξαν πανταχοῦ, τοῦ  
Κυρίου συνεργούντος, καὶ τὸν λόγον βεβαιούντος διὰ  
τῶν ἐπακολουθούντων σημείων.

The number of **words** is  $25 \times 7$ , the **vocabulary** has  $2 \times 7 \times 7$  words occurring in  $19 \times 7$  **forms** ( $16 \times 7$  appearing once and  $3 \times 7$  more than once). The vocabulary has  $79 \times 7$  letters, of which  $6 \times 7 \times 7$  are vowels and  $37 \times 7$  are consonants. The **numerical value** is  $14809 \times 7$ . The numerical value of the forms is  $12809 \times 7$ . **And so on for many pages.**



Rashad Khalifa

1935–1990

The **Bismallah** (opening statement of the Quran and of most chapters) has **19** letters. The number of **chapters** is  $6 \times 19$ . The first **revelation** has  $4 \times 19$  letters. The first chapter revealed has **19** verses. **And so on for many pages.**

Unfortunately, Khalifa's study led him to remove two verses from the Quran and to declare himself a messenger of God.

On January 31, 1990, someone entered his mosque in Arizona and stabbed him to death.



## Rabbi Michael Dov Weissmandl

1903–1957

א בראשית ברא אלהים, את השמים, ואת הארץ.

ב והארץ, היתה תהו ובהו, וחשך, על-פני תהום; ורוח אלהים, מרחפת על-פני המים.

ג ויאמר אלהים, יהי אור; ויהי-אור.

ד ורא אלהים את-האור, כי-טוב; ויבדל אלהים, בין האור ובין החשך.

ה ויקרא אלהים לאור יום, ולחשך קרא לילה; ויהי-ערב ויהי-בקר, יום אחד.

Genesis

א ואלה, שמות בני ישראל, הבאים, מצרימה: את יעקב, איש וביתו באו.

ב ראובן שמעון, לוי והודה.

ג יששכר זבולן, ובנימין.

ד דן ונפתלי, גד ואשר.

ה ויהי, כל-נפש יצאי ירד-יעקב--שבעים נפש; ויוסף, היה במצרים.

ו וימת יוסף וכל-אחיו, וכל הדור ההוא.

Exodus

In both books, starting at the first ת (T) and skipping 40 letters at a time spells תורה (TORAH), the name of the first five books.



## Eliyahu (Ilya) Rips

Hebrew University, Jerusalem

1948–

In the early 1980s, the Israeli school-teacher **Avraham Oren** discovered some impressive “**codes**” and took them to the Mathematics Department at Hebrew University...

...where he showed them to Ilya Rips.

Rips was soon convinced and began an intense study of the phenomenon together with his religious-studies partner **Doron Witztum** and a student **Yoav Rosenberg** who knew how to program computers.

## Two-dimensional code matrices

Witztum, Rips and Rosenberg (WRR) invented a method of displaying more than one “code” at once.

MYSTATUTESANDMYLAWSANDISAACDWELTI  
NGERARANDTHEMENOFTHEPLACEASKEDHIM  
OFHISWIFEANDHESAIDSHHEISMYSISTERFO  
RHEFEAREDTOOSAYSHEISMYWIFELESTSAID  
HETHEMENOFTHEPLACESHOULDKILLMEFOR  
REBEKAHBECAUSESHEWASFAIRTOLOOKUPO  
NANDITCAMETOPASSWHENHEHADBEENTHER  
EALONGTIMETHATATIMELECHKINGOFTHEP  
HILISTINESLOOKEDOUTATAWINDOWANDSA  
WANDBEHOLDISAACWASSPORTINGWITHREB  
EKAHHISWIFEANDABIMELECHCALLEDISAA  
CANDSAIDBEHOLDOFASURETYSHEISTHYWI  
FEANDHOWSAIDSTTHOUSEHEISMYSISTERAN  
DISAACSAIDUNTOHIMBECAUSEISAIDLEST  
IDIEFORHERANDABIMELECHSAIDWHATIST

## Two-dimensional code matrices

Witztum, Rips and Rosenberg (**WRR**) invented a method of displaying more than one “code” at once.

S A N D M Y L A W S A N  
T H E M **E** N O F T H E P  
A N D H E S A I D S H E  
T O S A Y S H E I S M Y  
F T H E P **L** A C E S H O  
C A U S E S H E W A S F  
E T O P A S S W H E N H  
E T H A T A **B** I M E L E  
S L O O K E D O U T A T  
D I S A A C W A S S P O  
F **E** A N D A **B** I M E L E  
E H O L **D** O F A S U R E  
A I D S T T H **O** U S H E  
D U N T O H I M **B** E **C** A  
R A N D A B I M E L E C

## Two-dimensional code matrices

Witztum, Rips and Rosenberg (**WRR**) invented a method of displaying more than one “code” at once.

E	E	F	T	O	N	S	D	E	N	H	E	B	R	E	E	U	W	S	E	N
D	E	N	<b>B</b>	I	J	D	E	A	N	D	E	R	E	K	O	E	I	E	N	A
E	N	A	A	N	<b>Z</b>	<b>I</b>	J	N	H	A	L	S	E	N	H	I	J	D	E	E
Z	O	C	H	T	E	N	Z	<b>I</b>	<b>J</b>	W	I	S	T	E	N	N	I	E	T	D
G	D	H	A	D	E	N	D	E	M	A	N	<b>B</b>	R	A	<b>C</b>	H	T	D	E	Z
T	V	A	A	R	D	I	G	E	N	G	<b>O</b>	D	H	E	<b>E</b>	F	T	D	E	O
I	J	N	B	R	O	<b>E</b>	<b>D</b>	E	R	S	M	E	T	H	E	M	A	<b>L</b>	S	D
O	V	<b>I</b>	<b>E</b>	L	H	I	J	H	E	M	A	A	N	Z	I	J	N	H	A	L
D	S	E	N	T	O	T	U	W	S	P	I	J	Z	E	E	N	V	A	N	D



## Two-dimensional code matrices

Witztum, Rips and Rosenberg (**WRR**) invented a method of displaying more than one “code” at once.

A	S	E	R	V	A	N	T	E	D	A	N	S	T	O	N	S
I	L	L	E	S	C	I	R	C	O	N	C	I	T	C	E	M
S	T	E	S	E	T	L	É	T	E	R	N	E	L	D	I	T
M	S	E	L	E	V	A	D	E	B	O	N	M	A	T	I	N
N	O	M	D	I	S	A	A	C	A	U	F	I	L	S	Q	U
T	V	O	I	C	I	L	E	F	E	U	E	T	L	E	B	O
A	C	P	É	L	A	V	I	S	À	V	I	S	D	E	M	A
L	E	S	C	H	A	M	E	A	U	X	L	H	O	M	M	E

## Two-dimensional code matrices

WRR found that when they tried pairs of related words, they could often be displayed together in very a small window using the Hebrew text of Genesis.

צ	ו	מ	פ	ט	ק	ר	ו	י	ב	א	י	ב	ו	ו	י	ח	א	ו	פ	ס	ו	י
ע	ל	ע	י	ו	נ	ש	ג	צ	ר	א	ב	ו	ב	ז	ע	מ	ק	ר	ב	ו	מ	נ
כ	ה	נ	ח	מ	ה	י	ה	י	מ	י	ש	פ	ר	מ	ג	ב	כ	ר	מ	ג	ו	מ
ע	ב	ר	ש	א	ד	ס	א	ה	נ	ג	ר	ע	ד	א	ו	א	ב	י	ו	ד	א	מ
ו	ל	ו	ד	ג	ד	פ	ס	מ	מ	ש	ו	ד	פ	ס	י	ו	נ	ד	ר	י	ה	ב
מ	י	ע	ת	ב	ש	ל	א	ב	י	ו	א	ב	י	ע	ש	ל	א	ד	ו	מ	ד	כ

“hammer” close to “anvil”

They published a book full of examples, some quite impressive.

WRR came to believe that in the Hebrew Bible, such coincidences occur more often than chance alone can explain.

## Measuring distance

Rips designed a function  $c(w_1, w_2)$  for two given words  $w_1, w_2$ .

The function measures the distance of  $w_1$  to  $w_2$  in a complicated way.

Roughly: If  $w_1$  and  $w_2$  can be displayed together in a very small window,  $c(w_1, w_2)$  will be close to 0, but if they can't  $c(w_1, w_2)$  will be close to 1.

Rips' design was intended to give  $c(w_1, w_2)$  a uniform distribution between 0 and 1 if codes occur only by chance.

There is now an opportunity for an experiment:

Evaluate  $c(w_1, w_2)$  for many pairs of related words and see if the distances are uniformly distributed between 0 and 1.

## The great rabbis experiment

As religious Jews, WRR thought that great rabbis of the Middle Ages were a likely topic to be encoded in Genesis.

Moreover, since Genesis was written centuries before the rabbis lived, information about the rabbis could not have been deliberately placed in the text by a human.

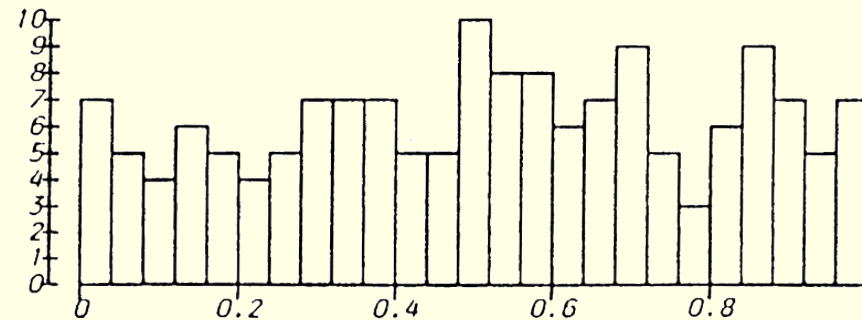
So WRR selected 34 great rabbis according to the length of their entry in a standard encyclopedia.

As word pairs, they used the rabbis' names together with their dates of birth or death.

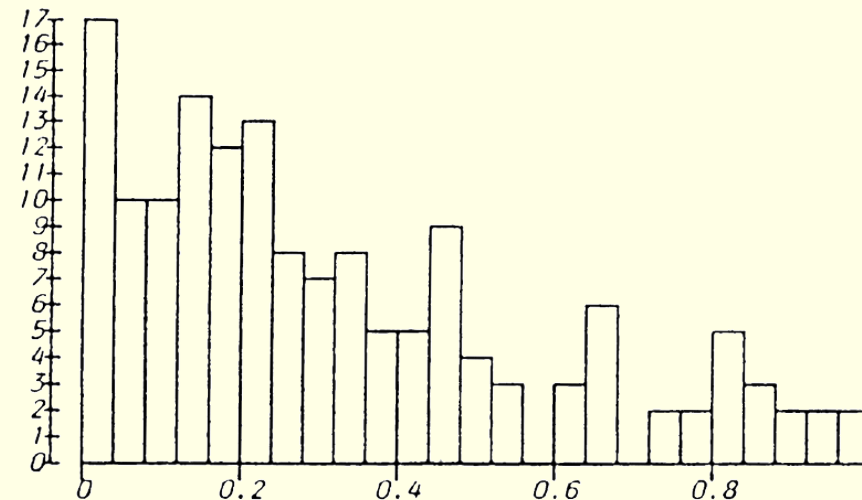
(י"ד ניסן, הרמב"ם) = (The Rambam (Maimonides), 14th of Nissan)

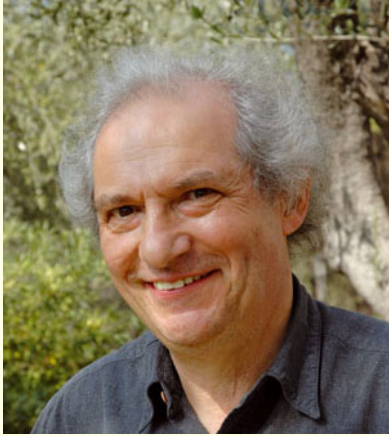
Since rabbis can have more than one "name", and dates can be written in more than one way, this gave 152 "distances".

Let  $\mathbf{R}$  be Genesis with the letters shuffled. To test the hypothesis that  $c(w_1, w_2)$  is uniformly distributed, all the distances were computed using  $\mathbf{R}$  and the results passed standard uniformity tests:



Then the distances were computed in Genesis:





Persi Diaconis  
Harvard University  
1945–

WRR now got in touch with Persi Diaconis.

Diaconis suspected that the distance measure  $c(w_1, w_2)$  had been constructed to do well with this data in Genesis.

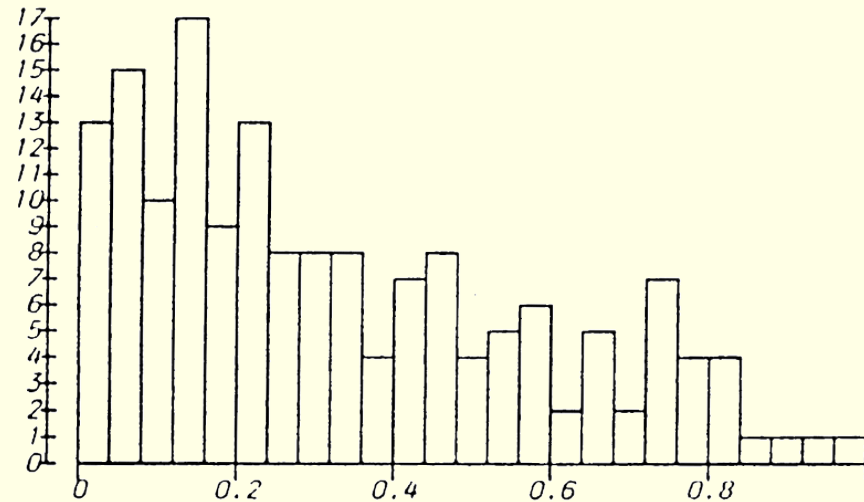
And he knew how to prove it: Use the same method on new data.

So WRR went back to the same encyclopedia and selected the next tier of great rabbis according to the length of their entries.

## The same method on the second list of rabbis

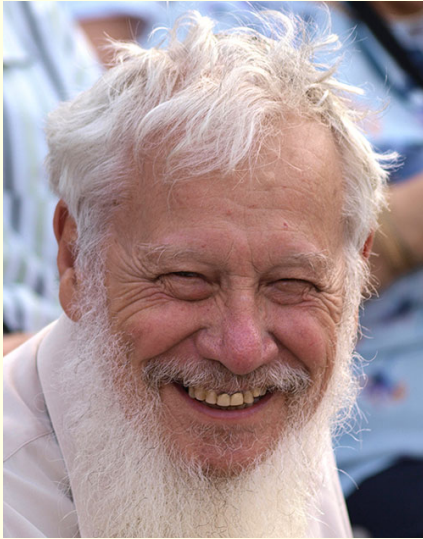
The distances in  $\mathbf{R}$  were again uniformly distributed.

In Genesis:



The possibility that natural texts behaved much differently from random texts was also ruled out by trying the Hebrew translation of War and Peace.

Now WRR submitted a paper to the Proceedings of the National Academy of Sciences of the United States (PNAS).



Robert Aumann

Hebrew University

1930–

Nobel Prize in Economics, 2005

Aumann handled WRR's paper for PNAS. He was enthusiastic about it, but he needed Diaconis' support and Diaconis was stubborn.

Finally, Aumann and Diaconis agreed to publication if WRR could pass a stringent test that Diaconis would design.

So Diaconis invented the **permutation test** and required that WRR obtain a 1/1000 or better result.



## The permutation test

Diaconis' idea was genius, as it didn't rely either on the uniformity or independence of the  $c(w_1, w_2)$  values.

1. Combine all the  $c(w_1, w_2)$  values into an overall distance value  $C_1$ .
2. Shuffle all the dates around randomly (so that most dates are paired with the wrong rabbis) and get a new overall distance value  $C_2$ .
3. Do this repeatedly, a million times in total:  $C_3, C_4, \dots, C_{1000000}$ .
4. Check where  $C_1$  lies compared to all the other values.

Diaconis was **certain** that WRR could not get 1/1000 on this test.

**They got 1/62,000!**

## Publication

Diaconis refused to support publication in PNAS even after the permutation test was passed. Aumann is still angry today.

In 1994, a polished version ghost-written by Aumann was sent with the agreement of Diaconis to the review journal *Statistical Science*.

Neither the editor nor the four referees believed it could be true, but they couldn't find anything wrong. So it was published with an editor's note:

Our referees were baffled...The paper is thus offered...as a challenging puzzle.

WRR also ran many other (unpublished) experiments, and **Harold Gans**, a former mathematician with the National Security Agency ran another.

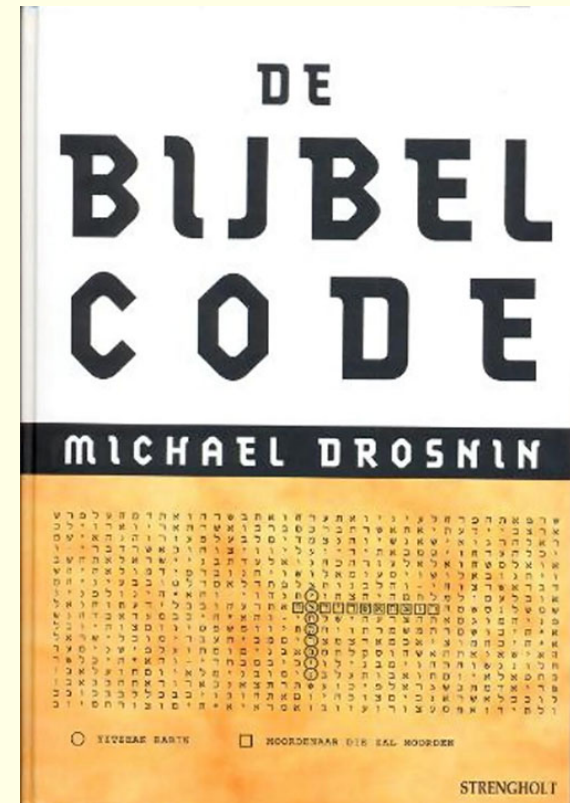
All these experiments achieved very strong positive results.



Michael Drosnin  
American Journalist  
1946–

In 1994, Rips and Drosnin found  
“assassin who will assassinate”  
written across the only appearance  
of the name of the Israeli prime  
minister **Yitzhak Rabin**  
encoded in Genesis.

Drosnin sent a letter to warn Rabin,  
but **Rabin was assassinated in 1995.**



## “Peer-reviewed scientific journal”

Publication of WRR’s article created a huge “Bible Codes” industry.

Suddenly countless people who had never heard of “peer-review” were earnestly telling each other that it was ultimate standard of proof.

- Countless books, videos, and at least two movies.
- Seminars aimed at convincing secular people to become religious.
- Bible code proofs that **Jesus is the messiah**.
- Predictions of earthquakes, nuclear war, the end of the world, etc.

## Here come the Codes Busters!



and many experts  
in Hebrew, Aramaic,  
rabbinical history  
and the history of  
the Bible text

## Approaches to a solution

- Is the method statistically sound?

There are problems, but not enough to explain the result.

- Is the data objective?

Good question!

WRR wrote: The list of names for each rabbi was provided by Professor Shlomo Havlin on the basis of a computer search of the “Responsa” database.

Rabbis of the Middle Ages can be called by many “names”. Not only their personal given names, but also various acronyms. Sometimes they are called by the names of famous books they have written. Moreover, there are variations in spelling.

## Investigation of the data

- Is it possible to choose names to create a positive result?

Yes, we made our own list of names that performs very well using War and Peace in place of Genesis, though WRR hotly contest that our list of names is comparable to theirs.

- What are examples of flexibility?

(1) There are different spelling rules for German and Yiddish. What about a German name copied into Yiddish? (2) Can we use a family name that was not adopted until the next generation?

(3) How rare should a name be before it is too rare?

- Is there documentary evidence to suspect the story of how the data was collected?

Yes, there is a recording in Russian that describes an earlier experiment with overlapping data. Also, the data frequently violates the rules that it is supposed to conform to.

## Investigation of the data (continued)

- What about replication?

We paid two experts in rabbinical history to compile a new list of names according to their professional judgement. The result was completely negative. A committee chaired by Aumann repeated the Gans experiment with a negative result.

- Can the computational method provide a clue?

We found that almost any change to the definition of  $c(w_1, w_2)$  makes WRR's result worse. We believe this is a side-effect of tuning the data to  $c(w_1, w_2)$ .

- Why did Diaconis not solve the problem?

(1) He didn't know anything about rabbis' names.

(2) He didn't realise that WRR actually ran a test of their own invention and not the test he specified.



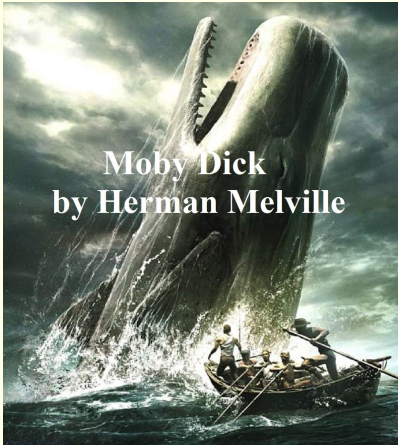
## Investigation of the data (continued)

McKay, Bar-Natan, Bar-Hillel and Kalai published a debunking article in *Statistical Science*, despite legal threats to the journal.

The editor declared that the puzzle had been solved.

- What does Doron Witztum say about our findings?  
“...falsehoods and deceptions...worthless parody...incorrect and misleading...unscientific...deceit...false data...lies and ignorance ...a tangle of lies...”
- What does Michael Drosnin say about our findings?

**When my critics find a message about the assassination of a prime minister encrypted in Moby Dick I'll believe them!**



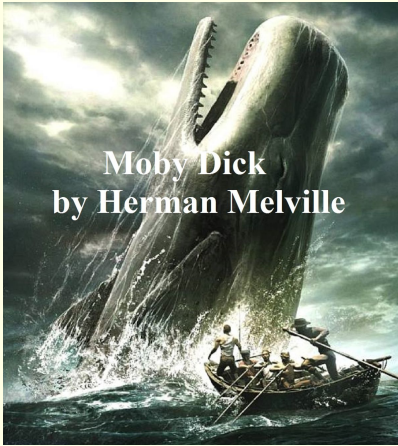
# Moby Dick

Classic American novel

1851–

O R W I T H A W H I T E P  
N A H A B Y O U N G M A N  
K L E S H I S G R A N D  
D S Y E T I N G E N E R A  
T H E B L O O D Y D E E D  
E R M W H A L E S H E A D  
T T O I M P O S S I B L E

Indian Prime Minister Indira  
Gandhi was killed on Oct 31, 1984



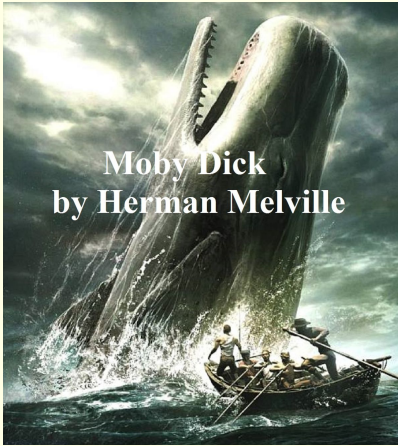
# Moby Dick

Classic American novel

1851–

I S W H O C O M I N G T O L A Y H I M D O W N C A  
O U T S E T Q U E E Q U E G I N S I S T E D T H A  
I S F I E R Y L A N C E I N M I G H T I E R S T R  
N D W H E N H E W A S G O I N G T O C O M E O N B  
I N G A N D N O T T O B E K I L L E D B Y T H E M  
Y E T H E R E A R E W H A L E S H E R E A B O U T  
E S O P O T A M I A N F A M I L Y T H E S E W H A  
I L L S T U B B C A U T I O U S L Y W H I S P E R  
N T A N D C O U R A G E O U S E N O U G H I N O F  
T H E I N T E N S I F Y I N G A G E N T I N T H I  
P R E P A R E F O R D E A T H A N D I N D E E D T

*Martin Luther King was fatally shot in Tennessee on April 4, 1968.*

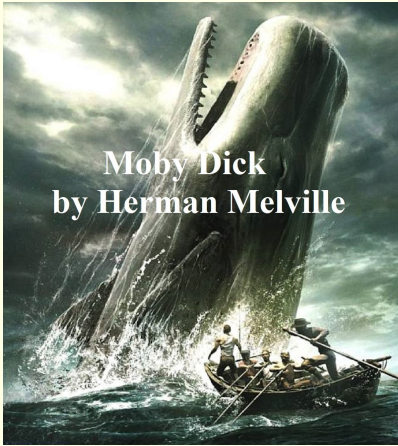


# Moby Dick

Classic American novel

1851–

H O L L O W L **Y** L A U G H E D A N  
 I G H T N E S S S C O U L D B E F O  
 E W I T H P I T C H B A T T E N T  
 G O U T T H E C R A T E R S **S** F O R  
 B E A R I N G **D** I R E C T L Y D O  
 S T S A F E A B O A R D S H E C R  
 N C T I V E L Y A D O P T I N G T  
 R B O A R D A N D L A **R** B O A R D  
 A L L H E R K **E** E L A N D H E R T  
 E O L D M A N S D E S P O T E Y E  
 F R V A I S S O M E P A S S I N G  
**T** I N T O **O** T H Y **H** A N D **S** S T A R  
 E A N I N G I **N** A L M O S T E V E  
 R E T H E Y D I E D Y O U S A I L  
 S W E R E Y E O F O L D A H A B S  
 Y W H O L E O **C** E A N S A W A Y F  
 R O A D U P O **N** T H E D E E P B U  
 W I L L I N D R A W I N G N I G H  
 F O R E C R I E D A H A B H A I L  
 F R I S I **N** G E R O M T H E P A I  
 L E T H E B R **E** E Z E N O W F R E  
 D E V I L I S H W A Y A N D F R O  
 R E A N T I O **C** H U S S E L E P H  
 G S T **I** L L I F T H E G O D S D E  
 T H E P L A N K **K** S A S H E W A S T  
**Y H E S H A L L B E K I L L E D T**  
 M S O T H A T T O T H I S H U N T



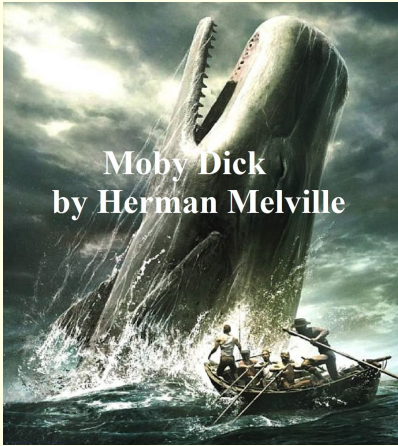
# Moby Dick

Classic American novel

1851–

BY THE LINE WHICH HAD TAKEN  
HAT OUT OF THE FIRMAMENT OF  
HE BLANKET OF BLUBBER AND  
A DEAD COMRADE FROM THE FIE  
ERABLE OF ITS UNCTUOUS PRO  
RWAS SOMEHOW IN SOME ENCHA  
THROUGH THE FIRE BUT NOW IT  
BUT THIS IS MANKILLING YET  
INTURN BUT MIRRORS BACK HI

Congolese politician Patrice Lumumba  
was executed on January 17, 1961.



# Moby Dick

Classic American novel

1851–

PROVED THAT THIS IS FOR THE PURPOSE  
OR SEES IN A RING AND SO CLOSELY SHO  
ES A LOFTY PECULIAR AND NOT VERY P  
G HIM TO HAVE BEEN KILLED THE FIRS  
GN FOR THERE IT IS RIGHT OPPOSITE  
IV ISITED THIS SWINDROUS WHALE AN  
RDINARY DUTIES REPAIRING STOVE  
L WATERS AND GLIDING TOWARDS THE  
HE INTRICATE HAMPERT HERE WHILE  
THESE GREY HAIRS OF MINE IT IS NOT W  
N PROVIDED WITH A CONSTANT WATCH  
AWAY NOW THE DECK IS THINE SIR AND  
ED DRIVING AN NAIL INTO HIS HEART B

ER WAS REAL ON THE MORNING OF SEPTEMBER  
 TEMBER I WAS AWAKENED BY THE EVENT THAT  
 NT THAT PROVED IT REAL. SUDDENLY THERE W  
 THERE WAS NO ROOM FOR DOUBT IT WASNT JUS  
 SNT JUST ISRAEL IT WAS THE UNITED STATE  
 D STATES IT WAS NEW YORK IT WAS THE CITY W  
 ECITY WHERE I LIVED IT WAS JUST DOWN THE  
 OWN THE BLOCK AND I SAW IT HAPPEN WITH MY  
 WITH MY OWN EYES THE ATTACK ON NEW YORK  
 WYORK THE ATTACK ON THE WORLD TRADE CEN  
 A DE CENTER THIS SUNBELIEVABLE HORROR W  
 ORROR WAS NOT ONLY ENCODED IN THE BIBLE  
 E BIBLE I HAD ACTUALLY SEEN IT IN ADVANC  
 ADVANCE I HAD FOUND IT IN RIGHT AFTER TH  
 FTER THE FAILED TERRORIST ATTACK ON TH  
 CK ON THE SAME TWO TOWERS TWO TOWERS SWA  
 WERS WAS ENCODED IN THE BIBLE WITH THE W  
 TH THE WARNING THE SLAUGHTER AND THAT W  
 D THAT WAS CROSSED BY TERROR TERROR APP  
 ROR APPEARED A SECOND TIME AND IT WILL F  
 T WILL FALL COLLAPSE WAS ALSO ENCODED T  
 CODED TWICE BUT I ASSUMED IT WAS ABOUT  
 ABOUT THE PAST NOT THE FUTURE IT NEVER O  
 NEVER OCCURRED TO ME THAT LIGHTNING WO  
 NING WOULD STRIKE TWICE THAT THERE WOU  
 ERE WOULD BE ANOTHER TERRORIST ATTACK  
 ATTACK ON THE SAME TWO MONOLITHS FIGHT  
 SEIGHTY YEARS LATER THAT IT WOULD SUCCE

On October 12, 2002,  
 a car bomb exploded  
 outside the **Sari Night  
 Club**, in **Kuta, Bali**,  
 Indonesia, killing 202  
 people.

Text: Michael Drosnin,  
*The Bible Code II*



AKTEEENGOUDENKRANSDAARAANRONDOMHIJMAAK  
 VERLIJSTHIJGOOTOOKVIERGOUDENRINGENDAAR  
 DELIJSTWARENDEERINGENTOTPLAATSENVORDEH  
 EMETGOUDOMDETAFFELTEDRAGENENHIJMAAKTEHE  
 NENHAARPLATELENMETWELKEZIJBEDEKTOUDEW  
 JDEZENKANDELAARZIJNSCHACHTENZIJNRIETEN  
 DENDRIE RIETENDESKANDELAARSUITZIJNENEZI  
 ESGELIJKAMANDELNOTEENENKNOOPENEENBLOEM  
 DIEZESRIETENDIEUITDENKANDELAARGINGENMA  
 METZIJNBLOEMENENDAARWASEENKNOOPONDERTW  
 ENOGEENKNOOPONDERTWEERIETENUITDENZELVE  
 WARENUITHEMHETWASALTEMAALEENENIGDICTW  
 NLOUTERGOUDHIJMAAKTEDENZELVENUITEENTAL  
 NLENGTEENEENELZIJNBREEDTVEIERKANTMAART  
 IJNDAKENZIJNWANDENRONDOMALSOKZIJNHOOR  
 ERZIJNKRANSAANZIJNTWEEHOEKENAANZIJNBEI  
 MENVANSITTIMHOUTENHIJOVERTROKZEMETGOUD  
 NAARAPOTHEKERSWERKHIJMAAKTEOOKHETBRAND  
 RKANTENDRIEELLENZIJNHOOGTEENHIJMAAKTED  
 TKOPERHIJMAAKTEOOKALHETGEREEDSCHAPDESA  
 LZIJNVATENMAAKTEHIJVANKOPEROOKMAAKTEHI  
 DENTOEENHIJGOOTVIERRINGENAANDEVIJEREIND  
 IMHOUTENHIJOVERTROKZEMETKOPERENHIJDEED  
 HETZELVEHOLVANPLANKENHIJMAAKTEOOKHETKO  
 WAMENVOORDEDEURVANDETENTDERSAMENKOMSTH  
 NVANFIJNGETWEERNDLINNENVANHONDERDELEN  
 HUNBANDENWARENVANZILVERENAANDENNOORDER  
 ENDERPILARENENDERZELVERBANDENWARENVANZ  
 LVERVOETENTIENDEHAKENDERPILARENENHUNBA  
 SELENAANDEZEZIJDEWARENVIJFTIENELLENDER  
 ERENVANDAARWARENBEHANGSELENVANVIJFTIEN  
 OMVANFIJNGETWEERNDLINNENDEVOETENNUDERP



# Original text of the Bible?



There is almost no chance that the present text is **exactly** the same as the original text.



Robert Haralick  
City University of New York  
1943–

“Scientific” investigation of the Bible Codes continues.

Apart from Rips, Haralick is the most academically qualified. He is a firm believer in the codes and makes many “experiments” with positive results.

But the Codes Busters have gone back to their normal research.

# To be a Francqui Professor is a great honour

So I will let the codes join me in saying:

