Crime fiction meets math

1 mar . 60 13

TALES OF RATIOCINATION

Tefkros Michaelides



FROM LEIBNIZ TO DENIS GUEDJ

Rear Alt 2 200 Rear

via Edgar Allan Poe



Calculus ratiocinator



Q.C. 9

An algorithm (or a machine) which would be able to prove or disprove any statement formulated in a universal symbolic language

Dissertatio de arte combinatoria



Gottfried Wilhelm von Leibniz (1646 – 1716)

SEVEN LIBERAL ARTS



dialectic



anc

Upgrade dialectic from a trivial to a quadrivial (i.e. mathematical) science

Let the arguments debate in the dog's way



Machina Ratiocinatrix

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315



C. . ?

TWO HUNDRED YEARS LATER...

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The Derts

Then?

to at

Edgar Allan Poe(1809 – 1849): Tales of ratiocination



2000



Carl.

C.Auguste Dupin

The Murders In The Rue Morgue (1841)

The Mystery of Marie Rogêt (1842-1843)

The Purloined Letter (1844)







Curro S

Edgar Allan Poe The Mystery of Marie Rogêt

We make chance a matter of absolute calculation. We subject the unlooked for and unimagined to the mathematical formulae of the schools.

Chevalier Auguste Dupin

Arthur Conan Doyle

3 24 VR



allen?



Engros

ALL 1904



Detection is, or ought to be, an exact science, and should be treated in the same cold and unemotional manner. You have attempted to tinge it with romanticism, which produces much the same effect as if you worked a lovestory or an elopement into the fifth proposition of Euclid. Sherlock Holmes, The Sign Of Four

ę *But*... No matter what papa and grand-papa say...

Before 1990

Maths and crime fiction...

are only related through a typical, social expression of mutual respect and appreciation

And sometimes with skepticism

I dispute, in particular, the reason educed by mathematical study. The mathematics are the science of form and quantity; mathematical reasoning is merely logic applied to observation upon form and quantity.



Or even enmity...

The great error lies in supposing that even the truths of what is called pure algebra, are abstract or general truths. And this error is so egregious that I am confounded at the universality with which it has been received. <u>Mathematical axioms are not axioms of</u> <u>general trut</u>h.



E. A. Poe: The Purloined Letter

What is true of relation—of form and quantity—is often grossly false in regard to morals, for example [...]

But the mathematician argues, from his finite truths, through habit, as if they were of an absolutely general applicability as the world indeed imagines them to be.

With one exception

620

S. S. Van Dine

Then?

Alias

Willard Huntington Wright

(1888 - 1939)



Curro S

Philo Vance

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To understand the nature of these crimes we should analyze the everyday routine of a mathematician

- Fourth dimension
- Non Euclidean geometry
- Multiplicity of infinities
- ✤ General realtivity



What can math offer to crime fiction?

all and

men?

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Arthur Conan Doyle

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His conclusions were as infallible as so many propositions of Euclid. . Watson in *A study in scarlet*

316





Sherlock Holmes The sign of four

I know a dog that would follow that scent to the world's end. If a pack can track a trailed herring across a shire, how far can a specially-trained hound follow so pungent a smell as this? <u>It</u> <u>sounds like a sum in the rule of three</u>







m.C. 3



... he invented Moriarity

man and

men and

He is a man of good birth and excellent education, <u>endowed by</u> <u>nature with a phenomenal mathematical faculty</u>. At the age of twenty-one he wrote a treatise upon the Binomial Theorem, which has had a European vogue. On the strength of it he won the Mathematical Chair at one of our smaller universities, and had, to all appearances, a most brilliant career before him.

The Final Problem





The underlying concept in this strange relation is...

F

?

men?



Proofs in mathematics and in law practice

620

M&TH

Any time revocable

Truth is everybody's win

Outcome is indifferent

Intemporal

Statute of limitations

LAW

Conflicting interests

Outcome is importent

Culture related

During the nineties a stork brought us...

C. ?



Two relatively new genres

620



mc. ?



(...). M

Math fiction

Crime fiction





all and

me.?





Money



Then?

MS.

Mark Cohen

Cult S

Pepper Keane Mysteries

Fractal Murders

Paranoid conception of universal harmony

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τεγκρος Μιχαηλιδης

E . 3





Carler T.

PYTHAGOREAN CRIMES



the thread of the plot

Guillermo Martinez

620

NBE SEVER



men?

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· Culto



RANDON THE NOVEL IN CLUBERNO MARTINEZ IS an INDEX CLUB WITH A CAMERA AND A CONTRACT AND A CONTRACT AND IS IN THE Y WITH A CONTRACT AND A AND A CONTRACT AND A AND A CONTRACT AND A AND A CONTRACT AN

mene fraggisteria contractory

On your nameday I'll be there Eteros Ego

86 × V84

Engr 5

They?



Amicable numbers

Divisors of 220
1, 2, 4, 5, 10, 11, 20,
22, 44, 55, 110
Sum: 284

Then?

Divisors of 284

Curro Marto

* 1, 2, 4, 71, 142

Sum 220







3.0



C. . ?

MTS

KEITH DEVLIN - GARY LORDEN

Curro

E

m.C. 3



SOLVING CRIME WITH MATHEMATICS

NUMBERS BEHIND

KEITH DEVLIN, NPR's "Math Guy" and

GARY LORDEN, the Math Consultant on NUMB3RS", the hit CBS television series

maths in Numbers

62

Pime numbers

m.C. 3

- ✤ Game theory
- Fuzzy Logic
- ✤ Golden ratio
- Prisoner's dilemma
- ✤ Enumeration
- Markov Chains
- Pythagoras theorem



Curro S



A mathematician uses his art to protect the culprit

(m) m

6.30



