

**TITLE:** The Appearance of Statistical Ideas in Prose, Poetry, and Drama:  
A Dictionary of Quotations, Aphorisms, Apothegms, Excerpts and Epigrams

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## **Introduction**

Statistical Ideas in Prose, Poetry, and Drama. A Dictionary of Quotations for Readers with an Interest in Statistical Evidence: Aphorisms, Apothegms, Excerpts and Epigrams

Robert Boruch

## **Motives**

It is not always easy to understand ideas that are statistical or probabilistic in character. It is even less easy to explain those ideas well.

The quotations in this collection were assembled partly to understand how to understand, at least insofar as words (rather than statistical models) permit, and how writers think and explain.

One of the motives here is also to assure that readers know from where the quotations come. Anybody nowadays can do a Google search and get what is alleged to a quote by someone famous. But the Googler might never know from where the thing came. Here, the intent is to assure that the right sources, properly cited, and the page numbers etc. are identified.

The final motive is amusement. If these quotations amuse and entice others' interest, that would be lovely.

## **Production Rules**

Since 1985, some simple and elastic rules were used to put this dictionary together.

The collection focuses on quotations from prose, poetry, and drama that illuminate the way writers, some writers at least, think about quantitative information and evidence. Humor and insight, when combined get more points.

The broad categories for classifying the quotations are "technical." Subcategories are usually non-technical. The literate peruser should not find them demanding.

Original sources are important. Consequently, the author's name, the work and the year of publication, and page numbers are included where possible.

Others' books of quotations are important of course. A standard for recognition that is employed here is that original sources are identified. Bergan Evans (1978) and H.L. Mencken (1942) and Sills and Merton (1991) were especially conscientious in this respect.

## Pedigree

Collectors of quotations are in ample supply. But collectors of quotations about evidence, especially statistical and probabilistic evidence, in scientific contexts are not. One of the exceptions was George Udny Yule. The Pearson and Kendall (1970) volume of Yule's edited work tells us that (p. 422):

I began to keep a commonplace book many years ago, filled with quotations of rude things people have said about statistics. I gave up as they became less and less imaginative...

Dictionary definitions are included here because a dictionary can be pithy. Some are short, following T. Weller's (1982) definition of "minims":

Minim, n: a statement expressed in proverbial or sentential form but having no general or practical use whatsoever. Compare maxim.

Lest the reader take all this too seriously, listen to the advice of other collectors of these things--what they have said about their own efforts.

Ambrose Bierce, who was no slouch on this account, gives the following:

Aphorism: Predigested wisdom

The flabby wine-skin of his brain  
Yields to some pathologic strain  
And voids from its unstored abyss  
The dribble of an aphorism.

(Bierce, 1958, p. 12)

and

Epigram: A short, sharp saying in prose or verse, frequently characterized by acidity or acerbity and sometimes by wisdom.

...In each human heart are a tiger, a pig, an ass,  
and a nightingale. Diversity of character is due  
to their unequal activity.

(Bierce, 1958, p. 37)

and

Adage: Boned wisdom for weak teeth.

(Bierce, 1958, p.)

Voltaire called the purveyors of this sort of thing “Motto merchants.” He was himself no mean inventor of aphorisms, epigrams, and adages. Of course, little announcements have been the cause of announcements, e.g. MacCaulay’s (Machiavelli) “Nothing is so useless as a general maxim.”

E. B. White pokes gentle fun at quotations in “The Retort Transcendental.” “Having bought, read, and reread” *Walden*, White slides into poetic response to the waiter who asks him a direct question. Sample:

“Where y’ been all this time?” he (the waiter) asks.  
“If a man does not keep pace with his companions,” I retort,  
“Perhaps it is because he hears a different drummer.”

Dorothy Parker (1944) put her hand in, in praise of Oscar Wilde:

If, with the literate, I am  
Impelled to try an epigram  
I never seek to take the credit;  
We all assume that Oscar said it.

There is no real money to be made from collections of this sort, at least not yet. H.L. Mencken, editor of one of the best of dictionary of quotations, took a shot in 1919, when Mencken and his colleague Nathan plotted to support themselves in various ways.

“One was a plan to sweat some money out of the movies...and we proposed that one of the companies....do a series based on the epigrams printed in the *Smart Set*....we were to supply ...twelve Smart Set epigrams a week, and he (the company’s press agent) was to devise some means of putting them on the screen. So far as I know, only one movie parlor in the whole country every actually exhibited these illustrated epigrams, and it abandoned them after a few weeks.”

“The \$6,000 that I earned for the Smart Set by the epigram movie scheme tided the magazine over a bad place, but it did not earn anything directly for Nathan or me, so we toyed from time to time with other plans that would bring money into our privy purses.” Mencken (Yardley) 1993 p. 304

An Army Lieutenant during World War II who turned English Professor after 1945, Paul Fussell, is not so nice. In *Wartime*, he swats H.L. Mencken:

“One of the interesting events of the war was Mencken’s turn from lively satire and attack to benign literary effusions as sentimental memoirs and treatises on the American language and a dictionary of quotations.”(page 170)

Fussell pins the rap on the war.



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## **DICTIONARY**

## ACCIDENTS

### Regularity

You know how Quetelet reduced the most apparently accidental carelessness to ever-recurring facts, so that as long as the same conditions exist, the same “accidents” will reoccur with absolutely unfailing regularity.

Florence Nightingale, Letter to Francis Galton. (1891). In Nightingale, F., & McDonald, L. (2003). *Florence Nightingale on society and politics, philosophy, science, education and literature*. Waterloo, Ont: Wilfrid Laurier University Press, p. 113.

### Chance

Lately he'd come to be increasingly cynical, increasingly impressed by accident: chance virtue, chance wickedness, at best the magpie gatherings of emotivism.

John Gardner. (1982/2008). *Mickelsson's Ghosts: A Novel*. New Directions, p. 7.

## ACCURACY

### Literature

This is the way he (Theodore Dreiser). chooses to write...you must always admit that he keeps his story unflaggingly interesting from start to finish, and that he thinks out his characters to six places of decimals...

Henry Louis Mencken, Jonathan Yardley. (1993). *My life as author and editor* (1st ed.). New York: Knopf, p.139.

### Dying

We are dying of accuracy!  
(Nous mourons de la correction)

Couteli, French humorist. In Collison, R. L., & Collison, M. (1980). *Dictionary of foreign quotations*. New York, N.Y: Facts on File, p. 1.

### Barbaric

Barbaric accuracy--whimpering humility!  
(die barbarische Genauigkeit; winselnde Demut)

Georg Christoph Lichtenberg. In Collison, R. L., & Collison, M. (1980). *Dictionary of foreign quotations*. New York, N.Y: Facts on File, p. 1.

### Definition

History, n. An account mostly false, of events mostly unimportant, which are brought about by rulers mostly knaves, and soldiers mostly fools.

Of Roman history, great Niebuhr's shown  
'Tis nine—tenths lying. Faith, I wish 'twere known,  
Ere we accept great Niebuhr as a guide,  
Wherein he blundered and how much he lied.  
Salder Bupp

Ambrose Bierce. (1911). *Devil's Dictionary, Volume 7 of The Collected Works of Ambrose Bierce*. Neale, p. 81.<sup>1</sup>

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<sup>1</sup> GoogleBook image attached.

## Digital Device

He had some kind of handled electronic device with which he was taking mysterious readings of sky and landscape.

...Measures eighty values—temperature, UV index, dew point, solar radiation, barometric pressure, and chill, rainfall, humidity, --ambient and active—even skin burn time adjusted for skin type.

...

Does it bake cookies? I asked.

Bill Bryson. (1998). *A Walk in the Woods*. New York: Broadway Books (Random House), pp. 213-214.

Comment: some of us have tried mightily to disabuse students of the idea that three or four or five decimal places are of no import, given the crudeness of measurement in many sciences. It is hard inasmuch as commercial software packages can put things to the 10<sup>th</sup> place.

## Growth

LDUDOVIC: Well, figures I have here say that your Department's staff has risen by ten per cent .

HACKER: Certainly not.

LUDOVIC: Well, what figure do you have?

HACKER: I believe the latest figure was more like 9.97%

Jonathan Lynn and Anthony Jay. (1896). *The Complete Yes Minister*. BBC Publications, p. 375.

## ANALYSIS

### Torture

The core experience of my graduate work were the hours I spent at the Bureau of Applied Social Research as a research analyst torturing data, hoping that I could extract a confession.

Peter H. Rossi. (2003). *A 20<sup>th</sup> Century Journey: Remembered Fragments of My Life*. Amherst, Massachusetts: Privately Published, p. 144.

### Fix

You cannot fix by analysis what you have been bungled in design.

Light, R. J., Singer, J. D., & Willett, J. B. (1990). *By. Design: Planning Research in Higher Education*. Cambridge, MA: Harvard University Press, p. vii.

### Shower of Facts

...upon this gifted age, in its dark hour,  
Rains from the sky a meteoric shower  
Of facts...they lie unquestioned, uncombined.  
Wisdom enough to leech us of our ill  
Is daily spun; but there exists no loom  
To weave it into fabric...

Edna St. Vincent Millay (1988), from "Upon This Age That Never Speaks Its Mind," *Collected Sonnets*. New York: Harper Perennial, p. 140.

### Faulty

Fritz S., ending a peroration on the poor quality of a large study, declared: "These data are piss poor!"

Peter R., Sotte voce, from the far end of the conference table responded: "That's urinalysis."

An exchange between two participants at a meeting convened by the U.S. Department of Labor Manpower Research Division, circa 1976.

## Wrong

It is always easy to find something wrong with the earlier analysis. Finding something that is both important and demonstrably wrong is another.

Anonymous, in Neal Kingston and Amy Clark (2014). *Test Fraud: Statistical Detection and Methodology*. Routledge, p. 15.

## Ode for Paul Lazarsfeld

Our Father who are at the Bureau, hollerithed be thy name!  
Thy tables run! The correlations done!  
Forgive us our low response rates and  
    P values more than .10.  
As we forgive those who Decatur again us.  
Lead us not into market research but  
Deliver us from the McCann Erickson!  
For thine is the fat CV, the Tenure,  
    And the Bureau forever,

Peter H. Rossi. (2003). *A 20<sup>th</sup> Century Journey: Remembered Fragments of My Life*. Amherst, Massachusetts: Privately Published, p. 141.

Comment: Rossi created his parody of the Lord's Prayer in honor of Paul Lazarsfeld, an eminent sociologist and director of Columbia's Bureau of Applied Social Research in the late 1940's. "Hollerithed" refers to early punch card machines. Decatur refers to analyses of a study that "stubbornly refused to yield findings of any substantive significance," and McCann referred to a New York Advertising Agency.

## Happiness

But how are we to determine which is the happier of two men equally healthy, prosperous, and placed in society? Their temperaments must decide it. The most moderate, the least worrisome, the most keenly perceptive is the most happy; but unfortunately the most keenly perceptive is often the least moderate. It is not our position, but our disposition, which renders us happy. Our disposition depends upon the functioning of our organs, over which we have no control.

Voltaire, 1694-1778. (1955). *Alphabet of Wit*. Peter Pauper Press, pp. 28-29.

## Recurring Facts

You know how Quetelet reduced the most apparently accidental carelessness to ever-recurring facts, so that as long as the same conditions exist, the same “accidents” will reoccur with absolutely unfailing regularity.

Florence Nightingale, Letter to Francis Galton. (1891). In Nightingale, F., & McDonald, L. (2003). *Florence Nightingale on society and politics, philosophy, science, education and literature*. Waterloo, Ont: Wilfrid Laurier University Press, p. 113.

## Dowayoland

I could spread out my note book and begin to analyze my data, to detect areas where my knowledge was sketchy, to scent other parts where inquiry might be rewarding, to pursue the demands of abstract thought without interruption or distraction...

Nigel Barley. (1992). *The Innocent Anthropologist*. Henry Holt & Co (P), p. 113.

## Bad Data

It is a mistake to think, as some do, that inaccurate or unreliable figures should not be given careful treatment; they may not merit it, but they certainly need it.

L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey Cumberlege Home University Library, Oxford University Press, p. 20.

## Processes

The Czech mathematician Karel Berka distills the measurement process down to three elements... the object of the measurement... the results of the measurement... and the certain mediating empirical operations.



(T)he result in Berka's terms is not directly or immediately useful to us.

In this case (of MRI), the "certain mediating empirical operations" required to make the measurement useful are complex indeed and involve a frightening amount of math, which is performed at breakneck speed by a computer.

John Henshaw. (2006). *Does Measurement Measure Up? : How Numbers Reveal and Conceal the Truth*. JHU Press, p. 3.

### Challenge

LUDOVIC: You see, it has been suggested, Mr. Hacker, that your department has been engaged less in reducing bureaucracy than in increasing it.

HACKER: Yes, but that's only because we've had to take on more staff to reduce staff.

LUDOVIC: I beg your pardon?

HACKER: It's commonsense. You to take on more doctors to cure more patients. You have to take on more firemen to extinguish more fires. You have too...

LUDOVIC: (Interruption). And how do you propose to extinguish local government bureaucracy?

HACKER: Well, it's a challenge and I'm looking forward to it.

Jonathan Lynn and Anthony Jay. (1986). *The Complete Yes Minister*. BBC Publications, p. 375.

### Thwarted

As long as Francis and I remained closed out from the experimental data, best course was to maintain an open mind. So I returned to my thoughts about sex.

James Watson. (1968). *The Double Helix*. New York: Scribner, p. 149.

Note: Watson and Crick had not been able to examine X-ray images that had been produced by a colleague doing related research.

Encouraged

See also, Explanation Use of Information

## APPLIED RESEARCH AND DEVELOPMENT

### Difficulty

It is difficult to repair a watch while falling from an airplane.

Thomas W. Weller. (1982). *Minims, Or, Man is the Only Animal that Wears Bow Ties*. Houghton Mifflin Company, p. ##.

### Doubts

In completing one discovery, we never fail to get an imperfect knowledge of others of which we could have no idea before, so that we cannot solve one doubt without creating several new ones.

Joseph Priestley. (1774). In Preface, *Experiments and Observations on Different Kinds of Air*. Volume 1, p. vii.

### Costs

Their military weapons attained colossal proportions, and their projectiles, exceeding prescribed limits, unfortunately occasionally cut in two some unoffending pedestrians...their fame and honor...was proportional to the masses of their guns, and indirect ratio of the square of the distance attained by their projectiles....Crutches, wooden legs, artificial arms, steel hooks, caoutchouc jaws, silver craniums, platinum noses, were to be found...it was calculated by the great statistician Pitcairn that throughout the gun club there were not quite one arm between four persons, and exactly two legs between six.

Jules Verne. (1911). *Adventures of Captain Hatteras: The desert of ice. A trip from the earth to the moon. A tour of the moon*. Volume 3 of Works of Jules Verne. V. Parke, p. 134.<sup>2</sup>

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<sup>2</sup> GoogleBook image attached.

## APPROXIMATION

### Smoothing Lines

The firmest line that can be drawn upon the smoothest paper is still jagged edges if seen through a microscope. This does not matter until important deductions are based on the supposition that there are no jagged edges.

Samuel Butler. (1912). The Note-books of Samuel Butler. A.C. Fifield, p. 298.<sup>3</sup>

All goes by approximation in this world; with any not insurpportable approximation we must be patient.

Thomas Carlyle (1845). *Past and Present*. Chapman and Hall, p. 15.

See also: Magnitude

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<sup>3</sup> GoogleBook image attached. "*Firmest*" as opposed to "*finest*." Misquoted in Kiely's *Forensic Evidence*.

## ARGUMENT

### Contraception

Reduction of some 20 per cent, for married white women—but an increase of 14 per cent among married negresses!... It interests me that you are skeptical as to the truth of the usual view that contraception depresses the birthrate. I can recall who agreed with me. Almost all the others jeered...”

George Udny Yule. (1971). *Statistical papers of George Udny Yule*. Hafner Pub. Co., p. 5.

### Definition

Controversy, *n.* A battle in which spittle or ink replaces the injurious cannonball and the inconsiderate bayonet.

Ambrose Bierce. (1911). *Devil's Dictionary, Volume 7 of The Collected Works of Ambrose Bierce*. Neale, p. 55.

### Savage

The most savage controversies are those about matters as to where there is no good evidence either way.

Bertrand Russell. (1950). *Unpopular Essays*. Routledge, p. 104.

### Facts

To attempt to argue any great question upon facts only is absurd, you cannot state any fact before a mixed audience which an opponent achiever as yourself cannot with ease twist towards another bearing, or at least test by a contrary fact, as it is called.

Samuel Taylor Coleridge. (1950). *Specimens of the Table Talk of the Late Samuel Taylor Coleridge: In Two Volumes, Volume 2*. John Murray, p. 18.<sup>4</sup>

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<sup>4</sup> GoogleBook image attached. *The talk was originally given Dec 27, 1831.*

Ignorance, etc.

An argument based on ignorance (*argumentum ad ignorantiam*); to ignorance is prejudice (*ad captandum*); to the judgment (*ad judicium*); to the man himself (*ad hominem*); to the purse (*ad crumenam*); to the sense of decency (*ad verecundiam*); with a stick (*ad baculum*).

Latin Phrases. In Mencken, H. L. (Ed.). (1948) *A New Dictionary of Quotations on Historical Principles from Ancient and Modern Sources*. New York: Alfred Knopf.

See also: ANALYSIS.

## ARITHMETIC

### Symbols versus Text

It is one of the strongest phenomena in the history of mathematics that the Arabs, in adopting Hindu algebra, did not retain their quaint syncopated symbolism. Quite the contrary; they dropped back to the rhetorical algebra of the Greeks and for a time went so far as to eliminate numeral symbols...preferring to write numbers out in full.

Tobias Dantzig. (2007). *Number: The Language of Science*, Penguin, p. 86.

### Anagram

Two plus eleven  
And one plus twelve.

Anonymous.

### Velocity of Sound and Distance

“Major Phipps...had measured the interval between the time of the flash and the boom of the gun reached us. That interval, he said was ninety seconds. Multiply the 90 by 1,100 the number of feet sound travels in a second and you get 99,000 feet, or about twenty miles.”

Richard Tregaskis. (1943). *Guadalcanal Diary*, Random House, pp. 215-216.

### Long Division

The rigors of learning how to do long division have been a traditional part of childhood, just like learning to smoke. In fact, as far as I am concerned, the two go hand in hand. Any child who cannot do long division by himself does not deserve to smoke.

....

Pocket Calculators: It took me three years to learn how to do long division and so should they

Fran Lebowitz (1994), *The Fran Lebowitz Reader*, Vintage Books, Random House, p. 90.

## War

It seems to me, that if statesmen had a little more arithmetic, or were not accustomed to calculation, wars would be much less frequent.

Benjamin Franklin, 1706-1790. (1783) *To Mrs. Mary Hewson*. In Franklin, B. (2011). *The life of Benjamin Franklin, written by himself*. Cambridge University Press, p. 386.

## Magic Squares

Likewise Benjamin Franklin said little regarding his magic squares, revealing few results and no results and no methods, but on mathematical matters there is enough surviving material to fill a book on this unexamined side of Franklin's otherwise meticulously documented life. Hence, the present account of Franklin's mathematical experiences and his miraculous numerical creations.

There is danger here that we might simply be indulging an artist who is working outside his usual field of true expertise and talent, as when today's celebrity actors and musicians tout their novels, poetry, or paintings.

Paul C. Pasles. (2008). *Benjamin Franklin's Numbers: An Unsung Mathematical Odyssey*. Princeton and Oxford: Princeton University Press, p. 1. Quoting A.H. Smythe (1905-1907).

## Deficient

You are extremely deficient in your facts. Your acquaintance with figures is very limited. You are altogether backwards, and below the mark.

Charles Dickens. (1848/1868). *Hard Times: For These Times*. New York and Boston: Books, Inc., p. 81.

## Counting



If one were to say, “Many people will notice this numerical change,” one should add, “Even poets,” or should one instead say “especially poets?”

Counting has its own cadence; cadence imposes the constraint of counting. So does lineation. Thus the names of poetic forms are persistently numerical – couplets, quatrains, stanzas, terza rima, octacet, sestet, sestina, ottava rima, iambic pentameter, hexameter, triolet – because the poetic voice seldom ceases to count.

Elaine Scarry (1995). Counting at Dusk (Why poetry Matters When the Century Ends). *Fin de Siecle*. Reprinted in Jamaica Kincaid (1995). *The Best American essays*. Boston: Houghton Mifflin, p. 234.

### Good Soldier

Vanek asked with interest: How long do you think the war will go on Svejek?  
Fifteen years, answered Svejek. That’s obvious because once there was a thirty years war and now we’re twice as clever as they were before, so it follows that thirty divided by two is fifteen.

Vanek asked with interest: “How long do you think the war will go on, Svejek?”  
“Fifteen years,” answered Svejek. “That’s obvious because once there was a Thirty Years War and now we’re twice as clever as they were before, so it follows that thirty divided by two is fifteen.”

Jaroslav Hašek (1993). *The Good Soldier Svejek*. Translated by Cecil Parrott. Knopf, p. 618.

### Canoes

...as we were paddling up out of the vortex of whirl pool, he (Dork Simp). swore off smoking, drinking, and profanity, the last of which cut his vocabulary by approximately half.

Patrick Mcmanus (1987, 1996). *They Shoot Canoos Don’t They?* In Al Sarrantonio (Ed). *Treasury of Great Humor*. New York: Wings Books, p. 93

## ASSUMPTIONS

### Population and Food

I think that I may fairly make two postulates.

First, that food is necessary to the existence of man.

Secondly, that the passion between the sexes is necessary, and will remain nearly in its present state.

Assuming then, my postulate as granted, I say, that the power of population is indefinitely greater than the power in the earth to provide subsistence for man.

Population, when unchecked, increases in a geometrical ratio. Subsistence increases only in arithmetical ratio. A slight acquaintance with numbers will show the immensity of the first power in comparison of the second.

Thomas Malthus. (1798). *An essay on the principle of population, as it affects the future improvement of society. with remarks on the speculations of mr. godwin, M. condorcet, and other writers.* London: printed for J. Johnson, pp. 11, 13-14

### Mathematics

Mathematics would collapse like a house of cards were it deprived of certainties that man can safely proceed as though he possessed unlimited memory, and an inexhaustible life lay ahead of him. It is on this assumption that the validity of infinite processes is based...arithmetic itself would lose its generality were this hypothesis refuted...

Tobias Dantzig (2007). *Number: The Language of Science.* Penguin, p. 340.

### Cause and Effect

Let *me* make the assumptions and I can estimate the effect of any policy in the world on outcome in the world.

Wolf, An Alias

See also: Asymptote, Heterogeneity, Hypothesis, and Infinite

## Asymptote

Finally, I am becoming stupider no more.

Paul Erdos' Epitaph, noted in English and Hungarian Paul Hoffman (1998). *The Man who Loved Only Numbers: The Story of Paul Erdos and the Search for Mathematical Truth*. New York: Hyperion, p. 3

A graduate Student at Trinity Computed the square of infinity,  
But it gave him the fidgets  
To put down the digits,  
So he dropped math and took up divinity.

Anonymous. Quoted in Paul Hoffman (1998). *The Man Who Loved Only Numbers: The Story of Paul Erdos and the Search for Mathematical Truth*. New York: Hyperion, p. 219.

## AVERAGE

### Novelist and Hunter

Mr. Hemingway said that he shot only lions that were utter strangers to him.

When hot for sport and ripe to kill,  
The average novelist shoots at will;  
But that, my friends, I'm glad to say,  
Is not the case with Hemingway,  
Whose sporting life is ever so subtle  
Where leopards roam and lions scuttle,  
Whose fowling piece doth never bungle  
The oldest law of Africa's jungle,  
Who stands his ground in time of danger  
But only shoots a total stranger.

E.B. White (1983). *Poems and Sketches*. Harper & Row, p. 48.

### Women

The allurements that women hold out to men is precisely the allurements that Cape Hatteras holds out to sailors: they are enormously dangerous and hence enormously fascinating. To the average man, doomed to some banal drudgery all his life long, they offer the only grand hazard that he ever encounters. Take them away and his existence would be as flat and secure as that of a moo-cow.

Henry Louis Mencken (1920). *Prejudices: Second Series, Volume 2*. A. A. Knopf, p. 236.<sup>5</sup>

### Citizen

... and the time may not be very remote when it will be understated that for complete initiation as an efficient citizen, of one of the new great complex worldwide states that are now developing, it is as necessary to be able to compute, to think in *averages* and *maxima* and *minima*, as it is now to be able to read and write.

Herbert George Wells (1903). *Mankind in the Making*, Volume 1. Bernhard Tauchnitz, p. 262.<sup>6</sup>

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<sup>5</sup> GoogleBook image attached.

<sup>6</sup> GoogleBook image attached.

## Man as Libertine

The average man of our time and race is far more virtuous than his wife's imaginings make him out--far less schooled in sin, far less enterprising in amour. I do not say, of course, that he is pure in heart, for the chances are that he isn't; what I do say is that, in the overwhelming majority of cases, he is pure in act, even in the face of temptation. And why? For several main reasons, not to go into minor ones. One is that he lacks the courage. Another is that he lacks the money. Another is that he is fundamentally moral, and has a conscience.

H. L. Mencken, from Alistair Cooke (1955), *The Vintage Mencken*. Vintage Books, p. 120

## Arts

The average man, at least in England and America, takes a bovine pride in his indifference to the arts; he can think of them only as sources of somewhat discreditable amusement.

H. L. Mencken, from Alistair Cooke (1955), *The Vintage Mencken*. Vintage Books, p. 122

## Judges

The average American judge, as everyone knows, is a mere rabbinical automaton, with no more give and take in his mind than you will find in the mind of a terrier watching a rathole.

H. L. Mencken, from Alistair Cooke (1955), *The Vintage Mencken*. Vintage Books, p. 195

## Souls

\* Different translation

The religion-founder must be psychologically infallible in his knowledge of a certain average breed of souls who have not yet recognized one another as allies. He is the one who brings them together.

*Friedrich Nietzsche (1882, 2001). Nietzsche: The Gay Science: With a Prelude in German Rhymes and an*

*Appendix of Songs*. Translated by Josefine Nauckhoff and Adrian Del Caro. Cambridge University Press, p. 211.<sup>7</sup>

## Immortality

The average man, who does not know what to do with his life, wants another one which will last forever.

For the majority of people, though they do not know what to do with this life, long for another that shall have no end.

Anatole France (1914). *The Revolt of the Angels, Volume 22*. Translated by Emilie Jackson, Wilfrid Scarborough Jackson. John Lane Company, p. 211.<sup>8</sup>

## Individual

‘Dirty-looking rascals, but I suppose every one has some little immortal spark concealed about him... There is no a priori probability about it. A strange enigma is man!’

‘Winwood Reade is good upon the subject," said Holmes. "He remarks that, while the individual man is an insoluble puzzle, in the aggregate he becomes a mathematical certainty. You can, for example, never foretell what any one man will do, but you can say with precision what an average number will be up to. Individuals vary, but percentages remain constant. So says the statistician.’

Sir Arthur Conan Doyle. (1890/2000). *The sign of four*. Spencer Blackett, p. 196.

## Art

... no kind of good art exists unless it grows out of the ideas of the average man.

Gilbert Keith Chesterton From Great Britain. Parliament. House of Commons. (1909). *Sessional papers. Inventory control record 1, Volume 8*.

## Malice

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<sup>7</sup> GoogleBook image attached.

<sup>8</sup> GoogleBook image attached. See also **MAJORITY**.

“My own stock of malice is rather under than above average, for I am almost devoid of any capacity for ether envy or moral indignation...”

Henry Louis Mencken, Jonathan Yardley Mencken (1993).  
*My Life as Author and Editor*. Knopf, p. xviii.

Comment: The objects of Mencken’s criticism might well disagree.

## BENEFIT/COST ANALYSIS

### Information

Prediction 9. In the future, internet capacity will increase indefinitely to keep up with the egos of the people using it. Cost will not be an issue.

Scott Adams (1996). *The Dilbert Principle*. New York: Harper Business, Chapter 3, p. 30.

### Nonsense

Money is its own reward.

Wolfgang Mieder. (1989). *American Proverbs: A Study of Texts and Contexts*. P. Lang, p. 43.

### Ratio

A life, admirable at first sight, may have cost so much in imposed liabilities, chores and self--abasement, that, brilliant though it appears, it cannot be considered as other than a failure. Another, which seems to have misfired, is in reality a triumphant success, because it has cost so little.

Montherlant, H. de. (1961). *Selected essays*. Weidenfeld and Nicolson, p. 278.

### Experience

Experience is a good teacher, but she sends in terrific bills.

Minna Antrim. (1902). *Naked Truth and Veiled Allusions*. In Gross, J. (Ed.). *Oxford Book of Aphorisms*. Oxford: Oxford University Press.

### Temporarily

The hour which gives us life begins to take it away.



Seneca, *Hercules Furens*, 1st century. In Gross, J. (Ed.).  
*Oxford Book of Aphorisms*. Oxford: Oxford University  
Press.

See also: Economics, Failure

## CATEGORIES

### Man

I have seen in my time Frenchmen, Italians and Russians. I even know, thanks to Montesquieu, that one may be a Persian, but as for *Man*, I declare that I have never met him in my life; if he exists it is without my knowledge.

(J'ai vu dans ma vie des Français, des Italiens, des Russes; je sais même, grâce à Montesquieu, qu'on peut être Persan; mais quant à l'homme je déclare ne l'avoir rencontré de ma vie; s'il existe c'est bien à mon insu.)

Joseph-Marie, Comte de Maistre, 1753-1821. In Maistre, J. Marie. (1852). *Considérations sur la France*. J.B. Pélagaud, p. 88.<sup>9</sup>

### Labels

...one of the unpardonable sins, in the eyes of most people, is for a man to go about unlabelled. The world regards such a person as the police do an unmuzzled dog, not under proper control.

Thomas Henry Huxley, Henrietta A. Huxley (1908). *Aphorisms and reflections*. Macmillan, p. 115.<sup>10</sup>

### Ethnicity

Haj is calling me a *zebra*? I've been called most things in my time. At Mission School I was a *Métis*, a *café au lait*, a shaven pig ... a fuzzipeg to golliwog.

...What on earth was that about, Brian?

They're speculating about my ethnicity.

Is that normal?

Pretty much.

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<sup>9</sup> GoogleBook image attached.

<sup>10</sup> GoogleBook image attached.

Dieudonné, having first declined, mutters a fatalistic ‘why not?’

John le Carré (2006). *The Mission Song*. New York: Back Bay Books (Little, Brown and Company), pp. 150-151.

## Name Calling

The next time I get tired of name calling or doubt its effectiveness, I will switch to the more sophisticated techniques of using pop psychology to judge others.

Thornhill, A. and Wells, S. (1998). *Today I Will Nourish My Inner Martyr: Affirmations for Cynics*. New York: Three Rivers Press, p. 146.

Mature White Lady Talking, over drinks to  
Mature Black Man with Goatee and Shades

Box 3, Lady: You know I’ve always thought you were a jerk, right? But not because I’m racist.

Box 4, Man: Uh...then why?

Box 4, Lady: Because you are a jerk! And it’s an evidence based world now.

Gary B. Trudeau (2009). Doonesbury Strip Captions. Boxes 3-4. *Philadelphia Inquirer*, January 30 2009, p. E7.

See also: Average, Demography

## CAUSE AND EFFECT

### Educating

You were wrong because: 24 Ignoring All Anecdotal Evidence

Example: I always get hives immediately after eating strawberries. But without a scientifically controlled experiment, it's not reliable. So I continue to eat strawberries every day, since I can't tell if they cause hives.

Scott Adams (1996). *The Dilbert Principle*. New York: Harper Business, p. 155.

### Naïve

The more untrained a mind, the more readily it works out a theory that two things which catch its attention at the same time are causally connected.

Walter Lippmann (1922). *Public Opinion*, New York: Harcourt, Brace and Company, p. 151

### Prevention

With the single exception of the change effected by the acceptance of the theory of organic evolution there has been probably no modification of human opinion within the nineteenth century more wonderful, or more profoundly affecting the general conduct of human life, than that in our general attitude toward the nature, the causation and the prevention of disease.

William T. Sedgwick (1902). Preface to: *Principles of Sanitary Science and the Public Health*. New York: The MacMillan Company, p. vii. Digitized by Goggle (Retrieved October 18, 2008, <http://books.google.com>). and archived at Boston Medical Library, Francis A. Conway Library of Medicine.

### Alcohol

Consumption of alcohol may cause pregnancy.

Anonymous (2008)

## Aspiration

I would rather discover a single causal connection than win the throne of Persia. <sup>11</sup>

Democritus (GET PROPER SOURCE)

## Multiplicity

Indeed, Mr. Yule has defined statistical methods as “methods especially adapted to the elucidation of quantitative data affected by a multiplicity of causes.”

Quoted in L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey Cumberlege Home University Library, Oxford University Press, pp. 133.

## Chain of Causes/Path Analysis

The more a man’s reflective power is capable of comprehending a regular chain of causes and effects, the more fully is the human quality developed in him. Some men are capable of following up two or three links in a chain of causes and effects but no more; yet others can push on to the fifth or sixth.

Ibn Khaldun, *Muqadimmah* (14th century). Khaldūn, I., & Issawi, C. P. (1987). *An arab philosophy of history: Selections from the prolegomena of ibn khaldun of tunis (1332-1406)*. Princeton, NJ, USA: Darwin Press, p. 166.

## God

I am he who causes.

*Bhagavad-Gita*. In Prabhavananda, S., & Isherwood, C. (1972). *The song of god: Bhagavad-gita*. New York: New American Library, p. 71.

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<sup>11</sup> Other translation: I would rather discover single proof/demonstration/theory/ single explanation of cause, etc. than win the throne of Persia.

## Man

Man sees the causes of things and understands their course backwards and forwards (i.e. he can reason from cause to effect, and from effect to cause).

(Homo causas rerum videt earumque progressus et quasi antecessiones non ignorat.)

*Marcus Tullius Cicero. De Officiis Libri Tres. Reprinted in (1852). D. Appleton & Company, p. 11.*<sup>12</sup>

## Definition

Effect, n. The second of two phenomena which always occur together in the same order. The first, called a Cause, is said to generate the other--which is no more sensible than it would be for one who has never seen a dog except in pursuit of a rabbit to declare the rabbit the cause of the dog.

*Ambrose Bierce. (1911). Devil's Dictionary, Volume 7 of The Collected Works of Ambrose Bierce. Neale, p. 81.*<sup>13</sup>

## Evolution

In his great work on *Divergent Lines of Racial Evolution*, the learned Professor Brayfugle argues from the prevalence of this gesture--the shrug--among Frenchmen, that they are descended from turtles and it is simply a survival of the habit of retracting the head inside the shell. It is with reluctance that I differ with so eminent an authority, but ... the shrug is a poor foundation upon which to build so important a theory, for previously to the Revolution the gesture was unknown. I have not a doubt that it is directly referable to the terror inspired by the guillotine during the period of that instrument's activity.

*Ambrose Bierce. (1911). Devil's Dictionary, Volume 7 of The Collected Works of Ambrose Bierce. Neale, p. 124.*<sup>14</sup>

## Crime and Marriage

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<sup>12</sup> GoogleBook image attached.

<sup>13</sup> GoogleBook image attached.

<sup>14</sup> GoogleBook image attached.

St. Augustine approved marriages of the orthodox with heretics, for he hoped that the faithful spouse would convert the other; and Louis XIV condemned them, lest the heterodox should pervert the believer.

Voltaire, 1694-1778. (1901). *A philosophical dictionary Volume 10 of The Works of Voltaire: A Contemporary Version with Notes, Voltaire*. E.R. Du Mont, p. 200.

I once met with a reasoner who said: “Induce your subjects to marry as early as possible. Let them be exempt from taxes the first year; and let their portion be assessed on those who at the same age are in a state of celibacy.

“The more married men you have, the fewer crimes there will be. Examine the frightful columns of your criminal calendars; you will there find a hundred youths executed for one father of a family.

Voltaire, 1694-1778. (1901). *A philosophical dictionary Volume 11 of The Works of Voltaire: A Contemporary Version with Notes, Voltaire*. E.R. Du Mont, p. 196.<sup>15</sup>

## Breakfast

Before every meal, including breakfast, he ducked into the cupboard in the dining-room and poured out a substantial hooker of rye, and when he emerged he was always sucking in a great whiff of air to cool off his tonsils. He regarded this appetizer as necessary to his well-being. He said that it was the best medicine he had ever found for toning up his stomach.

H. L. Mencken, from Alistair Cooke (1955). *The Vintage Mencken*. Vintage Books, p. 9

## Calculation

The caprices of voluntary agents laugh at calculation. It is not always that there is a strong reason for a great event.

Samuel Johnson (1771). *Thoughts on the Late Transactions Respecting Falkland's Islands*. In Samuel Johnson (1903).

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<sup>15</sup> GoogleBook image attached.

*Lives of eminent persons Volume 14 of The Works of Samuel Johnson. Pafraets, p. 54.*<sup>16</sup>

## Radio Waves

Mr. Gott was following up the tenable and somber theory that the increase in the number of storms, blights, and floods was caused by radio waves. He had rigged up an observatory in his garage and had proved to his own satisfaction that periods of excessive radio advertising of soft, smooth articles were followed by violent storms, and that the size of the storm area was in direct proportion to the duration of the program and the softness of the product. It was also his belief that the vast increase in broadcasting was causing the earth to deviate from its path around the sun.

Elwyn Brooks White (1939). *Quo vadimus? or, The case for the bicycle*. Harper & Brothers, p. 53.

## Successful Men

All successful men have agreed in one thing,--they were causationists. They believed that things went not by luck, but by law; that there was not a weak or a cracked link in the chain that joins the first and last of things.

Ralph Waldo Emerson (1904). *The complete works of Ralph Waldo Emerson, Volume 6*. Houghton, Mifflin, p. 54.<sup>17</sup>

## Unknown

The cause of the fountain is hidden, but the effect is very obvious.  
(Causa latet, vis est notissima fontis.)

Ovid (1997). *Ovid's Metamorphoses, Books 1-5*. University of Oklahoma Press, Book 4, p. 114.<sup>18</sup>

## Post Hoc

After this, therefore because of this.  
(Post hoc, ergo propter hoc.).

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<sup>16</sup> GoogleBook image attached.

<sup>17</sup> GoogleBook image attached.

<sup>18</sup> GoogleBook image attached.



Latin Phrase (A familiar logical fallacy).

### Stochastic Uncertainty

Even more important than this twin-revolution in the realms of the infinitely large and the infinitely small, was the philosophical upheaval which accompanied them, and which became known as “the crisis of causality.” The so-called Laws of Nature lost their solid character; they could no longer be regarded as expressing certainties, merely statistical probabilities. The rigid causal connections between “cause” and “effect” were loosened, softened up as it were; what the physicist had regarded as universal laws now turned out to be mere rules of the thumb, whose validity was limited to medium-sized phenomena; on the sub-atomic level determinism itself dissolved in a kind of blurred fringe, and all certainty vanished from the universe.

Arthur Koestler. (1980). *Bricks to Babel : selected writings with comments by the author*. London: Hutchinson, p. 77.

### Failure

The causes of failure can be as many and muddled as their lessons. When something goes wrong with a computer program or an engineering structure, the scrutiny under which the ill-fated object comes uncovers a host of other innocuous bugs and faults that might have gone forever unnoticed had the accident not happened.

Henry Petroski. (1992). *To Engineer is Human*. Vintage Books, p. 204.

Comment: The same statement can be made of “causes of failure” in failures of education, social, and prevention programs of course.

See also: Analysis , Certainty, Experiment, Failure, Theory

## CENSORSHIP

### Amendment I.

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or of the right of the people to peaceably assemble, and to petition the Government for redress of grievances.

Constitution of the United States of America. Ratified June 21, 1788, Amended Later

### Statistical Surveys, 1940 Cracow

- (1) The carrying out of statistical inquiries within the territory of the Government – General is the exclusive privilege of the Government – General's Bureau of Statistics.
- (2) Collection of statistics by any other body is subject to the express permission of the authorities.

Appendix 21, Article III, (Occupation). Ordinance of June 27, 1940, Governing the City of Deutsch Przemyśl.

### Punishment

- (1) Whosoever, either deliberately or through negligence, shall, without having received permission (Article 3, paragraph 2). or in violation of the terms of permission, conduct an inquiry or publish the results thereof without permission, shall be punished by fine or imprisonment for not more than one year, or by one or the other penalty.
- (2) Prosecutions can be undertaken only at the request of the head of the Bureau of Statistics. Requests for such prosecution can be withdrawn.

Appendix 21, Article X, (Occupation). Ordinance of June 27, 1940, Governing the City of Deutsch Przemyśl.  
Republic of Poland (undated), p. 87

Comment: The jurisdiction of Przemyśl included Cracow under the Nazi occupation of Poland. The military regime differed there, in some ways from others.

### Engineering Reports

“... (In). 1856, the celebrated Victorian civil engineer and bridge builder Robert Stephenson recommended full disclosure... (saying that). ‘nothing was so instructive to the younger member of the profession, as records in large works, and means employed in repairing the damage.’”

But he might also been not a little concerned to see in the Proceedings of the First International Congress on Computing in Civil Engineering ...a single session devoted to “Anatomies of Computer Disasters,” [what abstract said]:

“No papers from this session will be published.”

Henry Petroski. (1992). *To Engineer is Human*. Vintage Books, p. 204.

Comment: Recall blame laying and hyping in engineering, education, etc.

### Sanitization

The damage of war visited upon bodies and buildings, planes and tanks and ships, is obvious. Less obvious is the damage it did to intellect, discrimination, honesty, individuality, complexity, ambiguity, and irony, not to mention privacy and wit. For the past fifty years the Allied War has been sanitized and romanticized almost beyond recognition by the sentimental, the loony patriotic, and the blood thirsty.

Paul Fussell. (1989). *Wartime*. New York: Oxford, p. ix.

### Nature

That ideas should spread from one to another across the globe, for the world and mutual instruction of man, and improvement of his Condition, seems to have been peculiarly and benevolently designed by nature.

Thomas Jefferson. Quoted in Steven Johnson (2008). *The Invention of Air: A Story of Science, Faith, Revolution, and the Birth of America*. New York: Riverhead Books, p. XIV.

### Freedom from Knowing

If no one knows what you are doing, then no one knows what you are *doing wrong*.

Jonathan Lynn and Anthony Jay (1986). *The Complete Yes Minister*. BBC Publications, P. 201.

See also: Failure, Cause and Effect, Reporting

## CERTAINTY AND UNCERTAINTY,

### Absolute

“...Absolute certainty about the fail-proofness of a (structure’s). design can never be attained, for we can never be certain that we have been exhaustive in asking questions about its future.”

Henry Petroski. (1992). *To Engineer is Human*. Vintage Books, p. 204.

### Mathematics

As far as the propositions of mathematics refer to reality, they are not certain; and so far as they are certain; they do not refer to reality.

Albert Einstein. Quoted in Andrew Robinson (2007). *The Story of Measurement*. Thames & Hudson, p. 45. In Einstein, A. (1954/2010). *Ideas and opinions*. New York: Crown, p. 233.

### Analysis

Quantum mechanics is very impressive. But an inner voice tells me that it is not yet the real thing. The theory produced a good deal but headily brings us closer to the secrets of the Old One. I am at all events convinced that He does not play dice.

Letter from Albert Einstein to Max Born. Quoted in Gino Segre (2007). *Faust and Copenhagen*. Penguin, p. 144.

### Heisenberg Principle

All I knew was that I wanted to wrap my weak –gauge bosons around her gluons... How could I act if I couldn’t determine her exact position and velocity?

Woody Allen (2007). *Mere Anarchy*. New York: Random House, p. 130.

Get on with life

It is not certain that everything is uncertain.  
(Il n'est pas certain que tout soit incertain)

#### FULL CITATION

It may be that there are true demonstrations; but this is not certain. Thus, this proves nothing else but that it is not certain that all is uncertain, to the glory of skepticism.

(Il se peut faire qu'il y ait de vraies démonstrations, mais cela n'est pas certain. Ainsi cela ne montre autre chose sinon qu'il n'est pas certain que tout soit incertain. À la gloire du pyrrhonisme.)

Blaise Pascal. In *Thoughts*, Tr. by W.F. Trotter: *Letters*, Tr. by M.L. Booth, *Minor Works*, Tr. by O.W. Wight: with *Intros. Notes and Illus* (1910). P.F. Collier, p. 129.

Unrest and uncertainty are our lot.  
(Die Unruhe und Ungewissheit sind unser Theil)

Johann Wolfgang von Goethe. (1774). *Letter to Sophie von LaRoche*. In Goethe, J. Wolfgang von. (1879). *Briefe Goethe's an Sophie von La Roche und Bettina Brentano : nebst dichterischen Beilagen*. Berlin: W. Hertz, p. 24.<sup>19</sup>

#### Quid Est Veritas?

All great religions, in order to escape absurdity, have to admit a dilution of agnosticism. It is only the savage, whether of the African bush or the American gospel tent, who pretends to know the will and intent of God exactly and completely. "For who hath known the mind of the Lord?" asked Paul of the Romans. "How unsearchable are His judgments, and His ways past finding out!" "It is the glory of God," said Solomon, "to conceal a thing." "Clouds and darkness," said David, "are around Him." "No man," said the Preacher, "can find out the work of God." ...The difference between religions is a difference in their relative content of agnosticism. The most

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<sup>19</sup> GoogleBook image attached.

satisfying and ecstatic faith is almost purely agnostic. It trusts absolutely without professing to know at all.

H.L. Mencken (1955). from *Damn! A Book of Calumny*, 1918). Philip Goodman Company, p. 129.<sup>20</sup>

## Causality

Even more important than this twin revolution in the realms of the infinitely large and the infinitely small, was the philosophical upheaval which accompanied them, and which became known as “the crisis of causality.” The so—called Laws of Nature lost their solid character; they could no longer be regarded as expressing certainties, merely statistical probabilities. The rigid causal connections between “cause” and “effect” were loosened, softened up as it were.

Arthur Koestler. (1980). *Bricks to Babel : selected writings with comments by the author*. London: Hutchinson, p. 77.

## Impossibility

At the last moment there is always a reason not existing before—namely, the impossibility of further vacillation.

George Eliot. In Mary Ann Evans (1868). Felix Holt, the radical, by George Eliot. Oxford University, p. 315.<sup>21</sup>

## Doubt

The prevalence of factual data in anthropological monographs stems, I am sure, not from the inherent value or interest of the facts but from an attitude of “when in doubt, collect facts”.

Nigel Barclay (1992). *The Innocent Anthropologist*. Henry Holt & Co (P), p. 55.

## Belief in Palmistry

AV Laider: You may think me very prosaic...but I can't believe without evidence.

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<sup>20</sup> GoogleBook image attached.

<sup>21</sup> GoogleBook image attached.

Max Beerbohm: Well, I'm equally prosaic and equally at a disadvantage. I can't take my own beliefs as evidence, and I've no other evidence to go on.

Max Beerbohm. In (1916). *The Century*, Volume 92. Century Company, p. 177.<sup>22</sup>

## Doubt

Doubt is to certainty as neurosis is to psychosis. The neurotic is in doubt and has fears about persons and things; the psychotic has convictions and makes claims about them. In short, the neurotic has problems, the psychotic has solutions.

Thomas Szasz (1973). *The Second Sin*. Anchor Press, p. 77.

## Doubt, put to Song and Music

There are times when I almost think  
I am not sure of what I absolutely know.  
Very often find confusion  
In conclusion I concluded long ago  
In my head are many facts  
That, as a student, I had studied to procure,  
In my head are many facts...  
Of which I wish I was more certain I was sure!  
...  
And it puzzles me to learn  
That tho' a man may be in doubt of what he know,  
Very quickly will he fight....  
He'll fight to prove that what he does not know is so!

Richard Rodgers (1951). *The King and I*. Random House, p. 33.

## Like

Men **like** certainty. They **like** the Pope to be infallible in faith, and grave doctors to be infallible in morals, so as to have certainty.

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<sup>22</sup> GoogleBook image attached.



(On aime la sûreté. On aime que le Pape soit infaillible en la foi,  
et que les docteurs graves le soient dans les mœurs, afin d'avoir son assurance.)

Blaise Pascal. In *Thoughts*, Tr. by W.F. Trotter: *Letters*, Tr. by M.L. Booth, *Minor Works*, Tr. by O.W. Wight: with *Intros. Notes and Illus* (1910). P.F. Collier, p. 159.

## Love

We **love** certainty. We **like** the pope to be infallible in faith, and the grave doctors to be infallible in morals, in order to have assurance.<sup>23</sup>

## Opinionation

The world is made up for the most part of morons and natural tyrants, sure of themselves, strong in their own opinions, never doubting anything.

Clarence Darrow. (1928). *Personal Liberty*. In Mencken, H. L. (Ed.). (1948) *A New Dictionary of Quotations on Historical Principles from Ancient and Modern Sources*. New York: Alfred Knopf.

## Loss

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<sup>23</sup> Variant:

## Like

Men **like** certainty. They **like** the Pope to be infallible in faith,  
and grave doctors to be infallible in morals, so as to have certainty.

(On aime la sûreté. On aime que le Pape soit infaillible en la foi,  
et que les docteurs graves le soient dans les mœurs, afin d'avoir son assurance.)

Blaise Pascal. In *Thoughts*, Tr. by W.F. Trotter: *Letters*, Tr. by M.L. Booth, *Minor Works*, Tr. by O.W. Wight: with *Intros. Notes and Illus* (1910). P.F. Collier, p. 159.

If you forsake a certainty and depend on an uncertainty, you will lose both the certainty and the uncertainty.

Sanskrit Proverb. In Mencken, H. L. (Ed.). (1948) *A New Dictionary of Quotations on Historical Principles from Ancient and Modern Sources*. New York: Alfred Knopf.

In Song

Grand Inquisitor:

In the entire annals of our history there is absolutely no circumstance so entirely free from all manner of doubt, of any kind whatever.

.....

Don Alhambra, and others:

Both of the babies are strong and stout,  
And considering things, clever.  
Of that there is no manner of doubt—  
No possible shadow of a doubt—  
No possible doubt whatever.

All:

No possible doubt whatever.

Arthur Sullivan, William Schwenck Gilbert (1889). *An Entirely Original Comic Opera in Two Acts, Entitled The Gondoliers, Or, The King of Barataria*. Chappell, pp. 14-15.

See Also: Decision, Mathematics, Models

## CHANCE

My experience and reading have convinced me that luck, chance, accident, and coincidence are all major players in human history, and if there is one single overriding constant, that would be human stupidity.

Molly Ivins and Lou Dubose (2007). *Bill of Wrongs: The Executive Branch's Assault on American's Fundamental Rights*. New York: Random Houses, pp. xvi-xvii.

All that I have been able to obtain by comparing and combining the systems of Plato, of the tutor of Alexander, Pythagoras, and the Orientals, is this: **Chance is a word void of sense; nothing can exist without a cause.** The world is arranged according to mathematical laws; therefore, it is arranged by an intelligence.

Voltaire, 1694-1778. (1901). A *philosophical dictionary Volume 12 of The Works of Voltaire: A Contemporary Version with Notes, Voltaire*. E.R. Du Mont, p. 193. <sup>24</sup>

With respect to what may happen to thee from without, consider that it happens either by chance or according to Providence, and thou must neither blame chance nor accuse Providence.

Marcus Aurelius. (121 - 180 CE). Translated by George Long. (1904). *Meditations*. D. Appleton, p. 122. <sup>25</sup>

Yet chance does exist, therefore there is no foreknowledge of things that happen by chance.

Marcus Tullius Cicero. Translated by William Armistead Falconer (1959). *Cicero: De senectute, De amicitia, De divination. Loeb classical library*. Harvard University Press, p. 391.

The race is not to the swift, nor the battle to the strong, neither yet bread to the wise, nor yet riches to men of understanding, nor yet favor to men to skill; but time and chance happeneth to them all.

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<sup>24</sup> GoogleBook image attached.

<sup>25</sup> GoogleBook image attached.

Ecclesiastes 9:11. *King James Bible*.

Insurance, n. An ingenious modern game of chance in which the player is permitted to enjoy the comfortable conviction that he is beating the man who keeps the table.

Ambrose Bierce. (1911). *Devil's Dictionary, Volume 7 of The Collected Works of Ambrose Bierce*. Neale, p. 81.<sup>26</sup>

Lately he'd come to be increasingly cynical, increasingly impressed by accident: chance virtue, chance wickedness, at best the magpie gatherings of emotivism.

John Gardner (1982). *Mickelsson's Ghosts: A Novel*. Secker & Warburg, p. ##.

It may be that the whims of chance are really the importunities of design. But if there is a design, it aims to look natural and fortuitous; that is how it gets us into its web.

Mary McCarthy (1976). *On the Contrary*. Octagon Books, p. 105.

*Those who deny chance.*— No victor believes in chance.

Friedrich Nietzsche (1882, 2001). *Nietzsche: The Gay Science: With a Prelude in German Rhymes and an Appendix of Songs*. Translated by Josefine Nauckhoff and Adrian Del Caro. Cambridge University Press, p. 150.<sup>27</sup>

I have set my life upon a case,  
And I will stand the hazard of the die.

Shakespeare, Richard III, v, c. 1592. In Mencken, H. L. (Ed.). (1948) *A New Dictionary of Quotations on Historical Principles from Ancient and Modern Sources*. New York: Alfred Knopf.

As the unthought-on accident is guilty  
To what we wildly do, so we profess  
Ourselves to be the slaves of chance, and flies

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<sup>26</sup> GoogleBook image attached.

<sup>27</sup> GoogleBook image attached.

Of every wind that blows.

Shakespeare, *The Winter's Tale*, IV, c. 1611. In Mencken, H. L. (Ed.). (1948) *A New Dictionary of Quotations on Historical Principles from Ancient and Modern Sources*. New York: Alfred Knopf.

Although men flatter themselves with their great actions, they are not so often the result of a great design as of chance.

François duc de La Rochefoucauld (1665). In (1871). *Reflections; Or, Sentences and Moral Maxims*. Brentano's, p. 9.<sup>28</sup>

What is called chance is the instrument of Providence and the secret agent that counteracts what men call wisdom, and preserves order and regularity, and continuation in the whole.

Horace Walpole (1777). *Letter to the Countess of Upper Ossory*. In (1866). *The Letters of Horace Walpole: Earl of Orford, Volume 6*. H.G. Bohn, p. 405.<sup>29</sup>

Stamina

I'm not lucky, said the hyena, I just have strong legs.

Maasai Saying

See also: Certainty, Fortune, Probable, and Plausible

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<sup>28</sup> GoogleBook image attached.

<sup>29</sup> GoogleBook image attached.

## CHANGE

EXPEDITE. V.a. [expedia.Latin]

1. To facilitate; to free from impediment.

Samuel Johnson (1755). *A Dictionary of the English Language* Reproduced by Arno Press, (New York, 1979), No Pagination.

### Death

Statistics of causes of death extending over long periods of time are apt to be affected by changes in medical knowledge an (dare a layman say). fashion causing changes in diagnosis.

One change always leaves the way open for the introduction of another.

Niccolo Machiavelli. (1532/1903). *The Prince*; translated by Luigi Ricci. Grant Richards, p. 4.

## COINCIDENCE

### Law of Large Numbers

With a large enough sample, any outrageous thing is likely to happen. The point is that truly rare events, say events that occur only once in a million ...are bound to be plentiful in a population of 250 million people. If a coincidence occurs each to one person in a million each day, then we expect 250 occurrences a day and close to 100,000 such occurrences a year.

Persi Diaconis and Frederick Mosteller (1989). Methods for Studying Coincidences. *Journal of the American Statistical Association*, 84, 853-861.

## COMPLEXITY

### Abiding

People would rather live with a problem they cannot solve than accept a solution they cannot understand.

Robert E. D. Woolsey and Huntington S. Swanson (1975). *Operations Research for Immediate Application: A Quick and Dirty Manual*. Harper & Row, p. 169.

### Experiments

No aphorism is more frequently repeated in connection with field trials, than that we must ask Nature few questions, or, ideally, one question, at a time. The writer is convinced that this view is wholly mistaken. Nature, he suggests, will best respond to a logical and carefully thought out questionnaire; indeed, if we ask her a single question, she will often refuse to answer until some other topic has been discussed.

Ronald Fisher (1926). The Arrangement of Field Experiments. *Journal of the Ministry of Agriculture of Great Britain*. 33: 503–513. Quoted in U. G. Cochran. (1976). *Comparative Experimentation*. In *On the History of Statistics and Probability*, D.B. Owen (ed.), Marcel Dekker, New York.

See also: Analysis, Cause and Effect, Experiment, Failure



## COMPUTERS, CALCULATION, AND MISCALCULATION

I admit that twice two makes four is an excellent thing, but if we are to give everything its due, **twice two makes five is sometimes a very charming thing too.**

Fyodor Dostoyevsky. (1864/ 2016). *Notes from the Underground*. In Dostoyevsky, F., & Kopito, J. Baine. *Fyodor Dostoyevsky : the Dover reader*. Mineola, New York: Dover Publications, Inc., pp. 361-362.<sup>30</sup>

### deQuoy's Catalog of Statements

People will Blindly Accept as Proof of Validity

(1) It has been computerized. (2). It has been war-gamed.

Alfred deQuoy, McLean, Virginia. (2014). *The Official Rules: 5,427 Laws, Principles, and Axioms to Help You Cope with Crises, Deadlines, Bad Luck, Rude Behavior, Red Tape, and Attacks by Inanimate Objects*. Courier Corporation, p. 81.<sup>31</sup>

I'm not against machines, as are some people who feel that the computer is leading us back into the jungle. I rather like machine, particularly the eggbeater , which is the highest point the machine has yet reached...

I don't think computers should wear the pants or make the decisions. They are deficient in humor, they are not intuitive, and they are not aware of the imponderables. The men who feed them seem to believe that everything is made out of ponderables, which isn't the case. I read a poem once that a computer had written, but didn't care much for it. It seemed to me I could write a better one myself, if I were to put my mind to it.

Elwyn Brooks White (1983). *Poems and Sketches*. Harper & Row, p. 203.

Logic, n. The art of thinking and reasoning in strict accordance with the limitations and incapacities of the human misunderstanding. — The basic of logic is the syllogism, consisting of a major and a minor premise and a conclusion--thus:

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<sup>30</sup> GoogleBook image attached.

<sup>31</sup> GoogleBook image attached.

Major Premise: Sixty men can do a piece of work sixty times as quickly as one man.  
Minor Premise: One man can dig a post-hole in sixty seconds; therefore—  
Conclusion: Sixty men can dig a post-hole in one second.  
This may be called the syllogism arithmetical, in which, by combining logic and mathematics, we obtain a double certainty and are twice blessed.

Ambrose Bierce. (1911). *Devil's Dictionary, Volume 7 of The Collected Works of Ambrose Bierce*. Neale, p. 196.<sup>32</sup>

But in truth with more complicated instances, there is no more common error than to assume that, because prolonged and accurate mathematical evaluation have been made, the application of the result to some fact of nature is absolutely certain.

Alfred North Whitehead. (1958). *An introduction to mathematics*. New York: Oxford University Press, p. 13.

An apple a day makes 365 apples a year.

Wolfgang Mieder. (1989). *American Proverbs: A Study of Texts and Contexts*. P. Lang, p. 271.

See also: Arithmetic, Analysis, Equations

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<sup>32</sup> *The variant above was quoted in "Some Szilardisms on War, Fame, Peace", LIFE ,magazine Vol. 51, no. 9 (1 September 1961), p. 79. The quote below is from the original work.*

Even if we accept, as the basic tenet of true democracy, that one moron is equal to one genius, is it necessary to go a further step and hold that two morons are better than one genius?

Leó Szilárd. (1961). *The Voice of the Dolphins : And Other Stories*. Simon and Schuster, p. 43.

## **CONDITIONS**

A man's got to know his own limitations.

Clint Eastwood. Script line from the Movie *Magnum Force* (1973).

## CONTROVERSY

I enclose a paper by Raymond Pearl. Here contraceptive methods appear to have brought about a reduction of some 20 percent for married white women -- but an increase of some 14 percent among married negroes!... It interests me that you are skeptical as to depresses the birthrate. I can recall who agreed with me. Almost all the others jeered....”

George Udny Yule. (1971). *Statistical papers of George Udny Yule*. Hafner Pub. Co., p. 5.

Controversy, n. A battle in which spittle or ink replaces the injurious cannonball and the inconsiderate bayonet.

Ambrose Bierce. (1911). *Devil's Dictionary, Volume 7 of The Collected Works of Ambrose Bierce*. Neale, p. 81.

## CORRELATION

Really, universally, relations stop nowhere, and the exquisite problem of the artist is eternally but the draw, by a geometry of his own, the circle within which they shall happily *appear* to do so.

Henry James (1907). The Preface to *Roderick Hudson*.. Volume 1. *The Novels and Tales of Henry James*. New York: Scribner's. In: *The Portable Henry James* (John Avchard, Editor). (2004). New York: Penguin Classics, p. 471.

The bigger they are, the harder they hit.

Mieder, W., & Tóthné Litovkina, A. (1999). *Twisted wisdom : modern anti-proverbs*. Burlington, Vt.: University of Vermont, p. 190.

Mr. Udny Yule refers to the fact that the proportion of marriages solemnized in the Church of England and the death rate for the country has for many years been decreasing – there is a correlation between the two. I doubt, however, if anyone supposes that this fact implies a causal relationship, and that a law prohibiting the solemnization of marriages in Anglican churches would reduce further the mortality rate of the nation.

L.H.C. Tippet (1943). From Great Britain. Board of Education (1944). *Statistics for a day in February, 1944, of public elementary and secondary school pupils receiving school meals and milk under the milk in schools scheme in the area of each local education authority in England and Wales*. H. M. Stationery off., p. 126.

Official dignity tends to increase in inverse ratio to the importance of the country in which the office is held.

Aldous Huxley (1934/1975). *Beyond the Mexique Bay*. Greenwood Press, p. 126.

Trying to console him (Paul Ehrenfest), Einstein wrote back, ‘Don’t complain and don’t vex yourself. We (physicists). too may make use of the human law that one gets stupider as one grows older. In that way we acquire the merit of easing the conscience of others.’

Gino Segré. (2007). *Faust in Copenhagen: A Struggle for the Soul of Physics*. New York: Viking, p. 62. Quoting Einstein in *Klein*, p. 319, Footnote 62.

For a social scientist to make obscure what he considers to be unnecessarily clear calls not so much for an imagination as for an appropriate vocabulary in which boundaries are parameters, parts are components, things are not equal but coequal, signs are indicators, and causes are dependent or exogenous variables (and it may take a regression analysis to find out which).

Edwin Newman. (1974). *Strictly Speaking: Will America Be the Death of English?* Indianapolis/New York: The Bobbs-Merrill Company, Inc., p. 126.

## CORRUPTION

I come to the following pessimistic laws (at least for the U. S. scene): The more any quantitative social indicators used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor.

Donald Campbell (1975). Assessing the Impact of Planned Social Change. In Gene M. Lyons (Ed). *Social Research and Scoail Policies*. Hanover, NH: Dartmouth Public Affairs Center, p. 35.

When the officials in charge are questioned about their armies, when the good an assets of wealthy people are assessed, and when the outlays of extravagant spenders are looked at in ordinary light, the figures will be found to a tenth of what those people have said.

Ibn Khaldun (13-14<sup>th</sup> Century). From N. J. Dawood (1969). *The Muqaddimah: an introduction to history ; in three volumes. 1*. Translated by Franz Rosenthal. Princeton University Press, p. 13.

Whenever contemporaries speak about the dynastic armies of their own or recent times, and whenever they engage in discussions about Muslim or Christian soldiers, or when they get to figuring the tax revenues and the money spent by the government...they are quite generally found to exaggerate, to go beyond the bounds of the ordinary, and to succumb to the temptation of sensationalism.

Ibn Khaldun (13-14<sup>th</sup> Century). From N. J. Dawood (1969). *The Muqaddimah: an introduction to history ; in three volumes. 1*. Translated by Franz Rosenthal. Princeton University Press, p. 13.

In war, truth is the first casualty.

Aeschylus (525 BC – 456 BC).

The First Casualty: The War correspondent as Hero, Propagandist and Mythmaker from the Crimean to the Gulf War.

Phillip Knightley. (1975). JHU Press, Book Title.

Comment: A web search on the phrase “The first casualty of war...” yielded well over 200 entries, only one of which mentioned Aeschylus or the origin of the phrase. Most entries said something like, “they say the first casualty is...” and then stick a noun at the end

See also: Censorship, Questionnaire



## COUNTING

People cannot count, at least not very high.

Frederick Mosteller and David Wallace (1964). *Inference and Dispute Authorship: The Federalist*. Reading, Massachusetts: Addison-Wesley, p. 7.<sup>33</sup>

See also: Measurement

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<sup>33</sup> GoogleBook image attached.

## CRIMINOLOGY

### Youth

The problem (of youthful violence). is one for which public remedies most likely to be found by choosing the most obvious issues and tackling them experimentally ...

Walter Lippman (1963). *The Young Criminals*. In New York (State). Legislature. Joint Legislative Committee Studying the Publication and Dissemination of Offensive and Obscene Material (1955). *Report of the New York State Joint Legislative Committee Studying the Publication and Dissemination of Offensive and Obscene Material*.

### Trans-generational

A Mom talking to her son, who is behind bars. She says:

My gosh! You remind me so much of your father when he was in prison.

Michael Mashin. (2008). Cartoon Caption *New Yorker Book of Mom Cartoons*. Kansas City: Andrews McMeel Publishing, LLC, p. 71.

### Rates

The tabloids are saying it's a serial killer. Naturally, the serial killers are claiming bias and that they're the first ones accused when three or more victims are killed the same way. They'd like the number to be raised to six.

Woody Allen. (2007). *Mere Anarchy*. New York: Random House, p. 156.

### Criminal Penalties

Dean Furhrman declaration at a faculty meeting in regard to university lawyer's declarations: A professor could go to jail for five years for violating the copyright law by Xeroxing papers for a course.

Faculty member (Boruch's). question: Would that be a federal facility or a state prison?

Faculty member (Dwyer's). remark: You can learn a lot about a person by the questions he asks.

Faculty Meeting, Graduate School of Education.  
University of Pennsylvania. Circa 2002.

## CRITICISM

After the event even a fool is wise.

Homer: Iliad XVII. In Homer, Andrew Lang, Walter Leaf, Ernest Myers. (1915). *The Iliad of Homer: Done Into English Prose*. Macmillan, p. 405.<sup>34</sup>

Mankind misses its opportunities, and its failures are a fair target for ironic criticism. But the fact that reason too often fails does not give fair ground for the hysterical conclusion that it never succeeds. Reason can be compared to the force of gravitation, the weakest of all natural forces, but in the end the creator of suns and of stellar systems: those great societies of the Universe.

Alfred North Whitehead. (1985). *Symbolism: Its Meaning and Effect*. Fordham Univ Press, p. 69.<sup>35</sup>

Vizier: Dog of a Christian! — for whom, however, I have a particular esteem — canst thou reproach me with possessing four wives, according to our holy laws, whilst thou emptiest a dozen barrels a year, and I drink not a single glass of wine?

Envoy: Dog of a Mussulman! for whom I retain a profound veneration; before I finish my coffee I will confute all thy arguments.

Voltaire, 1694-1778. (1901). *A philosophical dictionary Volume 14 of The Works of Voltaire: A Contemporary Version with Notes*, Voltaire. E.R. Du Mont, p. 267-268.

Criticism is a study by which men grow important and formidable at very small expense.

Samuel Johnson, *The Idler*, No. 60. In Frank Brady, William Wimsatt (Ed). (1978). *Samuel Johnson: Selected Poetry and Prose*. University of California Press, p. 252.

You may scold a carpenter who has made you a bad table, though you cannot make a table. It is not your trade to make tables.

Samuel Johnson. (1736). In Boswell, J., & Croker, J. W. (1831). *The life of samuel johnson: Including a journal of a*

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<sup>34</sup> GoogleBook image attached.

<sup>35</sup> GoogleBook image attached.

*tour to the hebrides* (New, with numerous adds. and notes ed.). London: J. Murray, p 418.

Many unnecessary details appear in his work on mathematics, such as a certain absurd problem, which surely cannot be attributed to him, on the probability than an expected child will turn out to be a boy or to be a girl.

The Chinese writer Yuan Yuan criticised a still older writer, Sun-Tze. In Van Hee, P., Clarke, F., & Houghtaling, A. (1926). *The Ch'ou-Jen Chuan of Yuan Yuan*. *ISIS*, 8(1), 106.

Quoted in Walker, H. Mary. (1931). *Studies in the history of statistical method: with special reference to certain educational problems*. Baltimore: The Williams & Wilkins company, p. 5.

Hui is no help to me at all. He is pleased with everything I say.

(回也，非助我者也！於吾言，無所不說。)

Confucius (551-479 B.C.), *The Analects*. In Confucius, & Lau, D. C. (1979). *The analects (lun yü)*. New York; Harmondsworth; Penguin Books., p. 106.

See also: Cause and Effect, Experiment, Analysis

## DATA

### Missing

The first principle for handling missing data is not to have any.

Lincoln Moses. (1985). Personal  
Communication/Conversation, Pala Alto, CASBS.

The only truly effective way of dealing with missing data is not to have any in the first place!

Richard Kay. (2014). *Statistical Thinking for Non-Statisticians in Drug Regulation*. John Wiley & Sons, p. 113.

‘Data! data! data!’ he cried impatiently. ‘I can’t make bricks without clay.’

Sir Arthur Conan Doyle. (1892). *The Adventure of the Copper Beeches*. In Doyle, A. Conan, & Green, R. Lancelyn. (1892). *The adventures of Sherlock Holmes*. Harper & brothers, p. 289.

### Want

Now, what I want is, Facts. Teach these boys and girls nothing but facts.

Charles Dickens. (1848/1868). *Hard Times: For These Times*. New York and Boston: Books, Inc., p. 1.

### Speak

Although we often hear that data speak for themselves, their voices can be soft and sly.

Frederick Mosteller, Stephen Fienberg, and Robert Rourke (1983). *Beginning Statistics with Data Analysis*. Reading, Massachusetts: Addison-Wesley, p. 234.

### Mining

During this period I at last began to feel I was piling in some data... I remembered having read somewhere that gold mining consisted of gold extracted, if this was true, field work (Edition Anthropology). had much in common with gold mining.

Nigel Barley (1992). *The Innocent Anthropologist*. Henry Holt & Co (P), p. 108.

### Incomplete

If local authorities don't send us the statistics we ask for, then government figures will be nonsense. They'll be incomplete.

I pointed out that government figures are nonsense anyway. No one denied it, but Bernard suggested that Sir Humphrey wanted to ensure that they are a complete nonsense.

Jonathan Lynn and Anthony Jay (1986). *The Complete Yes Minister*. BBC Publications, p. 493.

## DECISION

Delay

How long halt ye between two opinions?

First Book of Kings, 18:21. *King James Bible*.

What?

Where do we go from here?

Who says we're here?

George Carlin (2004). *When Will Jesus Bring the Pork Chops?* New York: Hyperion, p. 155.

Post facto

Things in our life simply don't go according to set decisions. One glides into a new epoch and the so-called 'decision' is as a rule only the final summing-up of items long since entered into the ledger by life itself.

Franz Rosenzweig, letter (1928). In Franz Rosenzweig & Nahum Norbert Glatzer. (1998). *Franz rosenzweig: His life and thought* (3rd ed.). Indianapolis: Hackett Pub. Co., p. 164.<sup>36</sup>

Contracts

Selecting an appropriate contractor came next, and as the bids drifted in I couldn't help noticing that most the prices quoted seemed more appropriate for the renovation of the Taj Mahal.

Woody Allen (2007). *Mere Anarchy*. New York: Random House, p. 109.

Regret

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<sup>36</sup> GoogleBook image attached.



One day we will look back at our lives and regret more the things we have not done; than the ones we did.

Jennifer Rossouw. (2015). *A Step in the Right Direction - Daily Devotional*. BookBaby, p. 3.

Bull, Quandary, and Bear

Quandary: But the writer...admonished that only investors who feel certain that the uncertainties are being resolved should buy stocks. I see more uncertainties than certainties, so I'm uncertain.

Bull and Bear (in unison): You're the one constant in a world of constant change.

J. A. Livingston. (1973). Quoted in *Philadelphia Inquirer*, "Economic Time Capsule, An Inquirer Report from 1973", October 10, 2008, p. A6.

Comment: This is from a longer imagined dialogue among Bear, Bull, and Quandary written by Pulitzer Prize winning columnist J.A. Livingston.

Easy

If you want to get along, go along.

Donald A. Ritchie. (2016). *The U.S. Congress: A Very Short Introduction*. Oxford University Press, p. 21.

Thinking

Chi Wen Tzu always thought three times before taking action. When the Master was told of this, he commented, 'Twice would have been quite enough.'

(季文子三思而後行。子聞之，曰：「再，斯可矣。」).

Confucius (551-479 B.C.). In Confucius, & Lau, D. C. (1979). *The analects (lun yü)*. New York; Harmondsworth; Penguin Books., p. 79.

Endurance

Endurance is frequently a form of indecision.

Elizabeth Bibesco. (1951). *Haven. Short stories, poems and aphorisms, etc.* London: James Barrie.

## Sentence and Verdict

“No, No!” said the Queen. “Sentence first – verdict afterwards.”

Lewis Carroll. (1865/1869). *Alice’s adventures in Wonderland.* Boston: Lee and Shepard, p. 187.

## Classes

In spite of tests of significance, the experimenter tends to use at least three classes [of decisions]: If the results are in Class A, say, he accepts the null hypothesis, if they are in Class B, he rejects it, and, if they are Class C, he says he cannot make a decision and must perform another experiment.

Oscar Kempthorne. (1952). *The design and analysis of experiments.* New York: Wiley, p. 27.

## Options

...I contemplated my options. The more I contemplated my options, the more they disappeared, until I didn’t seem to have any at all.

Jonathan Lynn and Anthony Jay (1896). *The Complete Yes Minister.* BBC Publications, p. 421.

See also: Guessing, Benefit, and Cost

## DEMOGRAPHY

ETHNICK. Adj. Heathen; Pagan; not Jewish; not Christian.

ETHNICKS. N.f. Heathen; not Jews; not Christians.

Samuel Johnson (1755). *A Dictionary of the English Language*. Reproduced by Arno Press, (New York, 1979), No Pagination.

United States Colonies and England

Sir: We may remember the time when our mother Country, as a mark of her parental tenderness, emptied her jails into our habitations, “for better peopling,” as she expressed it, “of the colonies.”

Benjamin Franklin (1706-1790)  
Quoted in Nicholas Bakalar (1997). *American satire: An anthology of writings from colonial times to the present*. New York, N.Y., U.S.A: Meridian, p. 48.

Army

One of the consequences of this age stratification (in the US army of WWII). was to keep the troops under control of wiser and cooler (but older). heads. I believe that this age structure kept the troops from rampaging either in the form of fleeing in fear or killing in mindless rage. Of course, seniority rules bring this age stratification about.

Peter H. Rossi. (2003). *A 20<sup>th</sup> Century Journey: Remembered Fragments of My Life*. Amherst, Massachusetts: Privately Published, p. 90.

Birth Rate

Every minute dies a man,  
And one and one-sixteenth is born.

*Parody by a Statistician of Tennyson's Vision of Sin, pt. iv, st. 9 (See 41:13), from The Oxford Dictionary of Quotations*

## Marriage

In this one disparity [age] sufficient to operate as a bar to such a marriage? I find, one reference to the figures, that a large proportion of these marriages [in England and Wells] are contracted between parties of very unequal ages, and that the elder of these contracting parties is, in rather more than three fourths of those instances, the bride groom.

Charles Dickens. (1848/1868). *Hard Times: For These Times*. New York and Boston: Books, Inc., p. 85.

Comment: Mr. Gradgrind, in this quote, uses statistics to persuade his daughter, Louisa, to consider marriage to an older man, Mr. Boundary. The latter was as it turned out, a Seasoned prevaricator. The marriage ended.

See also: Surveys, Analysis, Population, Categories, Dichotomy, Distribution, Change, Cause and Effect.

## DICHOTOMY

It is absurd to divide people into good and bad. People are either charming or tedious.

Oscar Wilde. (1893). *Lady Windermere's fan: A play about a good woman*. S. French, p. 6.

We are often told that the poor are grateful for charity. Some of them are no doubt, but the bet amongst the poor are never grateful. They are ungrateful, discontented, disobedient, and rebellious. They are quite right to be so.

Oscar Wilde. (1905). *The soul of man under socialism*. In

Today I will practice “all or nothing” thinking.

Thurnfill, A. and Wells, S. (1998). *Today I Will Nourish my Inner Martyr*. New York: Three Rivers Press, p. 49.

## DISCLOSURE

### Censorship

“... (In). 1856, the celebrated Victorian civil engineer and bridge builder Robert Stephenson recommended full disclosure... (saying that). ‘nothing was so instructive to the younger member of the profession, as records in large works, and means employed in repairing the damage.’”

But he might also been not a little concerned to see in the Proceedings of the First International Congress on Computing in Civil Engineering ...a single session devoted to “Anatomies of Computer Disasters,” [what abstract said]:

“No papers from this session will be published.”

Henry Petroski. (1992). *To Engineer is Human*. Vintage Books, p. 204.

See: Censorship, Reports.

## DISCRIMINANT FUNCTION

### Literature

‘... in the case of the poet ... it is chiefly through his images that he, to some extent unconsciously, “gives himself away”.’

Professor Spurgeon reaches one conclusion, among others: that there are two minds behind the works of Shakespeare and Bacon.

L.H.C. Tippet. (1943). *Statistics*. London: Geoffrey Cumberlege Home University Library, Oxford University Press, p. 177.

### Cops

As my memory gropes backward I think, for example, of a strange office that an old-time roundsman named Charlie had to undertake every Spring. It was to pick up enough skilled workmen to effect the annual redecoration and refurbishing of the “Baltimore City Jail...His plan was imply to make a tour of the saloons and stews in the Marsh Market section of Baltimore, and look over the drunks in Congress assembled. He had a trained eye, and could detect a plumber or a painter through two weeks’ accumulation of beard and dirt.

H.L. Mencken, from Alistair Cooke (1955), *The Vintage Mencken*, p. 29

### Beauty

Men do not demand genuine beauty, even in the most modest does: they are quite content with the mere appearance of beauty. That is to say, they show no talent whatever for differentiating between the artificial and the real. A film of face powder, skillfully applied, is as satisfying to them as an epidermis of damask. The hair of a dead Chinaman, artfully dressed and dyed, gives them as much delight as the authentic tresses of Venus. False bosoms intrigue them as effectively as the soundest of living fascia.

H.L. Mencken, from Alistair Cooke (1955), *The Vintage Mencken*, p. 124

## DISTRIBUTION OF OBSERVATIONS

### Diary Records

I made a little book in which I allotted a page for each of the virtues. I ruled each page with red ink to have seven columns, one for each day of the week, marking each column with a letter for the day. I crossed these columns with thirteen red lines, marking the beginning of each line with the first letter of one of the virtues on which line and in its proper column I might mark a little black spot every fault I found upon examination to have been committed respecting that virtue upon that day.

Benjamin Franklin. (1793). *The autobiography of benjamin franklin: 1706-1757*.

### Law of Frequency of Error

I know of scarcely anything so apt as to impress the imagination as the wonderful form of cosmic order expressed in the “Law of Frequency of Error.” The law would have been personified by the Greeks and deified, if they had known it. It reigns with serenity and in complete self effacement amidst the wildest confusion. The higher the mob, and the greater the apparent anarchy, the more perfect is its sway. It is the supreme law of unreason. Whenever a large sample of chaotic events are taken in hand and marshaled in the order of their magnitude, an unsuspected and most beautiful form of regularity proves to have been latent all along.

Francis Galton. (1894/1973). *Natural inheritance*. New York: AMS Press, p. 66.<sup>37</sup>

See also: Variation, Demography

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<sup>37</sup> GoogleBook image attached.



## ECONOMICS

Horse and Hen

Sir,

The Parliamentary Secretary to the Minister of Agriculture stated in Parliament that the amount of oats issued to race horses in April was 556 tons, which was considered a comparatively small amount to divert from human consumption. He did not say, however, that it would have been an adequate grain ration for 300,000 hens which in April, would have laid at least 6,000,000 eggs.

Yours faithfully, T. L. Ward

In Kenneth Gregory (Ed). (1976). *The First Cuckoo. A Selection of the Most Witty Amusing and Memorable Letters to THE TIMES (1900-1975)*. London: Times Books, p. 206.

Happiness

Evidence many not buy happiness, but it sure does steady the nerves.

Howard Wainer & Lisa Browne. (2004). Two statistical paradoxes in the interpretation of group differences: Illustrated with medical school admission and licensing data. *The American Statistician*, 58(2), 117-123.

Comment: This is a paraphrase of what many of us understood as Satchel Paige's comment about money, happiness, and steady nerves. It appears in *American Statistician* (May 1, 2004). in a nice article entitled "Two Statistical Paradoxes in the Interpretation of Group Differences: Illustrated with Medical School and Licensing Data." by Howard Wainer and Lisa Browne.

Evil

The Lack of Money is the Root of All Evil: The Rise of the American One-Liner.

James Geary (2005). Chapter 6 Title. *The World in a Phrase*. New York: Bloomsbury, pp. viii and 126.

## Bankruptcy

Like the subjects of this book, I am a bankrupt.

Julian Hoppitt (1987). *Risk and Failure in English Business: 1700-1800*. Cambridge: Cambridge University Press, p. vii.

## Family

Families from any quarter possessed of a good moral character, and having three children fit for work, above nine years of age, are received,--supplied with a house at moderate rent and the women and children provided for work.

Sir John Sinclair (1795). *The Statistical Account of Scotland: Drawn up from the Communications of the Ministers of Different Parishes*. Aberdeen: William Creech, p. 40.

Comment: Sir John Sinclair's statistical compendium contained this information on New Lanarkshire, along with other explanations and descriptions in his statistical tract.

## Economists

Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back.

John Maynard Keynes. (1936). *The general theory of employment, interest and money*. New York: Harcourt, Brace, p. 383.

## Cost Benefit

Duke Ai asked Yu Juo, 'The harvest is bad, and I have not sufficient to cover expenditure. What should I do?'

Yu Juo answered, 'What about taxing the people one part in ten?'

‘I do not have sufficient as it is when I tax them two parts in ten. How could I possibly tax them one part in ten?’

‘When the people have sufficient, who is there to share your insufficiency? When the people have insufficient, who is there to share your sufficiency?’

Confucius, & Lau, D. C. (1979). *The analects (lun yü)*. New York; Harmondsworth;: Penguin Books, p. 114.

## Anthropology

It is impossible, of course, at such moments not to try to draw up a balance sheet of profit and loss. I had certainly learnt a lot about a small and relatively unimportant people of West Africa. Finishing fieldwork is always a matter of definition, not of fact.

Nigel Barley (1992). *The Innocent Anthropologist*. Henry Holt & Co (P), p. 189.

## Labor and Capital

The number of useful and productive laborers is everywhere in proportion to the quantity of capital stock which is employed in setting them to work, and to the particular way in which it is so employed.

Adam Smith. (1723-1790). (1776 /1902). *The wealth of nations*. Collier, p. 41.

## Balance Sheet

Have you any idea what that means for business? Quite simply this: in the classic duel form *AD GLADIUM*, the losses are obviously one out of two, which means, in other words, that the consumption amounts to 50 percent. Add a safety margin of 10 percent for fatally wounded cases – and we arrive at a material-consumption of 60 percent per show. Right you are – here we have the classic calculation on which we base our balance sheet.

But now the public comes along and demands animal stunts. They will insist on the picturesque, and of course it never occurs to them that exposing my gladiators *AD BESTIARIUM* raises consumption to 85 or 90 percent. Only a few days ago my son’s tutor, an extremely able mathematician, worked out that even the best gladiator’s chance to survive three years’ active service is about one in twenty-five. Logically this means that the contractor must make up for the amount spent on each man’s training in one and a half or two performances, to name an average.

Arthur Koestler. (1939/1967). *The gladiators* (Danube ed.). New York: Macmillan, p. 16.

Mafia

He's a businessman...I'll make him an offer he can't refuse.

Mario Puzo. (1969). *The godfather*. New York: Putnam, Book 1, Chapter 1, p. 39.

Anthropology

The field worker can never hope to maintain a good rate of work for very long. In my time in Africa, I estimated that I perhaps spent one per cent of my time doing what I had actually gone for. The rest of the time was spent on logistics, being ill, being sociable, and above all, waiting.

Nigel Barley (1992). *The Innocent Anthropologist*. Henry Holt & Co (P), p. 98.

**INSERT SECTION ON FAMILY FROM EMAIL/WORD SEPT 6, 2008**

## EDUCATION

Mom

If you promise to be very careful, mommy will let you carry the baguettes.

Edward Korea (2008). Cartoon Caption. *New Yorker Book of Mom Cartoons*. Kansas City: Andrews McMeel Publishing, (LLC), p. 8.

Little Vessels

The speaker and the school master, and the third grown person present, all backed a little, and swept with their eyes the inclined plane of little vessels then and there arranged in order, ready to have imperial gallons of facts poured into them until they were full to the brim.

Charles Dickens. (1848/1868). *Hard Times: For These Times*. New York and Boston: Books, Inc., p. 2.

Legislators

The Cabinet Ministers, the army of their subordinates...have for the most part received a university education, but no education in statistical method. We legislate without knowing what we are doing. The War Office has some of the finest statistics in the world. What comes of them? Little or nothing. Why? Because the Heads do not know how to make anything of them. Our Indian statistics are better than those of England. Of these no use is made in administration. What we want is not so much (or at least now in present). an accumulation of facts, as to teach men who are to govern the country, the use of statistical facts.

Florence Nightingale, Letter to Benjamin Jow. (1891). In Nightingale, F., & McDonald, L. (2003). *Florence nightingale on society and politics, philosophy, science, education and literature*. Waterloo, Ont: Wilfrid Laurier University Press, Pag 110.

Masters

The speaker and the school master, and the third grown person present, all backed a little, and swept with their eyes the inclined plane of little vessels then and there arranged in order, ready to have imperial gallons of facts poured into them until they were full to the brim.

Charles Dickens. (1848/1868). *Hard Times: For These Times*. New York and Boston: Books, Inc., p. 2.

## English

The high-school English teacher will be fulfilling his responsibility if he furnishes the student a guided opportunity, through the best writing of the past, to come, in time, to an understanding of the best writing of the present...

And if the student finds that this is not to his taste? Well, that is regrettable. Most regrettable. His taste should not be consulted; it is being formed.

Flannery O'Connor...On Teaching Literature  
"Total Effect and the Eighth Grade", 1957

## Sequence

We talked of the education of children; and I asked him what he thought was best to teach them first. JOHNSON. "Sir, it is no matter what you teach them you may stand disputing which is best to put it first, but in the mean time your breech is bare. Sir, while you are considering which of two things you should teach your child first, another boy has learnt them both."

Samuel Johnson. (1736). In Boswell, J., & Croker, J. W. (1831). *The life of samuel johnson: Including a journal of a tour to the hebrides* (New, with numerous adds. and notes ed.). London: J. Murray, p 464.<sup>38</sup>

## Frustration

I never enlighten anyone who has not been driven to distraction by trying to understand a difficulty or who has not got into a frenzy trying to put his ideas into words.

When I have pointed out one corner of a square to anyone and he does not come back with the other three, I will not point it out to him a second time.

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<sup>38</sup> GoogleBook image attached.

Confucius (551-479 B.C.). In Confucius, & Lau, D. C. (1979). *The analects (lun yü)*. New York; Harmondsworth;: Penguin Books, p. 86.

## EIGENVALUE

“Dudley Eigenvalue, D.D.S., browsed among treasures in his Park Avenue office/residence. Mounted on black velvet in a locked mahogany case, showpiece of the office was a set of false dentures, each tooth a different precious metal. The upper right canine was pure titanium and for Eigenvalue the focal point of the set.”

Pynchon, T. (1963). *V: A novel*. Philadelphia, PA: Lippincott, p. 76.

Comment: Pynchon is possessed of a deliciously weird sense of humor.



## ENVIRONMENT

### Environmental Statistics/Conditional Probability

Where there's smoke, there's pollution.

Wolfgang Mieder. (1989). *American Proverbs: A Study of Texts and Contexts*. P. Lang, p. 234.

### Developing Countries

You know what the smart thing to do in these developing countries that need electricity? To have tried large-scale with alternative energy sources: solar, wind, geothermal, etc.... That would have been smart. That's only me didn't do it.

George Carlin (2004). *When Will Jesus Bring the Pork Chops?* New York: Hyperion, p. 54.

## EMPIRICAL

### EMPIRIC: Definition

Empiric. N. f. A trier or experimenter' such persons as have no true education in or knowledge of physical practice, but venture upon hearsay and observation only.

Samuel Johnson (1755). *A Dictionary of the English Language* Reproduced by Arno Press, (New York, 1979), No Pagination.

Empiricism. n. f. [from empiric]

Dependence or experience without knowledge or art; quackery

Samuel Johnson (1755). *A Dictionary of the English Language* Reproduced by Arno Press, (New York, 1979), No Pagination.

### Anteus v. Hercules

Like Anteus, who, harassed by Hercules, would restore his meaning strength every time his body touched his mother Earth, so did speculation constantly gain by contact with the firm reality of experience.

Tobias Dantzig (2007). *Number: The Language of Science*. Penguin, p. 339.

See also: Data, Experiment, Equation and Theory

## EQUALITY/EQUIVALENCE

The road to Hell is paved by the same contractors as all the other roads.

The road to hell was paved with good intentions, and the child welfare system was the paving contractor.

Canadian Judge Edwin Kimelman (1985), p.276 cited in Elizabeth Stanley (2016) *The Road to Hell: State Violence against Children in Postwar New Zealand*. Auckland, NZ: Auckland University Press, p.228.

Ning Wu Tzu was intelligent when the Way prevailed in the state, but stupid when it did not. Others may equal his intelligence but they cannot equal his stupidity.

(寧武子，邦有道則知，邦無道則愚。其知可及也，其愚不可及也。)

Confucius (551-479 B.C.). In Confucius, & Lau, D. C. (1979). *The analects (lun yü)*. New York; Harmondsworth,: Penguin Books, p. 79.

See also: Statistical Significance

## EQUATION

### Compact

These equations are compact statements about the way nature works, expressed in the language of mathematics. As such the equations... cannot be derived based on logical reasoning alone: they have resulted from a critical dialogue between the observation of nature and the intuition and thinking of great minds.

Sander Bais. (2005). *The Equations: Icons of Knowledge*. Cambridge, Massachusetts: Harvard University Press, p. 6.

Note: The equations about which Bais wrote represent the structure underlying physical phenomena, including a fundamental probabilistic aspect of nature in the Schrodinger context.

### Animals

And yet what differentiates him from other animals is perhaps feeling rather than reason. I have seen a cat reason more often than laugh or weep. Perhaps it laughs or weeps within itself – but then perhaps within itself a crab solves equations of the second degree.

Miguel de Unamuno. (1913). Unamuno, M. d., Kerrigan, A., & Nozick, M. (1972). *The tragic sense of life in men and nations*. Princeton, N.J.: Princeton University Press, p. 5.

### Beauty

It is more important to have beauty in one's equations than to have them fit experiment.

Arthur Koestler. (1980). *Bricks to Babel : selected writings with comments by the author*. London: Hutchinson, p. 371.

### Silly

It took the mind of Aristotle to put the (human). weight problem into scientific terms, and in an early fragment of the *ethics* he states that the circumference of any man is equal to his girth

multiplied by pi. This sufficed until the Middle Ages, when Aquinas translated a number of menus into Latin and the first really good oyster bars opened.

Woody Allen (2007). *Mere Anarchy*. New York: Random House, p. 142.

See also: Theory, Experiment, Models.

## EQUITY

### Negotiation

Franco: This brother is a man of ability, popular among his men. When the Mwangaza is Governor of South Kivu, he will be well advised to select my brother as his Chief of Police for all the region.

Dolphin: In the new democracy, all appointments will be the result of transparent consultation.

Franco: My brother will pay one hundred cows and fifty thousand dollars cash for a three-year appointment.

Dolphin: The offer will be considered democratically.

John LeCarre. (2006). *The mission song* (1st ed.). New York: Little, Brown and Co, p. 186.

## ERROR

### Fleeting

The Newtonian principle of gravitation is now more firmly established... than it would be were the government to step in, and make it an article of necessary faith... Reason and experiment have been indulged, and error fled before them.

Thomas Jefferson. (1802). *Notes on the state of virginia: With an appendix* (9th American ed.). Boston: Printed by H. Sprague, p. 220.

### Eliminated

The fact of it is that knowledge can only advance across a battlefield strewn with eliminated errors.

Nicholas Rescher. (2007). *Error: On our predicament when things go wrong*. Pittsburgh, PA: University of Pittsburgh Press, p. 8.

### Subjectivism

The study of error is not only in the highest degree prophylactic, but it serves as a stimulating introduction to the study of truth. As our minds become more deeply aware of their own subjectivism, we find zest in objective method that is not otherwise there.

Walter Lippman (1922/1965). *Public Opinion*. New York: Free Press, p. 256.

### Preference

If we are going to err at something, we would rather err by failing to do something.

Joseph T. Hallihan (2009). *Why We Make Mistakes*. New York: Broadway Books, p. 53.

Comment: Hallihan's book is studded nicely with evidence in support of the declaration, from scientific studies published in peer reviewed journals. There is aphorism, possibly from French, that says: "We more often regret what we've not done, than what we have done."

## Delusion

Almost every systematic error which has deluded men for thousands of years relied on practical experience. Horoscopes, incantations, oracles, magic, witchcraft, the cures of with doctors and of medical practitioners before the advent of modern medicine, were all firmly established through the centuries in the eyes of the public by their supposed practical successes.

Michael Polanyi (1958/2012). *Personal Knowledge*.  
Routledge, p. 194.

## Nuclear Reaction

An error in the measurement of the rate of nuclear reaction involving the dominant Li-7 isotope led the physicists to underestimate its potential yield. Bravo should have yielded 15 million tons. It actually yielded three times this figure...it was the largest nuclear weapon ever tested by the United States. Its fireball measured four miles across as it vaporized three islands....

Jim Baggott (2010). *The First War of Physics*. New  
York: Pegasus Books, p. 473.

See also: Failure, Mistakes



## EVALUATION

### Industry

In the 1960s program evaluation was a minor growth industry. Conventional social research was used but there were also new developments. The most exciting development was the invention of field experiments. These experiments combined randomized experiments with sample surveys.

Peter H. Rossi. (2003). *A 20<sup>th</sup> Century Journey: Remembered Fragments of My Life*. Amherst, Massachusetts: Privately Published, pp. 262-263

### Iron Law

The Iron Law of Evaluation and Other Metallic Rules

Peter H. Rossi. (2003). *A 20<sup>th</sup> Century Journey: Remembered Fragments of My Life*. Amherst, Massachusetts: Privately Published, p. 264.

Comment: Rossi was properly proud of the title of the article, its contents, and its sequel. I once said to Pete that titanium would be a better metaphor. After all, I am an engineer. He grunted, and we then enjoyed further libation.

### Success

Minister, he said earnestly, we don't measure our success by results, but by activity. And the activity is considerable.

Jonathan Lynn and Anthony Jay (1986). *The Complete Yes Minister*. BBC Publications, p. 193.

See also: Experiment, evidence, empirical, failure.

## EVIDENCE

EVIDENCE, n.f. (French)

1. Testimony; proof.

I had delivered the evidence of the purchase unto Baruch.

Jeremiah 32:16. *King James Bible*.

Samuel Johnson (1755/1976). *A Dictionary of the English Language* Reproduced by Arno Press, (No Pagination)

Evidence, n.f. (French)

1. The state of being evident; clearness; indubitable certainty; notoriety.
2. Testimony; proof.

Samuel Johnson (1755/1979). *A Dictionary of the English Language* Reproduced by Arno Press, (No Pagination).

Selective Use

...he (Dr. Adam Smith). has not stopped to take notice of these instances, where the wealth of a society may increase (according to his definition of wealth). without having any tendency to increase the comforts of the labouring part of it.

Thomas Malthus. (1798). *An essay on the principle of population, as it affects the future improvement of society. with remarks on the speculations of mr. godwin, M. condorcet, and other writers*. London: printed for J. Johnson, p. 304.

Disbelief

It is lamentable to think of it: but this restraint was the result of no arithmetical process, was self imposed in defiance of all calculation, and went dead against any table of probabilities that any Actuary would have drawn up from the premises. The girl believed that her father had not deserted her.

Charles Dickens. (1848/1868). *Hard Times: For These Times*. New York and Boston: Books, Inc., p. 49

## Hope

Those who are engrossed in the rapid realization of an extravagant hope tend to view facts as something base and unclean. Facts are counter-revolutionary.

Eric Hoffer. (1955). *The passionate state of mind, and other aphorisms*. [1st ed.] New York: Harper, p. 75.

## Ignorance

If a nation expects to be ignorant and free, in a state of civilization, it expects what never was and never will be.

Thomas Jefferson. In Paul Leicester Ford (Ed). (1892). *The writings of Thomas Jefferson*. New York: G.P. Putnam's Sons, p. 4.

## Arrogance

That man must be very ignorant, for he answers every question that is asked him  
(Il faut que cet homme-là soit un grand ignorant, car il répond à tout ce qu'on lui demande.)

Voltaire, 1694-1778. (1901). *A philosophical dictionary Volume 3 of The Works of Voltaire: A Contemporary Version with Notes, Voltaire*. E.R. Du Mont, p. 222.

## Time

Life cannot wait until the sciences may have explained, the universe scientifically. We cannot put off living until we are ready. The most salient characteristic of life is its correctiveness: it is always urgent, "here and now" without any possible postponement. Life is fired at us point blank.

Jose Ortega y Gasset, J. (1946). *Mission of the university*. London: Routledge & Kegan Paul, p. 63.

## Inadmissible

Inadmissible, adj. Not competent to be considered. Said of certain kinds of testimony which juries are supposed to be unfit to be entrusted with, and which judges, therefore, rule out, even of proceedings before themselves alone.

Ambrose Bierce. (1911). *Devil's Dictionary, Volume 7 of The Collected Works of Ambrose Bierce*. Neale, p. 63.

## Proof

Proof, n. Evidence having a shade more of plausibility than of unlikelihood. The testimony of two credible witnesses as opposed to that of only one.

Ambrose Bierce. (1911). *Devil's Dictionary, Volume 7 of The Collected Works of Ambrose Bierce*. Neale, p. 104.

## Frogs

I don't see no pints about that frog that's any better'n any other frog.

Mark Twain, *The Celebrated Jumping Frog*. In Twain, M., Branch, E. M., Hirst, R. H., Smith, H. E., & Iowa Center for Textual Studies. (1979). *Early tales & sketches 1864-1869*. Berkeley: Published for the Iowa Center for Textual Studies by the University of California Press, p. 286.

## Unhappy

"...the most baleful mischiefs can be expected from the unmanly conduct of not daring to face truth, because it is unpleasing.

"...if we proceed without a thorough knowledge...of the difficulties we have to encounter...we shall not only exhaust our strength in fruitless exertions...we shall be perpetually crushed by the recoil of this rock of Sisyphus."

Thomas Malthus. (1798). *An essay on the principle of population, as it affects the future improvement of society. with remarks on the speculations of mr. godwin, M. condorcet, and other writers*. London: printed for J. Johnson, p. 347.

### Ambition

He followed up to the advantage...The side that can prove anything in a line of units, tens, hundreds, and thousands, Mrs. Bounderby, seems to give me the best chance.

You are a singular politician, said Louisa (Mrs. Bounderby).

Charles Dickens. (1848/1868). *Hard Times: For These Times*. New York and Boston: Books, Inc., p. 116.

### Balance

But in the morning he appeared at breakfast at the usual hour, and took his usual place at the table. Aged and bent he looked, and quite bowed down; and yet he looked a wiser man, and a better man, than is the days when in this life he wanted nothing but facts.

Charles Dickens. (1848/1868). *Hard Times: For These Times*. New York and Boston: Books, Inc., p. 246

### Trust

The amount of knowledge which we can justify from evidence directly, available for us to use can never be large. The overwhelming proportion of our factual beliefs continue therefore to be held at second hand through trusting others, and in the great majority of cases our trust is placed in the authority of few people with widely acknowledged standing.

Michael Polanyi (1958/1964). *Personal Knowledge*. New York: Harper, p. 208.

Quoted in Sills and Merton (1991).

## EXOGENOUS

With respect to what may happen to thee from without, consider that it happens either by chance or according to Providence, and thou must neither blame chance nor accuse Providence.

Marcus Aurelius. (121 - 180 CE). Translated by George Long. (1904). *Meditations*. D. Appleton, p. 122.

## EXPECTED VALUE, ASYMTOTES

### Infinity

Infinity is where you transfer from one parallel line to another.

Thomas W. Weller (1982). *Minims, Or, Man is the Only Animal that Wears Bow Ties*. Houghton Mifflin Company, p. #.

### Runs

How do the dogs of New York know when to stop biting and when to make up the daily quota? How are the murderers in England and Wales made to stop at four victims per million? By what mysterious power is the roulette ball induced, after a glut of “reds,” to restore the balance in the long run? By “the laws of probability” (or “the law of large numbers”). we are told. But that law has no physical powers to enforce its dictates. It is impotent—and yet virtually omnipotent.

Arthur Koestler. (1980). *Bricks to Babel : selected writings with comments by the author*. London: Hutchinson, p. ##.

### Long Term

Count to a billion.

George Carlin (2004). *When Will Jesus Bring the Pork Chops?* New York: Hyperion, p. 270.

Comment: Mr. Carlin used the sentence to characterize goofy television game shows.

## EXPERIMENT

Definition.

Empirical, Empirick.

Verified in experiments.

Samuel Johnson (1755/1979). *A Dictionary of the English Language*. Reproduced by Arno Press, No pagination.

Definition.

EXPERIMENT. N.f. [experimentum, Latin]

Trial of any thing; something done in order to discover an uncertain or unknown effect.

Samuel Johnson (1755/1979). *A Dictionary of the English Language*. Reproduced by Arno Press, No pagination.

Subversion

At each school the children were divided into two comparable groups; one group received the milk and the other did not, and the effect of the milk was to be measured by comparing the growth rates of the two groups. In an experiment of this kind, accuracy depends very much on the two groups or sample of children being similar on average before the feeding begins, i.e. on one being unbiased with respect to the other. To secure this, the children were selected for the two groups either by ballot or by a system based on the alphabetical order of the names... the whole thing was spoilt by giving the teachers discretionary powers, where either method gave an undue proportion of well-fed or ill-nourished children "to substitute others to obtain a more level selection."

The bias did not ruin the experiment, but ... the interpretation of some of the results was left somewhat a matter of conjecture...

L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey Cumberlege Home University Library, Oxford University Press, pp. 90-91.

Unnatural



Man is by nature metaphysical and proud. He has gone so far as to think that the idealistic creations of his mind, which correspond to his feelings, also represent reality. Hence it follows that the experimental method is by no means primitive or natural to man.

Claude Bernard. (1865). *Introduction à l'étude de la médecine expérimentale*. In Bernard, C. (1957). *An introduction to the study of experimental medicine*. Translated by Henry Copley Green. New York: Dover Publications, p. 27.

### Difficult

It is one thing to design a randomized controlled experiment on paper but quite another to carry out the design faithfully. Indeed, one of the major lessons of the last decade of large scale field experimentation is that the art of implementation is as demanding, in its way as, the task design.

Peter H. Rossi, Richard A. Berk, Kenneth J. (1980). *Money, Work, and Crime: Experimental Evidence*. New York: Academic Press, p. 75.

### Rarity

In most fields that are the subject of statistical inquiry, the opportunities for controlled experiments are very few.

L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey Cumberlege Home University Library, Oxford University Press, pp. 132.

Comment: Tippett got a bit off his wheels on this one. Witness randomized trials in industrial, meteorological, education, criminological, social welfare, transportation, energy production, forestry and agriculture, and so on.

### The U.S. States

There is nothing I more deprecate than the use of the Fourteenth Amendment beyond the absolute compulsion of its words to prevent the making of social experiments that are an important part of the community desires, in the insulated chambers afforded by the several states, even though the experiments may seem futile or even noxious to me and to those whose judgment I most respect.

Mr. Justice G.W. Holmes, II, Dissenting opinion in *Truax vs. Corrigan* (1914).

The U.S. States

(A)dvances in the exact sciences and the achievements in invention...(i)n large measure...have been due to experimentation...It is one of the happy incidents of the federal system that a single courageous State may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country. This Court has the power to prevent an experiment...but in the exercise of this high power, we must be ever on our guard, lest we erect our prejudices into legal principles. If we would guide by the light of reason, we must let our minds be bold. (285 U.S.262, 31-311 (1932))

Justice Brandeis. *New State Ice Co. v. Liebmann*, 285 U.S. 262 (1932). Advisory Committee on Experimentation in the Law.

Biblical

Try all things; hold fast that which is good.

Paul. (ca. AD 5-67). *I Letter to the Thessalonians* 5:21.  
*King James Bible*.

Stupid

There are, to be sure, ways of randomizing stupidly. If one treatment is applied to one field randomly and another treatment to another field, the precision of within field comparisons will be lost.

Cuthbert Daniel. (1976). *Application of Statistics to Industrial Experimentation*. New York: John Wiley and Sons, p. 25.

Comment: In 2002, the Institute for Education Sciences of the US Department of Education had to issued a technical note on this under the rubric of the What Works Clearinghouse. See <http://whatworks.ed.gov>. The note was to remind readers that such a randomized trial was naïve, and does not meet good standards of evidence.

## Nutritional

Good food is turned into evil drink. Now some have said that there is no harm in partaking of fermented liquids.

.....

Then let this plan be followed: let men gather in two parties, one having a feast of food, apples and corn, and the other have cider and whiskey. Let the parties be equally divided and matched and let them commence their feasting at the same time. When the feast is finished you will see those who drank the fermented juices murder one of their own party but not so with those who have food only.

New York State Museum. (1914). *Report, Volume 66, Issue 2 Volume 66, Part 2 of Annual Report, New York State Museum*. University of the State of New York, p. 45.

## Complex

No aphorism is more frequently repeated in connection with field trials, than that we must ask Nature few questions, or, ideally, one question, at a time. The writer is convinced that this view is wholly mistaken. Nature, he suggests, will best respond to a logical and carefully thought out questionnaire; indeed, if we ask her a single question, she will often refuse to answer until some other topic has been discussed.

R. A. Fisher. (1926). The arrangement of field experiments. *Journal of the Ministry of Agriculture of Great Britain*, 33, 505513.

## Poetical

These were the generations of Budgeting:

.....

Planning-Programming-Budgeting begat Management by Objectives  
Management by Objectives begat Zero base Budgeting  
Zero base Budgeting begat Evaluation  
Evaluation begat Experimentation  
Experimentation showed that nothing works.

A. Schick, "Deuteronomy," *The Bureaucrat*, 1976

## Causal Processes

All true and fruitful natural philosophy hath a double scale or ladder, ascendant, and descendant, ascending from experiments to the invention of causes, and descending from causes to the invention of new experiments.

Francis Bacon. (1605). In Bacon, F., Wright, W. A., Frowde, H., & Oxford University Press. (1880). *Bacon: The advancement of learning (Second ed.)*. Oxford: At the Clarendon Press, p. 111.

## Thinking

Why think? Why not try the experiment?

John Hunter, *Letter to Edward Jenner*, Aug. 2, 1775. In Hunter, J., Ottley, D., Palmer, J. F., Bell, T., Babington, G. G., Home, E., Sir, . . . Owen, R. (1835). *The works of John Hunter. with notes*. London: Published by Longman, Rees, Orme, Brown, Green, and Longman, p. 56.

## Uncontrolled

You remember what Quetelet wrote—and Sir J. Berschel enforced the advice—Put down what you expect from such and such legislation: after... years, see where it has given you what you expected, and where it has failed. But you change your laws and you're administering of them so fast, and without an inquiry after results past or present, that it is all experiment, seesaw doctrinaire, a shuttlecock between two battled doors.

Florence Nightingale, Letter to Francis Galton. (1891). In Nightingale, F., & McDonald, L. (2003). *Florence Nightingale on society and politics, philosophy, science, education and literature*. Waterloo, Ont: Wilfrid Laurier University Press, p. 113.

## Meteorological

Experiments can only be conducted in the public domain with consequent sociological, jurisdictional, and ethical issues.

Braham (19xx). (p. 57). **(GET PROPER REFERENCE)**

## Experiments Trump Theory

That which experiment has found –  
Through theory had no part in –  
Is always reckoned more than sound  
To put your mind and heart in.

Gino Segré. (2007). *Faust in Copenhagen: A Struggle for the Soul of Physics*. New York: Viking, p. 63.

Comment: This reminder of the importance of experiments was written by theorists and “intended primarily as a vehicle for making fun of other theorists” (Segré, p. 63).

## Philosophy

In 1664, the Royal Society for the Advancement of Experimental Philosophy formed a committee “to improve the English tongue,” though nothing lasting seems to have come of it.

Bill Bryson (2001). *The Mother Tongue: English and How It Got That Way*. New York: Perennial, p. 138.

## Types

For some purposes, it is useful to distinguish two types of experiments: absolute and comparative experiments. An example of an absolute experiment is the determination of, say, the electric charge on an electron. It was for such experiments as these that the theory of errors was originally devised.

...

A comparative experiment, on the other hand is an experiment in which two or more treatments are compared in their effects on a chosen characteristic of the population.

...

This book is concerned mainly with comparative experiments...the taking of controlled observations, where control is effected on all variables by the experimenter, either in actually fixing the variables, or controlling statistically by the process of randomization...

Oscar Kempthorne. (1952). *The Design and analysis of experiments*. New York: Wiley, p. 6.

## Weapon

Every experiment is like a weapon which must be used in a particular way – a spear to thrust a club to strike. Experimenting requires a man who knows when to thrust and when to strike, each according to need and fashion.

Philippus Aureolus Paracelsus (1605). *Surgeon's Book (Chirurgische Bucher)*. Translated by Henry M. Pachter, and cited in Mencken, p. 139.

## Intuition

Experimental evidence and logical necessity do not exhaust the objective world which we call reality. There is a mathematical necessity which guides observation and measurement, and of which logic is only, one phase. The other phase is that intangible, vague thing which escapes all definition, and is called intuition.

Tobias Dantzig (2007). *Number: The Language of Science*. Penguin, p. 256.

## Planning

As soon as the contract is signed, or the grant is awarded, the size of the target group available for the experiment drops in half.

Anonymous

See also: Cause and Effect

## EXPERIMENTERS

Great

When we come to the great experimenters—and we do not come to them often, or they to us—they to us—the requirement of randomization is desirable. Their reportable results are nearly always crucial; results must strike all (or nearly all) competent readers “between the eyes”.

Cuthbert Daniel (1976). *Applications of Statistics to Industrial Experimentation*, p. 23.

Pretty

If your wish is to become really a man of science and not merely a petty experimentalist, I should advise you to apply to every branch of natural philosophy, including mathematics.”

Mary Shelley. (1818/2008). *Frankenstein or the Modern Prometheus*. Reproduced in hard copy by Paperview (<http://www.paperviewgroup.com>), p. 39.

Comment: This advice was given to Victor Frankenstein by one of Frankenstein’s teachers, M. Waldman. Frankenstein’s monster, despite having no name, or on account of it, learned something too of natural philosophy. And revenge.

Theory and Experiment

“...the theoretical model Einstein chose made it easy to accept an experimental answer when blackboard calculation and laboratory results agreed – despite the existence of many potentially interfering factors, which included such things as the effects of the Earth’s magnetic field and the vagaries of the fragile lab apparatus itself.

The tale reminds me of one of Einstein’s wonderful sayings. ‘No one but a theorist believes his theory; everyone puts faith in a laboratory result but the experimenter himself.’”

Peter Gallison. (2005). *Einstein's Compass*. In Lightman, A. P., & Cohen, J. (2005). *The best American science writing 2005*. New York: Harper Perennial, p. 22.

## Pregnancy Test

What manuscript lies here? “The Book of Experiment. Call ‘d Secrets in Nature.” So ‘tis, ‘tis so. “How to know whether a woman be with child or no.”

“If you would know whether a woman be with child or not, give her two spoonfuls of the white water in glass C\_\_\_\_\_.’

A merry sleight, but true experiment,... Give the party you suspect the quantity of a spoonful of the water in the glass M., which upon her that is a maid makes three several effects: ‘twill make incontinently gape, then fall into a sudden sneezing, last into a violent laughing; else full, heavy and lumpish.”

Thomas Middleton and William Rowley (1652/^966). *The Changeling*, Edited by Matthew M. Black (1966). Act 4, Scene 1, pp. 87-88.

## For Profit

The farther we are to the right on the God Mammon Scale, the more useful large scale multi-factor experiments are likely to be.

Cuthbert Daniel. (1976). *Application of Statistics to Industrial Experimentation*. New York: John Wiley and Sons, p. vii.

Comments: Sequence of experiments, rather than the single large scale multi-factor experiments, are an option recognized by good statisticians, including Daniel, Kempthorne, Yates, and others, and are also used to good effects regardless of the scale.

## Listener

The observer listens to nature; the experimenter questions and forces her to reveal herself.  
George Cuvier, French zoologist (1769-1832). In Mencken, H. L. (Ed.). (1948) *A New Dictionary of Quotations on Historical Principles from Ancient and Modern Sources*. New York: Alfred Knopf.

## Choices



The true worth of an experimenter consists in his pursuing not only what he seeks in his experiment, but also what he did not seek.

Claude Bernard. (1865). *Introduction à l'étude de la médecine expérimentale*. In Mencken, H. L. (Ed.). (1948) *A New Dictionary of Quotations on Historical Principles from Ancient and Modern Sources*. New York: Alfred Knopf.

See Also, Replication, Meta-Analysis, Cumulation of Evidence, Systematic Reviews, Theory, Summary, Empirical

## EXPERT

Professor O'Brien speaks the language and is qualified to liaise. She's also completed her certification in combat epistemology and can operate as your staff philosopher, should circumstances require it.

Charles Stross (2006). *The Jennifer Morgue*. Golden Gryphon Books, p. 160.

The function of the expert is not to be more right than other people, but to be wrong for more sophisticated reasons.

David Butler. (1969). *The Observer*, London-Dickson.

A man of Yule's age has the misfortune of seeing many of his friends and contemporaries precede him to the grave. Some are left to mourn him. Far larger is the number of younger men who knew him first as instructor and then as friend and will always remember him as one of the ablest, kindest and most lovable of men.

George Udny Yule. (1971). *Statistical papers of George Udny Yule*. Hafner Pub. Co., p. 5.

Well then; is the just man or the dice-player, a good and useful copartner for playing at dice? The dice-player.

Plato. In (1894). *Plato: The Works of Plato*. Translated by Henry Cary, Henry Davis, George Burges. G. Bell & sons, p. 9.<sup>39</sup>

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<sup>39</sup> GoogleBook image attached.

## EXPLANATION

### Competing

Having been involved in a couple of lawsuits as an expert probability witness and having observed that a prudent skepticism is often less prized than an indefensible certainty, I turned down preliminary requests from both sides to testify.

John Allen Paulos (1996). *A Mathematician Reads the Newspaper*. New York; Anchor Books, p. 45.

### Airplane

“Up till then, “Kanki explained, the standard explanations for [airplane] crashes relied on physical causes. “You had a plane crash because something broke or the pilot flew into – the mountain – not exploring what was underneath the problem.” The question of *how* a crew ended up in such disastrous situations intrigued Kanki.

Om Brafman and Rom Brafman (2008). *Sway: The Irresistible Pull of Irrational Behavior*. New York: Doubleday, p. 164.

### Post Facto

“...explaining what went wrong with the Hyatt Regency walkways and pointing out changes that would have worked is a lot easier than catching a mistake in a design yet to be realized.

Henry Petroski. (1992). *To Engineer is Human*. Vintage Books, p. 204.

### Miracles

Every miracle can be explained – after the event. Not because the miracle is no miracle, but because explanation is explanation.

Franz Rosenzweig, letter (1927). In Franz Rosenzweig & Nahum Norbert Glatzer. (1998). *Franz rosenzweig: His life and thought* (3rd ed.). Indianapolis: Hackett Pub. Co., p. 290.

## Blame

The misattribution of blame is one reason we make the same mistakes over and over again.

Thomas Halliman. (2009). *Why We Make Mistakes*. New York: Broadway, Books, p. 5.

## Rightness

Once a change of direction has begun, even though it's the wrong one, it still tends to clothe itself as thoroughly in the appurtenances of rightness as if it had been a natural all along.

Fitzgerald, F. S., Wilson, E., Stein, G., Wharton, E., Eliot, T. S., Wolfe, T., . . . Bishop, J. P. (1956). *The crack-up*. New York: New Directions, p. 203.

## Vague

Sophisticated people can hardly understand how vague experience is at bottom, and how truly that vagueness supports whatever clearness is afterwards attained.

George Santayana. (1922). *The life of reason: Or, the phases of human progress* (2d ed.). New York: C. Scribner's Sons, p. 32.

The whole populace looked as though it had received a powerful stimulant. People walked and drove faster, concluded business more quickly, and every eye seemed wider and brighter—even frenzied. And moving proudly through this brave new world were the two men who were shaping it, constant companions after working hours now. Newell Cady and Upton Peaton. Beaton's function was to provide Cady with the facts and figures behind the village activities and then to endorse courageously Cady's realistic suggestions for reforms, which followed facts and figures as night the day.

Kurt Vonnegut (1952). *Poor Little Rich Town*. Collier's, Volume 130. Crowell-Collier Publishing Company, p. 92.

See also: Analysis , Cause and Effect, Failure



## FAILURE

### Word

Failure was first spelt failer in the mid 17<sup>th</sup> century, meaning both non-occurrence and cession of supply.

Glynnis Chantrell. (2002). *Oxford Dictionary of Word Histories*. Oxford: Oxford University Press, p. 169.

### Laws

The Iron Law of Evaluation and other Metallic Rules.

Title of a Paper by Rossi, P. H. (1987). In J. Miller and M. Lewis (Eds.). *Research in Social Problems and Public Policy*. 4, 3-20.

Comment: The theme of the paper is that the more rigorous the evaluation is, the less likely it is that the program will be found effective. The American Association for Policy Analysis and Management ran a plenary session on the topic in 2003. See Rossi (2003). *21<sup>st</sup> Century Journey*, p. 264 .

### Ambiguity

The Bankrupt: Friend or Foe?

Title of Chapter 2. Julian Hoppitt (xxxx). *Risk and Failure in English Business: 1700-1800*. Cambridge: Cambridge University Press, p. 18.

### Early

There is the greatest practical benefit in making a few failures early in life.

T. H. Huxley. (1870). *On Medical Examination*. In Huxley, T. H. (1873). *Critiques and addresses*. New York: D. Appleton and company, p. 58.

## Catastrophic

No snowflake in an avalanche ever feels responsible.

Stanislaw Jerzy Lec (1909-1966). In Stanislaw Jerzy Lec. (1969). *More unkempt thoughts*. New York: Funk & Wagnalls.

## Why

When something goes wrong, especially something big, the natural tendency is to lay blame but it isn't easy to figure out where the fault is.

Joseph Hallihan (2009). *Why We Make Mistakes*. New York: Broadway Books, p. 5.

## Denial

I understand that I have no successes; therefore, I will work on denying all my failures.

Thornhill, A., and Wolfe, S. (1998). *Today I Will Nourish My Inner Martyr: Affirmations for Cynics*. New York: Three Rivers Press, p. 35.

## Intelligence

In our investigation, we have not uncovered a single piece of paper—either here in the United States as in the treasure trove of information that has turned up in Afghanistan and elsewhere—that mentioned any aspect of the September 11 plot.

FBI Director Robert Mueller, quoted in Christopher Burns (2008). *Deadly Decisions*. Amherst, New York: Prometheus Books, p. 157. Footnote 124 to Eric Lichtav (2005). Report Details F.B.I.'s Failure on 2 Hijackers. *New York Times*, June 10, 2005.

For the “plot” refers to September 11, 2001 attacks, using hijacked commercial air planes, on the US Pentagon and the New York Twin Towers. Burns gives other evidence, in his judgment, about earlier and easily assessable intelligence.

## Disguised as Success

“...no the booklet puts it, ‘The losses and sacrifices of the 106<sup>th</sup> Infantry Division paid great dividends in eventual victory. Or, as Dodo puts it in *Alice’s Adventure in Wonderland*, ‘every body has won, and all must have prizes.’”

Paul Fussell (1989). *Wartime*. New York: Oxford University Press, p. 159.

## PhD

The vocation of assessing the failures of better men can be turned into a comfortable livelihood, providing you back it up with a Ph.D.

Nelson Algren, Interview in *Writers at Work* (first series, ed. Malcolm Cowley, 1958). Andrews, 2003, p. 7.

## Post Facto

“...explaining what went wrong with the Hyatt Regency walkways and pointing out changes that would have worked is a lot easier than catching a mistake in a design yet to be realized.

Henry Petroski. (1992). *To Engineer is Human*. Vintage Books, p. 204.

## Safety Factor

“...The factor of safety is a number that has been referred to as a ‘factor of ignorance,’ for its function is to provide a margin of error that permits a considerable number of corollaries to Murphy’s Law to compound without threatening the success of an engineering endeavor.

Henry Petroski. (1992). *To Engineer is Human*. Vintage Books, p. 204.

Comment: The idea of a numerical safety factor, or something akin to it, is absent in most social science sectors.



## Books, Buildings

“...the failure of a book may be arguable whereas the failure of a building collapsed into a heap of rubble is not.

Henry Petroski. (1992). *To Engineer is Human*. Vintage Books, p. 204.

## Learning from Failure

In short, keep tabs on your dry holes.

Joseph T. Hallihan (2009). *Why We Make Mistakes*. New York: Broadway Books, p. 213.

## Replication and Progress

“We could virtually eliminate risk of failure by simply declaring a moratorium on innovation, change, and progress. And it would be a moratorium on progress, for without allowing change we would in effect not allow any bridge to be built where one had not been built successfully before.

Henry Petroski. (1992). *To Engineer is Human*. Vintage Books, p. 204.

## Consequence

He that fails in his endeavors after wealth and power, will not long retain either honesty or courage.

Samuel Johnson. (1753). In Samuel Johnson, Arthur Murphy. (1825). *The works of Samuel Johnson, LL.D.: with Murphy's essay*, Volume 3. Cowie, p. 85.<sup>40</sup>

## Reason

Mankind misses its opportunities, and its failures are a fair target for ironic criticism. But the fact that reason too often fails does not give fair ground for the hysterical conclusion that it never

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<sup>40</sup> GoogleBook image attached.

succeeds. Reason can be compared to the force of gravitation, the weakest of all natural forces, but in the end the creator of suns and of stellar systems; those great societies of the Universe.

Alfred North Whitehead. (1985). *Symbolism: Its Meaning and Effect*. Fordham Univ Press, p. 69.<sup>41</sup>

## Funding

No matter how bad the idea, or how poor the results, a program will always be considered a howling success at the local level as long as federal funds continue to pay for it.

Ken Cruickshank, *The Florida Times-Union*, Jacksonville, FL, from his June 25, 1978, column – Dickson-

## Metaphor

It was like building a battle ship that would not float. The damn thing sank.

John Herbers (1970). The Case History of a Housing Failure. *New York Times*, November 2, 1970, p. 1. , and quoted in Jeff Byles (2005). *Rubble: Unearthing the History of Demolition*. New York: Harmony Books, p. 202.

Comment: The “battleship”, in this instance, was the Pruitt-Igoe public housing project in St. Louis, Missouri. The reasons for the failure are more important than the hyperbole. Good Sociology student easily develop papers on the failure.

## Blame

...a policy of any complexity takes longer than three years to see it through from start to finish, so a civil servant has to leave it before its passage is completed or he arrives on the scene long after it has started. This also means you can never pin the blame on any single individual: the man in charge at the end will say it was started wrong, and the man in charge at the beginning will say it was finished wrong.

Jonathan Lynn and Anthony Jay (1986). *The Complete Yes Minister*. BBC Publications, p. 172.

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<sup>41</sup> GoogleBook image attached.

See also Analysis, Benefit Cost Analysis, Cause and Effect, Fortune

## FEEDBACK

Berkshire Hathaway's executives stick around long enough for feedback to reach them, allowing them to learn from their mistakes. Between 1964 and 2007, the company reported an overall gain of 400, 863 percent.

Joseph T. Hallihan (2009). *Why We Make Mistakes*. New York: Broadway Books, p. 160.

First, get the cow out of the ditch. Second, find out how the cow got into the ditch. Third, make sure you do whatever it takes so the cow doesn't go into the ditch again.

Anne Mulcahy, quoted in Schumpeter (2010). *The Economist* (February 13 – 19<sup>th</sup>), Volume 394, Number 8669, p. 69.

See Also: Mistakes, Error, Analysis.

## FORENSIC SCIENCE

Forensic Science...was not developed by scientists. It was created by cops—after guided by little more than common sense—looking for clues tied to suspects.

Brad Reagan (2009). Reasonable Doubt. *Popular Mechanics*. August 2009, pp. 49-51.

If we are aware of what indicates life, which everyone may be supposed to know, though perhaps no one can say that he truly and clearly understands what constitutes it, we at once arrive at the discrimination of death. It is the cessation of the phenomena with which we are so especially familiar—the phenomena of life.

J. G. Smith (1821). *Principles of Forensic Medicine*.  
Quoted in D. J. Enright (Ed). (1983). *The Oxford Book of Death*. Oxford: Oxford University Press, p. 3.

## FORTUNE

There but for the grace of God go I.

Simon Levay(2008). *When Science Goes Wrong*. New York: Penguin (PLUME), p. 267.

One man's misfortune is another man's luck.

(cc). Spanish Proverb

Fortune soon tires of carrying us too long on her shoulders.  
(Cánsase la fortuna de llevar a uno a cuestras tan a la larga.)

Baltasan Gracian. (1702). Gracián y Morales, B., & Jacobs, J. (1892). *The art of worldly wisdom*. New York;London;: Macmillan and Co, p. 23.

Coolidge

"I am simply telling you," he roared, "what I know, I know Cal Coolidge inside and out. He is the luckiest goddamn \_\_\_\_\_ in the whole world."

It seemed plausible then, and it is certain now. No other President ever slipped into the White House as easily, and none other had a softer time of it while there. When, at Rapid City, SD on August 2, 1927, he loosed the occult words, "I do not choose to run in 1928," was it prescience or luck? For one, I am inclined to put it down to luck. Surely there was no prescience in his utterances and utterances otherwise. He showed not the slightest sign that he smelt black clouds ahead; on the contrary, he talked and lived only sunshine.

H.L. Mencken, from Alistair Cooke (1953), *The Vintage Mencken*. Vintage Books, p. 121.

See also: Error, Failure

## FREQUENCY

### Rare Events

The strangeness of a thing evidently rests on the fact that it occurs but rarely, and that we seldom have the opportunity of witnessing it. If such strangeness reaches a high degree, the thing becomes a curiosity, or even something like a miracle, which is no longer in accordance with the ordinary laws of nature, and which seems chimerical as long as it has not been witnessed.

Al Biruni, *India* (10<sup>th</sup> century), Sahau, p. 179.

Muḥammad ibn Aḥmad Bīrūnī. (10<sup>th</sup> century). In al-Bīrūnī, & Sachau, E. (1910). *Alberuni's india: An account of the religion, philosophy, literature, geography, chronology, astronomy, customs, laws and astrology of india about A.D. 1030* (An English ed.). London: K. Paul, Trench, Trübner & Co., Ltd., p. 179.

### Counting

Therefore, teach me now, and hold back no word in the telling,  
All the sums of your shapes by which the three worlds are pervaded;  
Tell me how you will make yourself known to my meditation...  
Number them all...

*Bhagavad-Gita*

Prabhavananda, S., & Isherwood, C. (1972). *The song of god: Bhagavad-gita*. New York: New American Library, p. 88.

### Classification

Behold, O Prince, my divine forms, hundreds upon thousands, various in kinds,  
various in color, and in shape.

*Bhagavad-Gita*

Prabhavananda, S., & Isherwood, C. (1972). *The song of god: Bhagavad-gita*. New York: New American Library, p. 88.

## GAMBLER'S FALLACY

### Ignorance

You are Wrong Because. II. Ignorance of Statistics.

Example: I'm putting ALL of my money on the lottery this week because the jackpot is so big.

Scott Adams (1996). *The Dilbert Principle*. New York: Harper Business, Chapter 6, p. 153.

### Granny

"But what is zero? You see that croupier, the curly headed one, the chief one, showed zero just now? And why did he scoop up everything that was on the table?"

.....

"Zero, Granny, means the bank wins all."

.....

"You don't say so! And shall I get nothing?"

"No Granny, if before this you had staked on zero you would have got thirty-five times what you staked."

"What! Thirty-five times, and does it often turn up? Why don't they stake on it, the fools."

"There are thirty-six chances against it, Granny."

"What nonsense. Potapitch! Popatpitch!...She took out of her pocket a tightly packed purse, and picked out a friedrich d'or. "Stake it on the zero at once."

.....

She stared with feverish eyes at the little ball dancing on the spokes of the turning wheel. She lost a third...

Granny was beside herself, she could not sit still, she even thumped on the table with her fist when the croupier announced, "trente-six" instead of the zero she was expecting.

"There, look at it," said Granny angrily; "isn't that cursed little zero coming soon?" As sure as I'm alive, I'll sit here until zero does come.



Fyodor Dostoyevsky. (1866/1966). *The Gambler*. Dover Thrift Editions: Mineola, New York, p. 59.

## Hang Gliding

He got out a pamphlet on hang-gliding. “Man who wrote this is paralyzed now from a crash.” He offered that as if he’d told me the man was left-handed.

“If you stay at it long enough, something’s bound to go wrong,” I said.

“If I flip a coin ninety-nine times and it comes up heads every time, the odds are still fifty-fifty when I flip the hundredth time. Besides, each flight I learn something, and learning makes for safety.”

William Least Heat Moon. (1982). *Blue highways: A journey into America* (1st ed.). Boston: Little, Brown, p. ##.

## Rockets

Pointsman: But squares that have already *had* several hits, I mean...

Mexico: I’m sorry. That’s the Monte Carlo fallacy. No matter how many (rockets). have fallen inside a particular square, the odds remain the same as they always were. Each hit is independent of all the others.

Thomas Pynchon. (1973). *Gravity’s rainbow*. New York, N.Y: Viking Press, p. 56.

## Railways

I suppose if I put in all the little odd journeys here and there, I may say I have traveled sixty thousand miles during the three years I have mentioned. *And never an accident.*

For a good while I said to myself every morning: “Now I have escaped thus far, and so the chances are just that much increased that I shall catch it this time. I will be shrewd, and buy an accident ticket.” And to a dead moral certainty I drew a blank, and went to bed that night

without a joint started or a bone splintered. I got tired of that sort of daily bother, and fell to buying accident tickets that were good for a month. I said to myself, "A man *can't* buy thirty blanks in one bundle."

But I was mistaken. There was never a prize in the lot.

Mark Twain. *The Dangers of Lying in Bed*. In Twain, M., & Neider, C. (1985). *The complete humorous sketches and tales of mark twain*. Garden City, N.Y: Doubleday, p. 183.

## Medicine

A doctor comforts his patient: "You have a very serious disease. Of ten persons who catch it only one survives. It is lucky you came to me, for I have recently had nine patients with this disease and they all died of it."

The doctor thinks in terms of abstract statistical probabilities, the rules of which are inapplicable to individual cases; and there is an added twist because, in contrast to what naïve common sense suggests, the patient's odds of survival are unaffected by whatever happened before, and are still one against ten, just as the chances of Red coming up on the roulette table are still only fifty-fifty, even if Black has come up previously nine times in a row. This is one of the profound paradoxes of the theory of probability; the mathematical joke implies a riddle.

Arthur Koestler. (1980). *Bricks to Babel : selected writings with comments by the author*. London: Hutchinson, pp. 327 - 329.

## Helicopters in Vietnam: U.S.

The old man said nothing about Morris except that we ought to get some money together for flowers for his wife, but Sherman took it upon himself to give a little speech that night.

"Well, we've been pretty luck up to now. It was only a matter of time. The other companies have taken a lot more kills than we have, so it's our turn now. It looks like the overall ratio is one in five. One pilot out of five will get killed. We've only lost two guys, which puts us five away from the average. We've just been lucky."

I hated Sherman. Now we were delinquent in our deaths. Running behind is our proper death ratio were we? Well we'll just see about that. C'mon you guys, let's get out there and die!

Robert Mason. (1983). *Chickenhawk*. New York: Viking Press, Chapter 13.

## GAMBLING

### Lottery

It is a very curious thing about superstition. One would expect that the man who had once seen that his morbid dreams were not fulfilled would abandon them for the future; but on the contrary they grow even stronger just as the love of gambling increases in a man who has once lost in a lottery.

Søren Kierkegaard. (1836). *Journal*. In Kierkegaard, S. (2012). *The Soul of Kierkegaard: Selections from His Journals*. Courier Corporation, p. 50.<sup>42</sup>

### Stopping Rules

Leave your Luck while Winning. All the best players do it.  
(Saberse dejar ganando con la fortuna. Es de tahúres de reputación.)

Baltasar Gracian. (1702). Gracián y Morales, B., & Jacobs, J. (1892). *The art of worldly wisdom*. New York;London;; Macmillan and Co, p. 23.

Rash, adj. Insensible to the value of our advice.

“Now lay your bet with time, nor let  
These gamblers take your cash.”  
“Nay, this child makes no bet.” Great snakes!  
How can you be so rash?”

Bierce, *Devil's Dictionary*, p. 107  
Ambrose Bierce. (1911). *Devil's Dictionary, Volume 7 of The Collected Works of Ambrose Bierce*. Neale, p. 81.

### Slot Machines

At the slot machine he halted and inserted the quarter in the slot, reaching out to haul down on the lever. The machine chuckled at him, and the wheels in its face were spinning. Without waiting for the results, he walked away. There was no point in staying. No one ever won. At

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<sup>42</sup> GoogleBook image attached.

various times there would be rumors about a monstrous jackpot someone hit, but all these stories, he suspected, were no more than propaganda floated by the welfare people.

Clifford Simak. (1982). *Special deliverance*. [Book club ed.] New York: Ballantine Books, p. 1.

### Patriotic Duty

Perhaps (although he could not be sure of this). one played the slots out of a sense of patriotic duty, a sort of enlarged, rather nebulous civic duty. For they did provide the funding for the national welfare operation, and as a result the vicious bite of the income tax had been softened. He thought about it briefly, wondering once again if he approved or not. There was, it seemed to him, a slight moral taint to the whole idea, but, taint or not, it had worked out.

Clifford Simak. (1982). *Special deliverance*. [Book club ed.] New York: Ballantine Books, p. 1.

### Betting Strategies

The race is not always to the swift nor the battle to the strong—but that's the way to bet.

Damon Runyon (1884–1946)

### Dice

I am the dice play of the cunning  
I am the strength of the strong.  
I am triumph and perseverance  
I am the purity of the good.

*Bhagavad-Gita*. In Prabhavananda, S., & Isherwood, C. (1972). *The song of god: Bhagavad-gita*. New York: New American Library, p. 90.

See also: Chance

## GENETICS

Distinctions between races and nations are in some case due to a different descent, as in the case of the Arabs, and the Israelites, and the Persians. In other cases, they are caused by geographic locations and physical marks, as in the case of ...the Slavs and the Sudanese Negroes...(Or they may be caused by anything else among the conditions, qualities, and features peculiar to the different nations.

Ibn Khaldun (13-14<sup>th</sup> Century). From N. J. Dawood (1969). *The Muqaddimah: an introduction to history ; in three volumes. I.* Translated by Franz Rosenthal. Princeton University Press, p. 61.

When there is a preponderance of native substance over acquired refinement, the result will be churlishness. When there is a preponderance of acquired refinement over native substance, the result will be pedantry. Only a well-balanced admixture of these two will result in gentlemanliness.

(質勝文則野，文勝質則史。文質彬彬，然後君子。)

Confucius (551-479 B.C.). In Confucius, & Lau, D. C. (1979). *The analects (lun yü)*. New York; Harmondsworth; Penguin Books., p. 83.

See also: Cause and Effect

## GRANTS

### Acknowledgment

Major funding for this book was made possible by deliberately starving a family of four in Tennessee.

George Carlin (2004). *When Will Jesus Bring the Pork Chops?* New York: Hyperion, p. iv.

## GRAPHS, TABLES, NARRATIVE PORTRAYAL

### Pie Chart

This pie chart is from Alexander McCall Smith *Expresso Tales* (2006), p. 71. **INSERT**

### Animation

He (the budding producer at Metro). had taken me to lunch...and devoted most of his time to soliciting my opinion of Frank Harris' *My Life and Loves* as a potential movie. "How can it miss?" he kept demanding. "It's got girls, situation, jeopardy – everything."

That is has, I conceded. But why not try something current in the same vein – the new Kinsey, for instance? You could get boffs out of those statistics if you animated."

S.J. Perelman (1957). *The Road to Milltown or, Under the Spreading Atrophy*. New York: Simon and Schuster, p. 421.

### MRI

A magnetic resonance imaging (MRI). scan of your brain ... is a great many individual measurements ... (I)t is hardly surprising that raw measurements of this kind are not something that a human being (even a highly trained physician). can directly make use of. ...The end result – one of those fancy multicolor images of a slice of your body – is something that a physician can most assuredly make use of.

John M. Henshaw. (2006). *Does measurement measure up?: How numbers reveal and conceal the truth*. Baltimore: Johns Hopkins University Press, p. 3

### Controversy

Early in the nineteenth century there was some controversy between those who preferred to present results in literary form and those who preferred (numerical). tables and who were accused of presenting only the "dry bones."

L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey Cumberlege Home University Library, Oxford University Press, pp. 25.



## Speak to the Eye

Diagrams and charts are also much used in presenting statistics, and have a value because even statistical ones give some delight to the eye and add a spark of interest to the paper. Their chief importance, however, is that they give a picture of the broad statistical facts that is more readily taken in than a table.

L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey Cumberlege Home University Library, Oxford University Press, pp. 26.

## Maps

...the greatest of all civilities; the London Underground Map. ....created in 1931 by a forgotten hero named Harry Beck, an out of work draftsman who realized that when you are underground it doesn't actually matter where you are. Beck saw—and what an intuitive stroke this was—that as long as the stations are presented in their right sequence with their interchange clearly delineated, he could freely distort scale, indeed abandon it altogether.

Bill Bryson (1995). *Notes from a Small Island*. New York: Doubleday, p. 41.

## GUESSING

Pervasive guessing has been at the core of leadership for so long, for all of human experience so far, that it is wholly unsurprising that most of the leaders of this planet, in spite of all the information that is suddenly ours, want the guessing to go on.

Kurt Vonnegut. In Vonnegut, K., & Simon, D. (2005). *A man without a country* (Seven Stories Press 1st ed.). New York: Seven Stories Press, p. 82.

But if you make use of the vast fund of knowledge now available to educated persons, you are going to be lonesome as hell. The guessers outnumber you—and now I have to guess—about ten to one.

Kurt Vonnegut. In Vonnegut, K., & Simon, D. (2005). *A man without a country* (Seven Stories Press 1st ed.). New York: Seven Stories Press, p. 86.

## HETEROGENITY

### Virtues

“...it follows from Mr. Godwin’s definition of man, that such impressions and combinations of such impressions, cannot be afloat in the world, without generating a variety of bad men.”

“...it is surely as improbable that...all men will be virtuous, as sixes will come up a hundred times following upon the dice. The great variety of combinations upon the dice in a repeated succession of throws, appears to me not inaptly to represent the great variety of character that must necessarily exist in the world...”

Thomas Malthus. (1798). *An essay on the principle of population, as it affects the future improvement of society. with remarks on the speculations of mr. godwin, M. condorcet, and other writers*. London: printed for J. Johnson, pp. 267-268.

### U.S.

In a country as large as the U.S., it is possible to find at least fifty people who will believe/buy/try/or practice anything.

Dale O. Cloninger, Associate Professor of Finance and Public Affairs, University of Houston at Clear Lake City – Dickson.

### Exception

Exception, n. A thing which takes the liberty to differ from other things of its class, s an honest man, a truthful woman, etc. “The exception proves the rule” is an expression constantly upon the lips of the ignorant, who parrot it from one another with never a thought of its absurdity. In the Latin, “*Exception probst regulan*” means that the exception *tests* the rule, puts it to the proof, not *confirm* it. The malefactor who drew the meaning from this excellent dictum and substituted a contrary one of his own exerted an evil power which appears to be immortal.

Ambrose Bierce. (1911). *Devil’s Dictionary, Volume 7 of The Collected Works of Ambrose Bierce*. Neale, p. 81.

### Deity

Behold, O Prince, my divine forms, hundreds upon thousands, various in kinds, various in color, and in shape

Prabhavananda, S., & Isherwood, C. (1972). *The song of god: Bhagavad-gita*. New York: New American Library, p. 90.

Endless

The endless variety in the world has not been created by law. It is not of the nature of uniformity to originate variation, nor of law to beget circumstance.

Charles Sanders Peirce. In Nubiola, J. (2001). *Writings of Charles S. Peirce: A chronological edition volume 6, 1886-1890*. Charles S. Peirce Society, p. 63.

Commonality

In each of us there is a little of all of us.

Lichtenberg, *Aphorisms*, 1764-1799. In Gross, J. (1983). *The Oxford book of aphorisms*. Oxford [Oxfordshire]: Oxford University Press.

Their most universal quality is diversity.  
(Leur plus universelle qualité, c'est la diversité.)

Michel de Montaigne. (1533 - 1592). In Montaigne, *M. d., & Coste*, p. (1760). *The essays of Michael Seigneur de Montaigne: Translated into English* (8th ed.). Dublin: Printed by D. Chamberline, p. 524.

In heaven, an angel is nobody in particular.

Bernard Shaw, 'Maxims for Revolutionists,' *Man and Superman*, 1903. In Gross, J. (1983). *The Oxford book of aphorisms*. Oxford [Oxfordshire]: Oxford University Press.

There is more difference within the sexes than between them.

Ivy Compton-Burnett. (1955). *Mother and son*. In Gross, J. (1983). *The Oxford book of aphorisms*. Oxford [Oxfordshire]: Oxford University Press.

Age cannot wither her, nor custom stale  
Her infinite variety.

Shakespeare, *Antony and Cleopatra*, II, c. 1606

In (1821). *The plays and poems of William Shakspeare : With the corrections and illustrations of various commentators*. F. C. and J. Rivington, p. 237.

Blabber

Hundreds of persons cannot conspire together. Statistical variation guarantees that somebody out of such a number will be a fink or a blabbermouth.

Poul Anderson. (1970). *Tales of the flying mountains*. New York: Macmillan, p. ###.

## HYPOTHESES

### Formalization

A formal condition for a hypothesis is that it must be formulated in such a way that verification or lack of it may be achieved by direct observation with an experimental procedure, or that deductions made from the hypothesis lead to predictions that may be verified.

Oscar Kempthorne. (1952). *The Design and analysis of experiments*. New York: Wiley, p. 3.

### Generation and Collections

We have found it useful, in the early stages of an investigation, deliberately to “make a collection” of all the hypotheses we could at that stage imagine which seemed to have any relevance whatever to the special kind of institution we are dealing with ... write suggestions and crazy ones, plausible theories and fantastic ones, the dicta of learned philosophers and those of “cranks” and monomaniacs, excluding ... prophesies ... and astrologers.

Sidney and Beatrice Webb. (1932/1975). *Methods of social study*. London: London School of Economics and Political Science, p. 61.

Comment: At the end of Tippet's book, in his Notes on Books for the serious student, he refers to: Webb, S., & Webb, B. (1975). *Methods of social study*. Cambridge [Eng.]: London School of Economics and Political Science, Cambridge University Press, and to Webb, B. (1926). *My apprenticeship*. New York: Longmans, Green and co.

### Tragedy

The great tragedy of Science—the slaying of a beautiful hypothesis by an ugly fact.

Thomas Henry Huxley. (1870). *Biogenesis and Abiogenesis*. In Huxley, T. H. (1873). *Critiques and addresses*. New York: D. Appleton and company, p. 229.

### Honor

An honorable man will not be bullied by a hypothesis.

Evans, B. (1968). *The natural history of nonsense*. New York: A. A. Knopf, Chapter 19, p. 275.

## Decide

Decide, v.i. To succumb to the preponderance of one set of influences over another set.

Ambrose Bierce. (1911). *Devil's Dictionary, Volume 7 of The Collected Works of Ambrose Bierce*. Neale, p. 29.

Indecision, n. The chief element of success; “for whereas,” said Sir Thomas Brewbold, “there is but one way to do nothing and diverse ways to do something, whereof, to a surety, only one is the right way, it followeth that he who from indecision standeth still hath not so many chances of going astray as he who pusheth forwards”—a most clear and satisfactory exposition of the matter.

Your prompt decision to attack, “said General Grant on a certain occasion to General Gordon Granger, “was admirable; you had but five minutes to make up your mind in.”

“Yes, sir,” answered the victorious subordinate, “it is a great thing to know exactly what to do in an emergency. When in doubt whether to attack or know exactly what to do in an emergency. When in doubt whether to attack or retreat I never hesitate a moment—I toss up a copper.”

“Do you mean to say that’s what you did this time?”  
Yes, General; but for Heaven’s sake don’t reprimand me: I disobeyed the coin.”

Ambrose Bierce. (1911). *Devil's Dictionary, Volume 7 of The Collected Works of Ambrose Bierce*. Neale, p. 65.

## Formulation

[In] the formulation and testing of hypotheses...familiarity with the subject matter under investigation is absolutely essential, and, on the basis of previous knowledge, which may deal with situations that seem to be analogous, certain elements in the subject matter are regarded as significant and relevant...

Oscar Kempthorne. (1952). *The Design and analysis of experiments*. New York: Wiley, p. 3.

## HYPOTHESIS TESTING

### Error Types

There are two sorts of errors that can be made... in any statistical test; they're called, with all the lyricism for which statisticians are known, Type I and Type II errors.

John Allen Paulos (1996). *A Mathematician Reads the Newspaper*. New York: Anchor Books, p. 151.

### Beware

Beware of the problem of testing too many hypotheses; the more you torture the data, the more likely they are to confess, but confessions under duress may not be admissible in the court of scientific opinion.

Stephen M. Stigler (1987). *Testing Hypotheses or Fitting Models: Another Look at Mass Distinctions*. In Matthew H. Nitecki and Antoni Hoffman (Eds). *Neutral Models in Biology*. Oxford: Oxford University Press, p. 148.

### Article Titles

On the Surprising Longevity of Flogged Horses.

Abelson, R. P. (1997). On the surprising longevity of flogged horses: Why there is a case for the significance test. *Psychological Science*, 8(1), 12-15.

The Earth is Round ( $p, <.05$ ).

Cohen, J. (1994). The earth is round ( $p < .05$ ). *American Psychologist*, 49(12), 997-1003.

Why Can't We "p" with More Confidence?

Harris, E. K. (1993). On P values and confidence intervals (why can't we P with more confidence?). *Clinical Chemistry*, 39(6), 927.



## One Cheer for the Null Hypothesis significance testing

Wainer, H. (1999). One cheer for null hypothesis significance testing. *Psychological Methods*, 4(2), 212-213.

Comment: The article titles are a selected few from an assembly of articles generated since the 1930s on the idea of testing a formal null hypothesis against an alternative hypothesis using a decision rule that depend on the probability of the outcome observed when the null hypothesis is true. See R.F. Boruch. (2007). The Null Hypothesis is Not Called that for Nothing. *Journal of Experimental Criminology* for the specific references to each.

## Exacting

It is open to the experimenters to be more or less exacting in respect to the smallness of the probability he would require before he would be wiling to admit that his observations had demonstrated a positive result.

It is obvious that an experiment would be useless of which no possible result would satisfy him.

Sir Ronald Fisher. (1960). *Design of Experiments*. New York: Hafner, p. 13.

## IGNORANCE

It may appear...that the Goddess Chance is the only personification of ignorance—of inscientia—and that accurate reasoning cannot, as it certainly does not play a part in her worship. But for science, chance is identical with knowledge, not with ignorance—with partial knowledge, it is true, but none the less with knowledge.

Karl Pearson. (1897). *The chances of death, and other studies in evolution*. New York;London;: E. Arnold, p. 43.

It's easier to make a good discovery when you are ignorant than when you know it all.

Old Scientist's Dictum

## INDEPENDENCE

### Information Sources

It is ever so hard when a concrete fact illustrates a hope to weigh that fact properly. When the first six people we meet agree with us, it is not easy to remember that they may have read the same newspaper at breakfast.

Walter Lippmann. (1922). *Public Opinion*. New York: Harcourt, Brace and Company, p. 153.

Comment: The independence of certain observations is a fundamental assumption in statistical analysis and taking non-independence into account is a challenge and part of the statistician's armamentarium.

### Spies

None of the spies knew about the others, but together their information provided independent corroboration of the details of the work at hand.

Jim Baggott (2010). *The First War of Physics*. New York: Pegasus, p. 257.

Note: The "work" was the Manhattan Project's development of the atomic bomb during World War II.

### Factors

Schools bring little influence to bear on a child's achievement that is independent of his background and generic social context.

James S. Coleman, Ernest Q. Campbell, Carol Hobson, James McPartland, Alexander Mood, Frederick Weinfeld, and Robert York. (1966). *Equality of Educational Opportunity*. Washington, D.C.: U.S. Government Printing Office.

Comment: Sills and Merton (1991). give a longer quote, which ought to be studied.

## INFINITE/INFINITY

For this indeed is the true source of our imagination-the fact that our knowledge can only be finite, while our ignorance must necessarily be infinite.

Sir Karl Popper. (1960). *Lecture to the British Academy, 20 January 1960*. In British Academy. (1961). *Proceedings of the British Academy, Volume 46*. British Academy, p. 69.

Friday

I awoke on Friday, and because the universe is expanding, it took me longer to put my robe on.

Woody Allen (2001). *Mere Anarchy*. New York: Ransom House, p. 128.

Poetic

So, naturalists observe, a flea  
Hath smaller fleas that on him prey,  
And these have smaller still to bite 'em;  
And so proceed ad infinitive.

Jonathan Swift (1667 - 1745)

Comment: These lines have been quoted by Joshua Lederberg (1996). in the *Proceedings of the National Academy of Sciences* (Volume 93, p. 3167), Bill Bryson (2003). *A Short History of Nearly Everything* (page 355), and over 100 papers, essays and declarations, important and otherwise on defense analysis, chemistry, material science, air pollution, respiratory medicine, microbiology, public speaking, systems integration, bird flu, and others. This is to judge from a Google Scholar Search on October 19, 2008. Lederberg, remarkable scientist, gives a source: Swift, J. (1942). *A New Dictionary of Quotations on Historical Principles from Ancient and Modern Sources*. Ed. H.L. Mencken (Knopf, New York), p. 1712.

See also: Assumptions Asymptote.

## INFORMATION

Glut

I'm a high tech low-life.  
A cutting edge, state of the art,  
Bi-coastal multi-tasker,  
And I can give you a gigabyte in a nanosecond.

George Carlin (2004). A Modern Man. In *When Will Jesus Bring the Pork Chops?* New York: Hyperion, p. 1.

Barrage

Indeed, as he eagerly, sparkled at them...he seemed like a kind of cannon loaded to the muzzle with facts, and prepared to blow them clean out of the regions of childhood at one discharge.

Charles Dickens. (1848/1868). *Hard Times: For These Times*. New York and Boston: Books, Inc., p. 21.

One of the most common causes of the non-use of intelligence is 'the mutual estrangement between the intelligence and the decision making communities.'

Amos Kovacs (1996). The Users and Non Users of Intelligence. Quoted in John Diamond. (2008). *The CIA and the Culture of Failure*. Stanford, CA: Stanford, CA: Stanford University Press, pp. 396 and 506.

## Innovation

In Electricity, in particular, there is a greatest room to make new discoveries. It is a field first opened, and requires no great stock of particular preparatory knowledge...

Joseph Priestley. (1995). *The History and Present State of Electricity, with Original Experiments*. London: C. Bathurst and T. Lowndes. Quoted in Steven Johnson (2008). *The Invention of Air. A Story of Science, Faith, Revolution, and The Birth of America*. New York: Riverhead Books (Penguin Group), pp. 60 and 263

## JARGON, CLARITY AND INTELLIGIBILITY

Windyfoggery may result from sheer pomposity. It may result from a kind of wistful desire to make learned sounds. It may result from an incapacity for direct, clear thinking. Or it may result from incomplete knowledge of one's subject, which leads one to wrap a paucity of information in a plethora of words.

Jargon may be useful for communication between members of the same profession.... But windyfoggery, which often is jargon gone wrong and blanketed in blurriness, is not useful to any purpose.

Theodore Bernstein. (1965/1995). *The careful writer: A modern guide to English usage*. Simon and Schuster, p. 482.

To be intelligible is to be found out.

Oscar Wilde. (1893). *Lady windermere's fan : A play about a good woman in four acts*. S. French, p. 8.

Certainly a great deal of profundity and unintelligibility go together.

**Bergan Evans (GET PROPER REFERENCE)**

To place before mankind the common sense of the subject, [in] terms so plain and firm as to command their assent and to justify ourselves in the independent stand we [were] compelled to take.

Thomas Jefferson, on his objectives in drafting the Declaration of Independence

Thomas Jefferson. (1825). *To Henry Lee*. In Jefferson, T., & Foley, J. P. (1900). *The Jeffersonian cyclopedia: a comprehensive collection of the views of Thomas Jefferson*

*classified and arranged in alphabetical order under nine thousand titles relating to government, politics, law, education, political economy, finance, science, art, literature, religious freedom, morals, etc.* New York: Funk & Wagnalls company, p. 243.

Now we have statistical “roorbacks,” or juggling with figures, and neither the politicians nor the people understand them.

Charles Felton Pidgin. (1890). American Statistical Association. (1891). *Publications of the American Statistical Association, Volume 2, Issues 9-16*. The Association, p. 109.<sup>43</sup>

“... (In). 1856, the celebrated Victorian civil engineer and bridge builder Robert Stephenson recommended full disclosure... (saying that). ‘nothing was so instructive to the younger member of the profession, as records in large works, and means employed in repairing the damage.’”

But he might also been not a little concerned to see in the Proceedings of the First International Congress on Computing in Civil Engineering ...a single session devoted to “Anatomies of Computer Disasters,” [what abstract said]:

“No papers from this session will be published.”

Henry Petroski. (1992). *To Engineer is Human*. Vintage Books, p. 204.

Comment: Recall blame laying and hyping in engineering, education, etc.

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<sup>43</sup> GoogleBook image attached.



## KNOWING

## **LABELS**

## LOTTERY

Congratulations! The application on behalf of your child for a place in the pre-kindergarten class for 2012-13 academic year has been rejected. This permits you to begin the Type-A Parent Appeal Process.....Not everyone needs to submit a formal appeal; if you prefer, The School's admissions officer will assign your child a number between 56,000 and 61,000 which makes him or her eligible for the lottery that will establish the preliminary pool of alternative standby prekindergarten candidates for the class of 2013-14.

Bruce McCall (2010). Dear Type-A Parent. *New Yorker*, February 21010, p. 31.

If marriages were made by putting all the men's names into one sack and the women's names into another, and having them taken out by a blind folded child like lottery numbers, there would be just as high a percentage of unhappy marriages as we have now...in England.

Bernard Shaw. (1914). *Misalliance: The dark lady of the sonnets, and fanny's first play. with a treatise on parents and children*. London: Constable and company ltd, p. 96.

Title of a Story

The Lottery

Shirley Jackson(1982). *The Lottery and Other Stories*. New York: Farrar, Straus, and Giroux.

It is a very curious thing about superstition. One would expect that the man who had once seen that his morbid dreams were not fulfilled would abandon them for the future; but on the contrary they grow even stronger just as the love of gambling increases in a man who has once lost in a lottery.

Søren Kierkegaard. (1959). *The journals of Søren Kierkegaard*. Oxford University Press, p. 25.

Herr Kommandant disliked to see prisoners starve. Each man, he felt, must receive his allotted portion. And always the camp had a few dozen men too many. So every evening a ballot, using

cards or matches, was held in every block, and the following morning the losers did not go to work. At noon, they were led out behind the barbed wire fence and shot.

Tadeusz Borowski (1967). *Auschwitz, Our Home (A Letter)*.  
Quoted in D. J. Enright (Ed). (1983). *The Oxford Book of Death*.  
Oxford: Oxford University Press, p. 241.

## MAGNITUDE

### Comedic Hype

Medical costs *skyrocket*. The national debt doesn't do that, it *mushrooms*....The annual deficit used to *balloon*, then for a while it didn't *balloon*; now it *balloons* again.

George Carlin (2004). *When Will Jesus Bring the Pork Chops?* New York: Hyperion, p. 290.

### Serious Hype

Wall Street stormed back after its worst week ever and staged the biggest single-day stock rally since the Great Depression yesterday, catapulting the Dow Jones industrials to a 936 point gain. The move finally offered relief from eight consecutive days of market carnage.

Tim Paradis (2008). Dow Rockets to 936 Point Gain. *Philadelphia Inquirer*, Business Section E, p. E1.

### Greater

Great is that yogi who seeks to be with Brahman,  
Greater than those who mortify the body,  
Greater than the learned,  
Greater than the doers of good works;  
Therefore, Arjuna, become a yogi.

Prabhavananda, S., & Isherwood, C. (1972). *The song of god: Bhagavad-gita*. New York: New American Library, p. 69.

### Countless

Some see me one with themselves, or separate:

Some now to the countless gods that are only  
My million faces.

Prabhavananda, S., & Isherwood, C. (1972). *The song of god: Bhagavad-gita*. New York: New American Library, p. 69.

## Steps

Taking numbers into account. I should think more mental suffering has been undergone in the streets leading from ST. George's, Hanover Square, than in the condemned cells of Newgate.

Samuel Butler. (1903/1917). *The way of all flesh*. E. P. Dutton & Company, p. 62.

## Bacteria

In fact, there is no point in trying to hide from your bacteria...If you are in good health and averagely diligent about hygiene, you will have a herd of about one trillion bacteria grazing on your fleshy plains—about a hundred thousand of them on every square centimeter of skin. They dine off the ten billion or so flakes of skin you shed every day...

Bill Bryson (2003), *A Short History of Nearly Everything*. New York: Broadway Books, p. 302.

Comment: Bryson's notes refer to Sagan and Margulis (1988). *Garden of Microbial Delights* (page 4). and Ashcraft (2000). *Life at the Extremes* (Page 248).

Comment: Still, it is not difficult to find writers, such as Perelman, who manage to make the stuff amusing, or use it to surprise and titillate the reader. There is a long history to this, if we judge by short stories.

## Colossal

Their military weapons attained colossal proportions, and their projectiles, exceeding prescribed limits, unfortunately occasionally cut in two some unoffending pedestrians...their fame and honor...was proportional to the masses of their guns, and indirect ratio of the square of the distance attained by their projectiles....Crutches, wooden legs, artificial arms, steel hooks, caoutchouc jaws, silver craniums, platinum noses, were to be found...it was calculated by the

great statistician Pitcairn that throughout the gun club there were not quite one arm between four persons, and exactly two legs between six.

Jules Verne. (1911). Adventures of Captain Hatteras: The desert of ice. A trip from the earth to the moon. A tour of the moon. Volume 3 of Works of Jules Verne. V. Parke, p. 134.

See also:

## MAJORITY

### Immortality

For the majority of people, though they do not know what to do with this life, long for another that shall have no end.

Anatole France (1914). *The Revolt of the Angels, Volume 22*. Translated by Emilie Jackson, Wilfrid Scarborough Jackson. John Lane Company, p. 211.



## MATHEMATICS

### Standards

Mathematical achievement shall be measured by standards that are peculiar to mathematics. These standards are independent of the crude reality of our senses. They are: freedom from logical contradictions, the generality of the laws governing the created form, the kinship between this new form and those that have preceded it.

Tobias Dantzig (2007). *Number: The Language of Science*. Penguin, p. 240.

### Matrix

Blinding readers with fashionable science... often done by those who appropriate scientific terms. “Matrix” is a conspicuous warning signal.

Philip Howard. (1979/1983). *Weasel words*. Corgi Books, p. 108.

### Lack of

I cannot understand how it is that people cannot understand mathematics.  
(Je ne comprends pas qu'on ne comprenne pas les mathématiques.)

(cc). Raymond Poincaré, French  
Jules Henri Poincaré

For Dr. Boruch's information: According to Dictionary of Foreign Quotations, this quote is attributed to Raymond Poincaré, a French statesman, whereas some sources argue that it's a remark of Jules Henri Poincaré, a French mathematician, theoretical physicist, engineer, and philosopher of science.

While the latter Poincaré looks more legitimate, few other evidences could be found to support this candidate. So I put both down for your final decision.

See also a Henri Poincaré's quote on Page 191.

### Proof

We shall avoid the term “proof” except in mathematical argument...because of the fact that a hypothesis can only be disproved.

Oscar Kempthorne (1951). *The Design and Analysis of Experiments*. Pages 1 and 3.

Forbid

God forbid that Truth should be confined to Mathematical Demonstration:

William Blake. *Annotations to Sir Joshua Reynolds's Discourses*. In Blake, W., Ellis, E. J., & Yeats, W. B. (1893). *The works of william blake: Poetic, symbolic, and critical*. New York: AMS Press, p. 340.

See also: Arithmetic, Certainty, Models, Equation

## MEASUREMENT

### Homophorism

A homophorism is a ‘transformation of one set into another that preserves in the second set the operations between the members of the first set.’ If this makes you glad that you are not a mathematician, I suspect you are not alone.

John Henshaw (2006). *Does Measurement Measure Up? : How Numbers Reveal and Conceal the Truth*. JHU Press, p. 6

Comment: At best, the transformation from design specifications to a space shuttle’s construction, or the experiment’s design to its execution, is homophoric.

### Meager

I often say that when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is a meager and unsatisfactory kind.”

Lord Kelvin. A Lecture delivered at the Institution of Civil Engineers on May 3, 1883.

In Tunbridge, P. (1992). *Lord Kelvin, his influence on electrical measurements and units*. London, U.K.: P. Peregrinus on behalf of the Institution of Electrical Engineers, p. 17.

Comment: L.H.C. Tippett’s (1943). book entitled *Statistics* reports this motto (except for the “I often say that”). was written on the wall of the Biometric Laboratory at University College London where Tippett declares “much of the present science of statistics has been developed.” (page 58).

### Indicators

Overall measurements are addictive. But...they are here to stay...Getting people to stop relying on overall measurements is like asking them to swear off fast food...we risk getting intellectually soft on a steady diet of overall measurements.

John M. Henshaw (2006), *Does Measurement Measure Up? : How Numbers Reveal and Conceal the Truth*. JHU Press, p. 54

## Clock

To this observatory, then: a stern room, with a deadly statistical clock in it, who measured every second with a beat like a rap on a coffin lid.

Charles Dickens. (1848/1868). *Hard Times: For These Times*. New York and Boston: Books, Inc., p. 85.

## Morale

We watched the flights of fighter planes and dive bombers swing over the airport, then come in for a landing... 'That's the most beautiful sight I've ever seen,' said one marine. And I heard an officer say, 'Morale's gone up twenty points this afternoon.'

Richard Tregaskis. (1943). *Guadalcanal Diary*. New York: Random house, p. 126.

## Diary

Diary, n. A daily record of that part of one's life, which he can relate to himself without blushing.

Ambrose Bierce. (1911). *Devil's Dictionary, Volume 7 of The Collected Works of Ambrose Bierce*. Neale, p. 81.

## Income

Income, n. The natural and rational gauge and measure of respectability, the commonly accepted standards being artificial, arbitrary and fallacious;

Ambrose Bierce. (1911). *Devil's Dictionary, Volume 7 of The Collected Works of Ambrose Bierce*. Neale, p. 81.

## Uncountable

“O servant of the Prophecy,” said the Sheik of the Imperial Chibouk to the Mamoosh of the Invincible Army, “how many unconquerable soldiers have we in arms?”

“

“Upholder of the Faith,” that dignitary replied after examining his memoranda, “they are in numbers as the leaves of the forest!”

“And how many impenetrable battleships strike terror to the hearts of all Christian swine?” He asked the Imam of the Ever Victorious Navy.

“Uncle of the Full Moon,” was the reply, “deign to know that they are as the waves of the ocean, the sands of the desert and the stars of Heaven!”

For eight hours the broad brow of the Sheik of the Imperial Chibouk was corrugated with evidences of deep thought: he was calculating the chances of war. Then, “Sons of angels,” he said, “the die is cast! I shall suggest to the Ulema of the Imperial Ear that he advise inaction. In the name of Allah, the council is adjourned.”

Ambrose Bierce. (1911). *Devil’s Dictionary, Volume 7 of The Collected Works of Ambrose Bierce*. Neale, p. 81.

## Progress

Measurement does not necessarily mean progress. Failing the possibility of measuring that which you desire the lust for measurement may, for example, merely result in your measuring something else – and perhaps forgetting the difference – or in your ignoring some things because they cannot be measured...

George Udny Yule. (1971). *Statistical papers of George Udny Yule*. Hafner Pub. Co., p. 5.

## Categories

Looking back over the years, I see that that ghastly gymnasium, if I had continued to frequent it, might have given me an inferiority complex, and bred me up a foe of privilege. I was saved, fortunately, by a congenial complacency that has been a godsend to me, more than once, in other and graver situations. Within a few weeks I was classifying all the boys in the place in the inverse order of their diligence and prowess, and that classification, as I have intimated, I adhere to at the present moment. The youngsters who could leap from bar to bar without slipping and were facile on the trapeze I equated with simians of the genus *Hylobates*, and convinced myself that I was surprised when they showed a capacity for articulate speech.

H.L. Mencken, from Alistair Cooke (1955), *The Vintage Mencken*. Vintage Books, p. 20.

## Time

As a general rule, the shorter the interval that separates us from our planned objective the longer it seems to us, because we apply to it a more minute scale of measurement, or simply because it occurs to us to measure it.

Marcel Proust. (1920/1996). *In Search of Lost Time: The Guermantes way*. Translated by Terence Kilmartin. Vintage, p. 442.

## Ranking

Two starving men cannot be twice as hungry as one; but two rascals can be ten times as vicious as one.

Bernard Shaw. (1922). *Man and superman: A comedy and a philosophy*. Brentano's, p. 243.

## Mistrust

They (diagnostic). stood for an ethic of impersonal facts rather than personal trust, and were long held suspect by most doctors in America and Europe.

Theodore Porter (1995)  
*Trust in Numbers* (DCQ & pages Quoted in Robinson).  
**CHECK ON THIS**

## Countable, Measurable

Count what is countable, measure what is measurable, and what is not measurable, make measurable.

Attributed to Galileo Galilei (1579). In John Henshaw (2006). *Does Measurement Measure Up? : How Numbers Reveal and Conceal the Truth*. JHU Press, Preface, p. 15.

## Consequences

What gets measured gets done.

Quoted on Tom Peters, in John M. Henshaw (2006), p. 57  
**(CHECK ON THIS)**

Also by Mason Haire & Peter Drucker

## Multiple Indicators

...British criminal statistics give, not the numbers of crimes committed, but the numbers reported to the police; and the two are very different.

L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey  
Cumberlege Home University Library, Oxford University  
Press, pp. 16.

Comment: This is a justification for the contemporary National Crime Victimization Survey in the U.S. Department of Justice.

## Surveillance Effect

A CIA preview conducted in 2005...found that as the possibility of war increased, 'intense interest in inform action on Iraq's WMD capabilities lowered the threshold for reporting such information and increased the volume of reporting from less credible sources.

U.S. Senate Select Committee on Intelligence (September 8, 2006, Quoted in: Diamond, John (2008). *The CIA and the Culture of Failure*. Stanford, CA: Stanford University Press, pp. 383 and 504.

Comment: The more that you look, the more that you believe that you find.

## Language

We (speakers). of English are strangely lacking in middling terms—words to describe with some precision the middle ground between hard and soft, near and far, big and little.

Bill Bryson (2001). *The Mother Tongue: English and How it got That Way*. New York: Perennial, p. 68.

## Literature

Cooper's art has some defects. In one place in *Deerslayer*, and in the restricted space of two-thirds of a page, Cooper has served 114 offenses against literary art out of a possible 115. It breaks the record.

Mark Twain (1835-1910). Fenimore Cooper's Literary Offenses. In Nicholas Bakalar (Ed). *American Satire*. New York: Meridian/Penguin, p. 224.

## The Arts

When the ratings came out and the Dancing Ombudsman got a minus thirty-four...our staff were assembled... and each writer was offered a choice between resignation or going into a closed room with a revolver.

Woody Allen (2007). *Mere Anarchy*. New York: Random House, p. 73.

## Changes

Statistics of causes of death extending over long periods of time are apt to be affected by changes in medical knowledge and (dare a layman suggest?). fashion causing changes in diagnosis.

L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey Cumberlege Home University Library, Oxford University Press, pp. 16.

## Rebarbative

It was the same at all the schools. They are all weighed down with an incredible bureaucratic apparatus for strictly determining which pupils shall be expelled, which promoted and which obliged to take a year later.

The amount of time spent in the abstruse calculation of "averages" with formulas is at least equal to that spent in the classroom.



Nigel Barley (1992). *The Innocent Anthropologist*. Henry Holt & Co (P), p. 136

Comment: Mr. Barley makes farther observes that the examination papers are guarded by gendarmes furnished with automatic weapons, and that the envelopes in which the papers are sealed are opened by a man who sold the contents to the highest bidder several days before.

## META-ANALYSIS AND SYNTHESIS

### Groups of Experiments

In this situation, the experimenter is often interested not only in the determination of effects for the individual experiments given by particular choices of place and year, but also in the effects for the population of possible years with a fixed place and the effects for the population of possible years and possible places.

In fact, the whole program of hybrid corn breeding in the United States is based on primarily on this situation, and problems of design and analysis [of experiments] arise.

Oscar Kempthorne (1952). *Design and Analysis of Experiments*. New York: Wiley, pp. 569-570.

### Book Collectors

The value of a collection lies less in its importance, surely, than in the excitement of the hunt, and the strange places to which the hunt some times leads.

Graham Greene, in his introduction to *With All Faults* (1973). by David Law. Amate Press, p. xv, quotes in John Baxter (2003). *A pound of Paper: Confessions of a Book Addict*. New York: St. Martin's Press, p. 3.

### Oaths

There are many ways of judging the set of fifteen factorial effects, none of them objective. The commonest method is to take an oath before the data are taken that we will use the three and four factor interactions as estimates of error..."

Cuthbert Daniel. (1976). *Application of Statistics to Industrial Experimentation*. New York: John Wiley and Sons, p. 72.

See also Summary, Guessing

## METHOD

The perfect man has no method; or rather the best of methods, which is the method of no-method.

(至人无法，非无法也，无法而法，乃为至法)

Shih-T'ao (17<sup>th</sup> century). Quoted in Organ, T. W. (1988).  
*The self in its worlds: East and west*. Selinsgrove  
[Pa.];London;: Susquehanna University Press, p. 153.

## MISTAKES

### Finding

Some readers will not be able to repress a natural feeling: If you look enough, you are bound to find something.” Aside from the question begging the meaning of the term long enough, I deny the allegation. I look longer than most, and usually find nothing.

Cuthbert Daniel. (1976). *Application of Statistics to Industrial Experimentation*. New York: John Wiley and Sons, p. 128.

### Never

#### We Never Make Mistakes: Two Short Stories

Aleksander Isaevich Solzhenitsyn (1963). Book Title.  
University of South Carolina Press.

### Never

Today, I will remind myself that I never make mistakes.

Thornhill, A. and Well, S. (1998). *Today I Will Nourish My Inner Martyr: Affirmations for Cynics*. New York: Three Rivers Press, p. 128.

### Bubbles

#### H. Ross (Went Seven Bubbles off Plumb and other Tales)

Molly Ivins (xxx). Title of an Essay. In Nicholas Bakalar (Ed). *American Satire*. New York: Meridian/Penguin, p. 448.

### Counting

I'd call it ten thousand mistakes, I've made them all: Wife, kids, jobs, education. I can't even remember the first six thousand.

William Least Heat-Moon. (1983). *Blue Highways*. Boston: Back Bay (Little, Brown and Company), p. 163.

## Epistemology

On their single-track concern for the knowledge of truth recent epistemologists here neglected to address the dark side of the issue: our all too common belief in falsehoods. Preoccupied with what goes well in matters of cognition, they have tended to overlook the surely no less prominent region of the things that go wrong.

Nochas Rescher. (2007). . *Error (On Our Predicament When Things go Wrong)*. Pittsburg: University of Pittsburgh Press, p. ix.

## Remonstrating

Bounderby, urged Mr. Gradgrind, we are all liable to make mistakes.  
I thought you couldn't make 'em, interrupted Bounderby.

Charles Dickens. (1848/1868). *Hard Times: For These Times*. New York and Boston: Books, Inc., p. 114.

## Learning

“The engineer...learns more from his mistakes and those of others than he does from all the masterpieces created by himself and his peers.”

Henry Petroski. (1992). *To Engineer is Human*. Vintage Books, p. 204.

## More Learning

Much of what we do know about why we make mistakes comes from research in the fields where mistakes cost people their money or their lives: medicine and the military, aviation, and Wall Street.

Joseph T. Hallihan (2009). *Why We Make Mistakes*. New York: Broadway Books, p. 5.

## Successful

My own peculiar technique of dealing with what I hope is a good idea is not to work on it for a few days. I want to savor the pleasure of having had the thought before beginning the inevitable and unfortunately usually successful task of finding the error in my thinking.

Gino Segré. (2007). *Faust in Copenhagen: A Struggle for the Soul of Physics*. New York: Viking, p. 62.

## Worry

Most of all, I had only to worry about my mistakes (after retirement). and not the usual gaffes that graduate students would make if not monitored carefully. I had only to check and recheck my own work. Of course, I made errors and each one hurt, but there were not very many.

Peter H. Rossi. (2003). *A 20<sup>th</sup> Century Journey: Remembered Fragments of My Life*. Amherst, Massachusetts: Privately Published, p. 257.

## Prevention

In this way, one of the statistician's chief functions is to act as a devil's advocate against the admission of new knowledge. It has been said that 'Bacon was preeminently the philosopher of *error prevented*, rather than of "progress facilitated." The same might almost be said of the statistician. In the fields to which statistics is mostly applied, the prevention of error is a most necessary function; whereas there are plenty of people ready to facilitate progress.

L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey Cumberlege Home University Library, Oxford University Press, p. 141.

## Calculus

Mistakes...and how to find them before the teacher does. A Calculus Supplement.

Berry Cipia (2000). Book Title. Natick, MA, USA: CRC Press.

## Avoidance

The challenge was to figure out how to work with the critical and subcritical assemblies in relative safety...(Richard). Feynman, sitting in judgment on the Co-ordinating Council, found the experiment intuitively appealing. He said it was like “tickling the tail of a sleeping dragon... ‘it was as near as we could possibly go towards starting an atomic explosion without actually being blown up.’”

Jim Blogott. (2010). *The First War of Physics: The Secret History of the Atom Bomb, 1939-1949*. New York: Pegasus, p. 281.

See also: Error, Failure, Feedback.

## MODE

Platitude, n.

The fundamental element and special glory of popular literature. A thought that snores in words that smoke. The wisdom of a million fools in the diction of a dullard. A fossil sentiment in artificial rock . A moral without the fable. All that is mortal of a departed truth . A demitasse of milk-and-morality. The Pope's-nose of a featherless peacock. A jellyfish withering on the shore of the sea of thought. The cackle surviving the egg. A dedicated epigram.

Ambrose Bierce. (1911). *Devil's Dictionary, Volume 7 of The Collected Works of Ambrose Bierce*. Neale, p. 256.

Whatever else you may be sure of, be sure at least of this, that you are dreadfully like other people. Human nature has a much greater genius for sameness than for originality, or the world would be at a sad pass shortly.

James Russell Lowell (1819–1891). *On a Certain Condescension in Foreigners*. In Macaulay, Thomas Babington Macaulay, Baron, Harlin, T., editor, Lowell, J. R., Eliot, G., & Browning, R. (1891). *Selections from lord macaulay, robert browning, george eliot, and james russell lowell : As prescribed for the matriculation examinations at the melbourne university : With notes*. Melville, Mullen and Slade, p. 75.



## MODELS

### Gravity

Gravity is not just a good idea. It's the law.

Bumper Sticker. Quoted in Dennis Overbye (2007). *New York Times*, Science Times, F1, p. 1 (December 18, 2007).

### Gifts

Beware of Geeks bearing formulas.

Warren Buffet, quoted by Richard Dooling in *New York Times*, Week in Review, "The Rise of the Machines," October 12, 2008, p. 12.

Jennings, J. L., & Corcoran, S. P. (2009). "Beware of geeks bearing formulas": Reflections on growth models for school accountability. *Phi Delta Kappan*, 90(9), 635-639.

Comment: Mr. Dooling, writing about the national and international financial fiascos of 2008 said further: "Somehow, the genius quant's—the best and the brightest geeks Wall Street firms could buy—fed \$1 trillion in subprime mortgage debt into their supercomputers, added some derivatives, massaged the arrangements with computer algorithms and- poof!—created \$62 trillion in imaginary wealth.

### Reconnaissance

I am trying to express an attitude towards the building of very simple models. I don't think models like this lead directly to prescription for policy or even to detailed diagnosis. But neither are they a game. They are more like reconnaissance exercises.

Robert W. Solow (1970). *Growth Theory: An Exposition*. New York: Oxford University Press, p. 105.<sup>44</sup>

### Hierarchical

How fast you are spinning depend on where you are. The speed of the Earth's spin varies from a little over 1000 miles an hour at the equator to zero at the poles.

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<sup>44</sup> GoogleBook image attached.

Bill Bryson (2003). *A Short History of Nearly Everything*.  
New York: Broadway Books, p. 50.

Premises

If you buy the premise, you buy the joke / bit.

Anonymous. Comic Writer, Possibly Johnny Carson

For Dr. Boruch's information:

One of the variants that might worth considering adding in here is -

““If you buy the premise, you buy the bit,”” Joan said. “Different data produce different conclusions.”

Samuelson, D. J. Neil Schulman. (1983/1999). *The rainbow cadenza*. Pulpless.Com, p. 250.

See Also: Assumptions, Analysis, Equations

## NUMERICAL METAPHOR

### Infinity

Suppose a thousand suns should rise together into the sky:  
Such is the glory of the shape of the Infinite God.

Prabhavananda, S., & Isherwood, C. (1972). *The song of god: Bhagavad-gita*. New York: New American Library, p. 92.

Birthless, deathless, yours the strength titanic,  
Million armed, the sun and moon your eyeballs.

Prabhavananda, S., & Isherwood, C. (1972). *The song of god: Bhagavad-gita*. New York: New American Library, p. 93.

### Music

Can't you tell musicians when you seem them?" I broke in. "Where did you ever see a Prohibition agent who looked so innocent, so moony, so dumb? We are actually fanatics. We came here to hear Bach. Is this the way Bethlehem treats its guests? We came a thousand miles, and now—"

"Three thousand miles," corrected Knopf.

"Five thousand," I added, making it round numbers.

H.L. Mencken, from Alistair Cooke (1955), *The Vintage Mencken*. Vintage Books, p. 143.

### Senses

Fine senses and exalted sense are not half so useful as common sense. There are forty men of wit for one of sense; and he that will carry nothing about him but gold, will be every day at a loss for want of readier change.

Alexander Pope. (1727). *Thoughts on Various Subjects*. In Pope, A., 1688-1744. (1812). *The works of Alexander Pope, esq., in verse and prose. with a selection of explanatory notes*. Oxford University, p. 227.

## Lunatic

The number of lunatic books is as finite as the number of lunatics.

Lewis Carroll. (1889). *Sylvie and Bruno Concluded*, Chapter 9: “*The Farewell-Party*”. In Carroll, L.(1893). *Sylvie and bruno concluded*. Macmillan and Company, p. 132.

## Bowels

He who drinks a tumbler of London water has literally in his stomach more animated beings than there are men, women and children on the face of the globe.

Sydney Smith. (1834). *Letter to the Countess Grey*.  
Holland, S. H., Lady, Smith, S., & Austin, S. (1855). *A memoir of the reverend Sydney Smith*. New York: Harper & Bros., p. 353.

## ODDS

### Navy

What confronted him was an increased likelihood of some crippling misfortune befalling the *Caine*, in the shape of a shell, a torpedo, or a mine. The odds of his living through the next twenty four hours had dropped from, say, a normal ten thousand to one a smaller but still comfortable figure: seventy or eighty to one, maybe. So reasoned Willie's nervous tissue; whereupon it sent up to his brain some stimulating fluid that produced the ensign's glow of bravery.

Herman Wouk. (1952). *The caine mutiny: A novel of world war II*. Garden City, N.Y: Doubleday, p. 229.

### Army in Custody of the Navy

Odds: Subjective: "Half way across the bay the coxswain turned to me and said: 'Our chances are about three in one of getting there now.' "

Richard Tregaskis (1943). *Guadalcanal Diary*. New York: Random house, pp. 94-95

Comment: This is on Tregaskis' landing boat's escaping a Japanese Submarine off Guadalcanal's shore.

### Science

Mostly we hear about science's triumphs...But for every brilliant scientific success there are a dozen failures.

Simon LeVay. (2008). *When Science Goes Wrong*. New York: Penguin Books, p. vii.

Comment: LeVay writes well in this quote suggests that he is not a good statistician. Where does he get evidence for a mere dozen?

### Understanding

Who cares to seek

For that perfect freedom  
One man, perhaps  
In many thousands.  
Then tell me how many  
Of those who seek freedom  
Shall know the total  
Truth of my being?  
Perhaps only one.

Prabhavananda, S., & Isherwood, C. (1972). *The song of god: Bhagavad-gita*. New York: New American Library, p. 70.

### Obloquy

Everyone in a crowd has the power to throw dirt: nine out of ten have the inclination.

William Hazlitt. (1910/ 1921). *Lectures on the English comic writers: With miscellaneous essays*. New York;London;: Dent., p. 328.

### Money

Three-fourths of the demands existing in the world are romantic; founded on visions, idealists, hopes and affections; and the regulation of the purse is, in its essence, regulation of the imagination and the heart.

Ruskin, J. (1860/2001). *Unto this last*. London: Electric Book Co. In Gross, J. (1983). *The Oxford book of aphorisms*. Oxford [Oxfordshire]: Oxford University Press.

### Gladiators

But now the public comes along and demands animal stunts. They will insist on the picturesque, and of course it never occurs to them that exposing my gladiators *AD BESTIARIUM* raises consumption to 85 or 90 percent. Only a few days ago my son's tutor, an extremely able mathematician, worked out that even the best gladiator's chance to survive three years' active service is about one in twenty-five. Logically this means that the contractor must make up for the amount spent on each man's training in one and a half or two performances, to name an average.

Arthur Koestler. (1939/1967). *The gladiators* (Danube ed.).  
New York: Macmillan, p. 16.

See also: Failure, Probability

## PARAMETER

### Words

“Clothing his discourse with spurious learning” as in used of words born pretentious or of words such as parameter and charisma which have had pretence forced upon them.

Philip Howard. (1979/1983). *Weasel words*. Corgi Books, p. 108.

For a social scientist to make obscure what he considers to be unnecessarily clear calls not so much for an imagination as for an appropriate vocabulary in which boundaries are parameters, parts are components, things are not equal but coequal, signs are indicators, and causes are dependent or exogenous variables (and it may take a regression analysis to find out which).

Edwin Newman (1974). *Strictly Speaking: Will America Be the Death of English?* Indianapolis/New York: The Bobbs-Merrill Company, Inc., p. 126.



## PATTERNS

You know how Quetelet reduced the most apparently accidental carelessness to ever-recurring facts, so that as long as the same conditions exist, the same “accidents” will reoccur with absolutely unfailing regularity.

Florence Nightingale, Letter to Francis Galton. (1891). In Nightingale, F., & McDonald, L. (2003). *Florence Nightingale on society and politics, philosophy, science, education and literature*. Waterloo, Ont: Wilfrid Laurier University Press, p. 113.

## PERMUTATIONS AND COMBINATIONS

The nature of the infant is *not* just a new permutation-and-combination of elements contained in the natures of the parents. There is in the nature of the infant that which is utterly unknown in the natures of the parents.

Lawrence, D. H. (1921/1960). *Psychoanalysis and the unconscious, and fantasia of the unconscious*. Courier Corporation, p. 14.

Invention consists in avoiding the constructing of useless combinations and in constructing the useful combinations which are in infinite minority. To invent is to discern, to choose.

(Inventer, cela consiste précisément à ne pas construire les combinaisons inutiles et à construire celles qui sont utiles et qui ne sont qu'une infime minorité. Inventer, c'est discerner, c'est choisir.)

Henri Poincaré (1854-1912). (1908). *L'invention mathématique, conférence faite à l'Institut général psychologique*. 14, rue de Condé, p. 6.

## PLANNING

The cautious experimenter will readily dedicate more than...half his time to a deadline, to a “single experiment.” It often takes a number of additional runs...to obtain satisfactory clarity about the operation of a system.

Cuthbert Daniel. (1976). *Application of Statistics to Industrial Experimentation*. New York: John Wiley and Sons, p. 176

While antiquity exists for us, we for antiquity do not.

Joseph Brodsky (1994). Homage to Marcus Aurelius. *Arteus* and in Jamaica Kincaid (1995). *The Best American Essays*. Boston: Houghton Mifflin Company, p. 1.

Key is to strike a balance, said George, Chief Associate Director to the Deputy Associate Chief of Analysis and Audits, between the objectives of the goals and the goals of the objectives.

Excerpt from a poem. Lisa Badner (2010). And Speaking of Strategic Planning. *Tri Quarterly. Spring Issue*, p. 147.

## POPULATION

### Concept

The concept of population as an entity does not come easily and our ordinary education does not correct this defect. The mental effort to realize this concept is perhaps something like that is necessary to appreciate a figure with its contrapuntal pattern, as compared with the ease of following a tune with simple harmonics.

L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey Cumberlege Home University Library, Oxford University Press, pp. 112.

### Chaos

Imagine that the population of a certain animal species is given by the so-called logistic formula  $X' = RX(1-X)$ . where  $X$  is the population in one year,  $X'$  is the population the next year, and  $R$  a parameter that varies between 0 and 4.

John Allen Paulos (1996). *A Mathematician Reads the Newspaper*. New York: Anchor, p. ###.

Comment: This seems simple, doesn't it? Page 162 of Paulos book shows how it is not simple when  $R$  varies between 0 and 4. This is a joke in the sense of offering being people, statisticians and scientists, with an anticipatory sense of order. It is gloriously complex in other respects.

See also Demography, Measurement, Analysis

## PRECISION

### Within Study

The important purpose of replication is ...to decrease the error of treatment comparison. This variance  $1/r$ , where  $r$ =replications] decreases directly with increasing  $r$ , and the information on the comparison, which is proportional to  $r$ / [the universe] increases proportionally with  $r$ .

It is intuitively obvious that increasing replication results in increasing sensitivity of the experiment.

Oscar Kempthorne (1952). *Design and Analysis of Experiments*. New York: Wiley, p. 177.<sup>45</sup>

Comment: Got the message?

See also: Experiment

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<sup>45</sup> GoogleBook image attached.

## PREDICTION

### Internet

Prediction 9. In the future, internet capacity will increase indefinitely to keep with the egos of the people using it. Cost will not be an issue.

Scott Adams (1996). *The Dilbert Principle*. New York: Harper Business, chapter 2, p. 30.

### End of the World

Optimists and pessimists differ only on the date of the end of the world.

Stanislaw Jerzy Lec. (1962). *Unkempt thoughts*. New York: St. Martin's Press, p. 77.

### Confusion

A great deal of confusion arises when people decline to classify themselves as we have classified them. Prophecy would be so much easier if only they would stay where we put them. But, as a matter of fact, a phrase like the working class will cover only some of the truth for part of the time.

Walter Lippman (1922). *Public Opinion*. New York: Harcourt, Brace and Company, p. 151.

### Unpolished

I well recall the horror of the Baltimore cops when the first board to examine applicants for places on the force was set up. It was a harmless body headed by a political dentist, and the hardest question in its first examination paper was "What is the plural of *ox*?" but all the cops in town predicted that it would quickly contaminate their craft with a great horde of what they called "professors," and reduce it to the level of letter-carrying or school-teaching.

But, as I have noted, their innocence of *literae humaniores* was not necessarily a sign of stupidity, and from some of them, in face, I learned the valuable lesson that sharp wits can lurk in unpolished skulls.

H.L. Mencken, from Alistair Cooke (1955), *The Vintage Mencken*. Vintage Books, pp. 27-28.

## Extrapolation

Friends don't let friends extrapolate.

The Slogan on a "T" Shirt  
Sold at Annual Meeting of  
the American Statistical Association  
(Sometime in the 1980s or 1990s)

Comment: The slogan is a take-off on the slogans used on bumper stickers, e.g. Friends don't let friends drink and drive.

## Big and Pessimistic

The power of population is so superior to the power in the earth to produce subsistence for man, that premature death must in some shape or other visit the human race. The vices of mankind are active and able ministers of depopulation. They are the precursors in the great army of destruction; and often finish the dreadful work themselves.

Thomas Malthus. (1798). *An essay on the principle of population, as it affects the future improvement of society. with remarks on the speculations of mr. godwin, M. condorcet, and other writers*. London: printed for J. Johnson, p. 304.

See also: Guessing, Benefit/Cost Analysis, Qualitative

## PRIVACY

### Deductive Disclosure

He lay still, marveling at the carrying power of the widow's snores. He knew little of the late Mr. Benedetto, but he gathered now that he had been either a man of saintly patience, as masochist, or a deaf mute.

Theodore Sturgeon. (1994). *The Ultimate Egoist. Volume I. Complete Works of Theodore Sturgeon*. Berkeley California: North Atlantic Books, p. 24.

### Between us

Tati Monyona hesitated before he replied. "This will go no further?" he asked. His voice was barely above a whisper.

This is a confidential consultation, Mma Ramotswe reassured him. It is just between you and me. Nobody else.

Alexander McCall Smith. (2008). *The Good Husband of Zebra Drive*. Toronto: Vintage Canada (Random House of Canada), p. 28.

### Information

There was a time...when his theology was held as public a matter as the color of his eyes. But infectious diseases, on the other hand, were once as private as the processes of a man's digestion. The history of the notion of privacy would be an entertaining tale.

Walter Lippman (1922). *Public Opinion*. New York: Harcourt, Brace and Company, p. 45.

### Russia

The personal life of every individual is based on secrecy, and perhaps it is partly for that reason that civilized man is so nervously anxious that personal privacy should be respected.



Anton Pavlovich Chekhov. (1899). *The Lady with the Dog*.  
In Anton Pavlovich Chekhov. (1988). *A doctor's visit:  
short stories*. Bantam Books, p. 158.

## Judicial

A man has a right to pass through this world, if he wills, without having his picture published, his business enterprises discussed, his successful experiments written up for the benefit of others, or his eccentricities commented upon, whether in handbills, circulars, catalogues, newspapers or periodicals.

Judge Alton B. Parker, *Decision, Robertson V. Rochester Folding Box Co.*, 1901. (Evans). In (1903). *The Lawyers Reports Annotated, Volume 59*. Lawyers' Co-operative Publishing Company, p. 481.

## Unobtrusive

The general look of an elderly fallen angel traveling incognito.

Peter Quennell. (1960). *The sign of the fish*. New York: Viking Press, Chapter 2.

## England

England is the land of privacy, and therefore, the stranger here is at a disadvantage. He sees the high walls, but not the gardens they enclose he watches Englishmen hurrying silently through the streets to their homes, and does not realize that they are hastening away, only in order that they may unbend at last, turning themselves into persons he would not recognize. He hears us together in public places and concludes that we are exchanging brave figures or doleful news, and not little jokes that he would not understand even if he heard them.

John Boynton Priestley. (1934). *Four-in-hand*. London: W. Heinemann, Ltd, p. 623.

## United States

An American has no sense of privacy. He does not know what it means. There is no such thing in the country.

George Bernard Shaw. (1933). *The Future of Political Science in America: An Address by Mr. Bernard Shaw to the Academy of Political Science, at the Metropolitan Opera House, New York, on the 11th. April, 1933*. New York: Dodd, Mead & Co, p. 16.

## PROBABILITY

### Judges

The cops liked and admired Gene (the judge), and when he was in good form he commonly had a gallery of them in his courtroom, guffawing at his whimsies. But despite his popularity among them he did not pal with them, for he was basically a very dignified, and even somewhat stiff fellow, and knew how to call them down sharply when their testimony before him went too far beyond the bounds of the probable.

H.L. Mencken, from Alistair Cooke (1955), *The Vintage Mencken*. Vintage Books, p. 32.

### Certainty

Certainty not based upon mathematical demonstration is only probability; most history must be that. When Marco Polo described the greatness and the people of China, being the first and for a time the only western writer who had described them, he was not believed. The Portuguese, who later came into communication with that vast empire through trade with it, began to make the description probable.

Voltaire, 1694-1778. (1901). *A philosophical dictionary Volume 10 of The Works of Voltaire: A Contemporary Version with Notes*, Voltaire. E.R. Du Mont, p. 200.

### Boy or Girl

Many unnecessary details appear in his work on mathematics, such as a certain absurd problem, which surely cannot be attributed to him, on the probability than an expected child will turn out to be a boy or to be a girl.

The Chinese writer Yuan Yuan criticised a still older writer, Sun-Tze. In Van Hee, P., Clarke, F., & Houghtaling, A. (1926). *The Ch'ou-Jen Chuan of Yuan Yuan*. *ISIS*, 8(1), 106.

Quoted in Walker, H. Mary. (1931). *Studies in the history of statistical method: with special reference to certain educational problems*. Baltimore: The Williams & Wilkins company, p. 5.

## Improbable

Every age and every condition indulges some darling fallacy; every man amuses himself with projects which he knows to be improbable, and which, therefore, he resolves to pursue without caring to examine them.

Samuel Johnson. (1753). In Samuel Johnson, Arthur Murphy. (1825). *The works of Samuel Johnson, LL.D.: with Murphy's essay*, Volume 2. Cowie, p. 528.<sup>46</sup>

Lest men suspect your tale untrue  
Keep probability in view.

John Gay. 1685-1732. (1727/1854). *The Fables of John Gay Illustrated*. G. Routledge, p. 65.<sup>47</sup>

## Genetics

Any person suffering from a hereditary disease may be rendered incapable of procreation by means of a surgical operation if the experience of medical science shows that it is highly probable that his descendants would suffer from some serious physical or mental hereditary defect.

German law for the prevention of hereditarily diseased offspring (Gesetz zur Verhütung erbkranken Nachwuchses), I, July 14, 1933 (Mencken)

## Unmarried

I think Dad is the reason Mom never married.

Frank Cotham (2008). Cartoon Caption. *New York Book of Mom Cartoons*. Kansas City: Andrews McNeil Publishing LLC, p. 68.

## Circumstantial

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<sup>46</sup> GoogleBook image attached.

<sup>47</sup> GoogleBook image attached.

Circumstantial evidence only raises a probability.

Mr. Justice Pollock. In The monthly law reporter. (1865).  
*The Weekly Reporter, Volume 13*. Wildy & Sons, p. 437.

Members of the jury, were only one such weapon before you, you might have some small difficulty. But you have five! A remote possibility, multiplied by five, vanishes into the infinity of mathematical absurdity...leaving only the certainty that the deceased was murdered by the guns now before you.

James Barnett. (1981). *The firing squad*. Morrow, p. 254.

“...Structural engineering most often deal in probabilities and combinations of probabilities. A safe structure will be one whose weakest link is never overloaded by the greatest force to which the structure is subjected.

Henry Petroski. (1992). *To Engineer is Human*. Vintage Books, p. 204.

## Science Fiction

The Infinite Improbability Drive is a wonderful new method of crossing vast interstellar distances in a mere nothingth of a second, without all that tedious mucking about in hyperspace.

“It (The Hitchhiker’s Guide to the Galaxy). says: ‘Sensational new breakthrough in Improbability Physics. As soon as the ship’s drive reaches Infinite Improbability it-passes through every point in the Universe. Be the envy of other major governments.’ Wow, this is big league stuff.”

Douglas Adams. (2005). *The Ultimate Hitchhiker’s Guide: Five Complete Novels and One Story*. Gramercy Books, pp. 60 and 64.

## Literature

Most of all, I was delighted with Mathematics and Probability, because of the wonder and the evidence of its reasoning ... believing that it was a service only in the mechanical arts, I was astonished that, seeing how firm and solid was its bases, to see its wide use in Literature. Wonderful!

René Descartes. (1637). *Discourse on the Method*. In Rene Descartes, Elizabeth Sanderson Haldane, G. R. T. Ross. (2003). *Discourse on Method and Meditations*. Courier Corporation, p. 7.

### Conditional Probability

You have two chances-  
One of getting the germ  
And one of not.  
And if you get the germ  
You have two chances-  
One of getting the disease  
And one of not.  
And if you get the disease  
You have two chances-  
One of dying  
And one of not.  
And if you die-  
Well, you still have two chances.

Author unidentified (Mencken)<sup>48</sup>

### Conditional Probability

You can get much farther with a kind word and a gun than with a kind word alone.

Al Capone (1899 - 1947)

See also: Evidence, Empirical, Hypothesis, Experiment, Independence

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<sup>48</sup> Probably attributed to Lucille Agniel Calmes, in (1959). *The Spur*, Volume 9, Issue 11. Holly Hill Press, p. 17. Googlebooks provides snippet view only.

## PUBLIC OPINION

### War

Of course, the people don't want war ... But, after all, it is the leaders of the country who determine the policy... The people can always be brought to the bidding of the leaders. That is easy. All you have to do is tell them that they are being attacked, and denounce the pacifists for lack of patriotism, and exposing the country to danger.

Hermann Göring. (1893–1946). Nuremberg Trial, 1945–1946. In Sonnenfeldt, R.W. (2006). *Witness to Nuremberg*. New York: Arcade Publishing, p. 30.<sup>49</sup>

### Misinformation

You can fool some of the people all of the time. And you can fool all of the people some of the time. But you can't fool Bob.

Anonymous (2009). Wall Plaque, High Cotton Company, Made in Mexico.

You can fool some of the people all of the time, and all of the people some of the time, but you can't fool all of the people all of the time.

Attributed to Lincoln, but never contemporaneously quoted, during his Bloomington, Illinois, speech on May 29, 1856.

Abraham Lincoln. In Bob Blaisdell (Ed). (2016). *Lincoln: A Book of Quotations*. Courier Dover Publications, p. 43.<sup>50</sup>

### Liberty

Protection, therefore, against the tyranny of the magistrate is not enough, there needs protection also against the tyranny of the prevailing opinion and feeling.

John Stuart Mill. (1859). *On liberty*. London: John W. Parker and Son, West Strand, p. 13.<sup>51</sup>

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<sup>49</sup> GoogleBook image attached.

<sup>50</sup> GoogleBook image attached.

<sup>51</sup> GoogleBook image attached.

## Media Influence

As I have noted in Chapter II, Gene was a nigh favorite among the young reporters, for he was always good for copy, and did not hesitate to modify the course of justice in order to feed and edify us.

H.L. Mencken, in Alistair Cooke (1955), *The Vintage Mencken*. Vintage Books, p. 31.



## QUALITATIVE

### Feelings

We live in deeds, not years; in thoughts, not breadths;  
In feelings, not *figures*.

Philip James Bailey, 1816-1902. (1845). *Festus : A poem*.  
William Pickering, p. 80.<sup>52</sup>

### Research

But it would be an exaggeration to say that I was ignorant, for if I neglected the humanities I was meanwhile laying in all the worldly wisdom of a police lieutenant, a bartender, a shyster lawyer, or a midwife. And it would certainly be idiotic to say that I was not happy. The illusion that swathes and bedizens journalism, brining it its endless squads of recruits, was still full upon me, and I had yet to taste the sharp teeth of responsibility.

H.L. Mencken, from Alistair Cooke (1955), *The Vintage Mencken*. Vintage Books, p. 25.

### Literati, Nine out of Ten

In the confidences of the literati, of course, it (self expression). is always depicted as something much more mellow and virtuous. Either they argue that they are moved by a yearning to spread the enlightenment and save the world, or they allege that what steams them and makes them leap is a passion for beauty. Both theories are quickly disposed of by an appeal to the facts. The stuff written by nine authors out of ten, it must be plain at a glance, has as little to do with spreading the enlightenment as the state papers of the late Chester A. Arthur.

H.L. Mencken, from Alistair Cooke (1955), *The Vintage Mencken*. Vintage Books, p. 169.

### Novelists, Poets, Dramatists

Most novelists, in my experience, know nothing of poetry, and very few poets have any feeling for the beauties of prose. As for the dramatists,  $\frac{3}{4}$ ths of them are unaware that such things as

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<sup>52</sup> GoogleBook image attached.

prose and poetry exist at all. It pains me to set down such inconvenient and blushful facts. If they ought to be concealed, then blame my babbling upon scientific passion. That passion, today, has me by the ear.

H.L. Mencken, from Alistair Cooke (1955), *The Vintage Mencken*. Vintage Books, p. 170.

### Arts and Measurement

If arithmetic, mensuration and the weighing of things be taken away from any art, that which remains will not be much.

Plato. (1996). *The Dialogues of Plato: Gorgias. Philebus. Parmenides. Theaetetus. Volume 3 of The Dialogues of Plato. Sophist. Statesman*. Translated by Benjamin Jowett. Scribner, Armstrong, p. 196.

## QUALITY CONTROL

Following a well-known pronouncement of Kant's which couples the conscience within us with the starry Heavens, a pious man might well be tempted to honor these two things as the masterpieces of creation. The stars are indeed magnificent, but as regards conscience God has done an uneven and careless piece of work.

Sigmund Freud. Freud, S., Strachey, J., & Gay, P. (1989). *Introductory lectures on psycho-analysis* (Standard ed.). New York: Norton, p. 77.<sup>53</sup>

The way of the Master consists in doing one's best and in using oneself as a measure to gauge others. That is all.

(夫子之道，忠恕而已矣)

Tseng Tzu (505–435 BC). In Confucius, & Lau, D. C. (1979). *The analects (lun yü)*. New York; Harmondsworth,: Penguin Books., p. 74.

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<sup>53</sup> GoogleBook image attached.

## QUANTIFICATION

### Spurious

Quantification is a way of making decisions without seeming to decide. Objectivity lends authority to officials who have very little of their own.

Theodore Porter. (1995;1996;). *Trust in numbers: The pursuit of objectivity in science and public life*. Princeton, N.J: Princeton University Press, p. 8.<sup>54</sup>

### Metrification

On the subjects of weights and measures, you will have, at its threshold, to encounter the question on which Solon and Lycurgus acted differently. Shall we mold out citizens to the law, or the law to our citizens?

Thomas Jefferson. (1817). *To The Honorable John Q. Adams*. In Jefferson, T., & Washington, H. A. (1884/1853). *The writings of Thomas Jefferson: Being his autobiography, correspondence, reports, messages, addresses, and other writings, official and private*. T. MacCoun, p. 87.<sup>55</sup>

Comment: The observation reflects Jefferson's view of metrification, which he favored, and popular resistance to it. Napoleon encountered difficulties in this too.

### Grandmother

In Copenhagen people would claim they could “quantize your grandmother” (at least in action-angle variables, I suppose).

Stanley Deser, quoting Oskar Klein. (1995). *Oskar Klein: From his life and physics: Eine nach Klein musik*. In Lindström, U. (1995). *The Oskar Klein Centenary: Proceedings of the Symposium*. World Scientific, p. 54.<sup>56</sup>

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<sup>54</sup> GoogleBook image attached.

<sup>55</sup> GoogleBook image attached.

<sup>56</sup> GoogleBook image attached.

Comment: The context was prewar development of modern physics in meetings in Copenhagen, and in which Bohr had a prominent role.

## Number Sense

A year was counted when the moon had returned to the full for the tenth time: that number was then in great honour, whether because that is the number of the fingers by which we are wont to count, or because a woman brings forth in twice five months, or because the numerals increase up to ten, and from that we start a fresh round.

(annus erat, decimum cum luna receperat orbem:  
hic numerus magno tunc in honore fuit;  
seu quia tot digiti, per quos numerare solemus,  
seu quia bis quinto femina mense parit,  
seu quod adusque decem numero crescente venit,  
principium spatii sumitur inde novis.)

Ovid. (8 AD). *Fasti, III*. In Ovid, & Goold, G. P. (1967).  
*Ovid, Volume 6*. Harvard University Press, p. 129.

Comment: Tobias Dantzig (2007). employs this quote in this an earlier editions of his book, *Number: The Language of Science*. He uses it to introduce his theme that “Number Science should not be confused with counting, which is probably of a much later vintage, and involves, as we shall see, a rather intricate mental process.” (page 1)

It is India that gave us the ingenious method of expressing all numbers by means of ten symbols, each symbol receiving a value of position as well as an absolute value ... it's very simplicity and the great ease which it has lent to all computations put our arithmetic in the first rank of useful inventions... it escaped the genius of Archimedes and Apollonius, two of the greatest men produced by antiquity.

(C'est de l'Inde que nous vient l'ingénieuse méthode d'exprimer tous les nombres avec dix caractères, en leur donnant à la fois, une valeur absolue et une valeur de position... cette simplicité même, et l'extrême facilité qui en résulte pour tous les calculs, placent notre système d'arithmétique au premier rang des inventions utiles... il a échappé au génie d'Archimède et d'Apollonius, deux des plus grands hommes dont l'antiquité s'honore.)

Pierre-Simon Laplace. (1749-1827). In Laplace, Pierre Simon, marquis de. (1835). *Exposition du système du monde*, Vol.2 (6. éd.). Paris, p. 376.

## QUASI-EXPERIMENTS

We now come to experimental situations in which randomization, although theoretically desirable, is not decisive, not needed, and perhaps not even sensible. Suppose that a large number of trials (say 100). have been made with careful randomization, and that 100 more been made with no such precaution...if analysis of both sets shows no appreciable difference in even structure, it would be doctrinaire to insist that our future trials be randomized. Perhaps a fraction, say one quarter, should be just to keep a rough monitor of the system under study.

Cuthbert Daniel. (1976). *Applications of statistics to industrial experimentation*. New York: Wiley, p. 24.

Comments: Daniel was either wildly optimistic or facetious in using the number, but work since the 1970s in the social sector has been, at times, in this spirit.

An experiment is a quasi-experiment waiting to happen.

Donald Rubin, circa 1980.

Some quasi-experiments are queasy.

Donald T. Campbell, circa 1970.

## QUESTIONNAIRE

### Definitions

From the French (used in OED in 1901), rather than “questionary” common before then, Grand Larousse has the first meaning as “a torturer or clerk who sets down the replies of the person tortured.”

Philip Howard. (1979/1983). *Weasel words*. Corgi Books, p. 120.

### Czech

This last questionnaire, however, was a challenge. An invitation.

The way that fellow, Comrade Pavlenda, kept looking at me with his blue-green eyes, the way he adjusted the cushion under his behind, the way he leaned toward me as I sat facing him in my chair (only on one other occasion had I ever been asked to sit down). the way he slid the questionnaire across the marble-top table (Form 01-240-0, Printed in Pilsen—I had grown so familiar with these forms I practically knew them by heart), the way Comr. Pavlenda breathed almost in my face as he smiled—all this seemed extremely promising.

Jiří Gruša. (1982). *The questionnaire, or, prayer for a town & a friend*. New York, N.Y: Farrar, Straus & Giroux, p. 4.

### Encounter

The nervous, dapper, “peart” young man took the chair I offered him, and said he was connected with the *Daily Thunderstorm*, and added—

“Hoping it’s no harm, I’ve come to interview you.”

“Come to what?”

“*Interview* you.”

“Ah! I see. Yes—yes. Um! Yes—yes.”

I was not feeling bright that morning. Indeed, my powers seemed a bit under a cloud. However, I went to the bookcase, and when I had been looking six or seven minutes, I found I was obliged to refer to the young man. I said—

“How do you spell it?”

“Spell what?”

“*Interview*.”

“Oh my goodness! What do you want to spell it for?”

“I don’t want to spell it; I want to see what it means.”



Mark Twain. (1874). *An Encounter with an Interviewer*.  
(1935). *The complete short stories and humorous sketches  
of Mark Twain*. Wm. H. Wise & Co., p. 150.

### Shalt Not Answer

Thou shalt not answer questionnaires  
Or quizzes upon World-Affairs,  
Nor with compliance  
Take any test. Thou shalt not sit  
with statisticians nor commit a social science.

Wystan Hugh Auden. (1946). *Under which Lyre*. In Auden,  
W. H., & Mendelson, E. (2007). *Collected poems (2007  
Modern Library ed.)*. New York: Modern Library, pp. 337-  
338.

### Interrogation

With this booklet, all I had to do was to run my finger down the left hand column until I found the English phrase I wanted, and then rattle off the nonsense syllables printed opposite in the right hand column. “How many grenade launchers have you?” for instance was “Vee feel grenada vairfair habben zee?” Impeccable German for “Where are you tank columns?” proved nothing more troublesome than “Vo zint eara pantzer shpitzen.”

Kurt Vonnegut. (The Atlantic Monthly, July 1955). *Der  
Arme Dolmetscher*. In *Bagombo Snuff Box*. New York:  
Berkeley Books, p. 228.

## QUESTIONS

### Pimping

Pimping occurs whenever an attending (physician). poses a series of very difficult questions to an intern or student. The earliest reference to pimping is attributed to Harvey in London (1628). He laments his students' lack of enthusiasm for learning the circulation of blood: ' They know nothing of Natural Philosophy, these pin heads. Drunkards, sloths, their bellies filled with Mead and Ale. O that I might see them pimped!'

On the surface, the aim of pimping appears to be Socratic instruction. The deeper motive is political. Proper pimping inculcates the intern with a profound and abiding respect for his attending physician while ridding the intern of needless self-esteem.

Brancati, F. L. (1989). The art of pimping. *JAMA: The Journal of the American Medical Association*, 262(1), 89-90.

### Pestiferous

...it must be recognized that people do not like filling in forms. The farmer is interested in growing and tilling crops, and he regards the making of a statistical returns as a pestiferous waste of time.

...even a statistician would probably be impatient if, for the information of another statistician unknown to him, he had to interrupt his work on, say, the world trade in ants' eggs, to make a return of the number of man-hours occupied in the investigation.

L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey Cumberlege Home University Library, Oxford University Press, pp. 14.

See also Corruption of Data, Surveys, Analysis

## RANDOM

RANDOM, n.f. [random, Fr.]

Want of direction, want of rule or method; chance; roving motion.

Samuel Johnson (1755/1979)  
*A Dictionary of the English Language*. Reproduced by  
Arno Press, Unpaginated.

### Stochastic

There is no reason I can think of other than luck that the stochastic scatter of artillery shells and rifle bullets that were aimed in my direction kept me from being one of the casualties. But survive I did. Any loud shrilling or whining noise still makes me look around for some place to get under cover.

Peter H. Rossi. (2003). *A 20<sup>th</sup> Century Journey: Remembered Fragments of My Life*. Amherst, Massachusetts: Privately Published, p. 112.

### Really Random

Isn't it extraordinary how difficult it is to get a sample really random? Every possible precaution, as it may seem, sometimes fails to protect one. I remember Greenwood telling me that, in some experiments done by drawing differently colored counters from a bag, there seemed to be a bias against one particular color. On testing, they concluded that this color had given the counters a slightly greasy surface, so that it tended to escape the sampler's fingers....

George Udny Yule. (1971). *Statistical papers of George Udny Yule*. Hafner Pub. Co., p. 5.

The government are very keen on amassing statistics – they collect them to the nth power, take the cube root and prepare wonderful diagrams. But you must never forget that every one of these figures comes in the first instance from the village watchman, who just puts down what he damn well pleases.

Sir Josiah Stamp. (1929). *Some Economic Factors in Modern Life*. London: King and Son, pp. 258-9.

## Assignment

The contributions of R.A. Fisher to mathematical statistics form a major portion of the subject as we know it. His contributions to the logic of the scientific method and of experimental are no less outstanding, and his book *The Design of Experiments* will be a classic of statistical literature.

Oscar Kempthorne. (1952). *The Design and analysis of experiments*. New York: Wiley, p. vii.

Comment: Lee Cuthbert Daniels remarks on Fisher (Randomization). Oscar (Kempy). was a student of Sir Ronald's, famous in his own right, and a bit embarrassing to university people (he declared proudly in the 1960s). because he did not have a Ph.D.

## Randomized Trial

I do not find [in R.A. Fisher's *Design of Experiments*], stated or illustrated the principles that are claimed to be common in all experimentation. Section 9 (bearing the title "Randomization"...), curiously does not mention randomization.

Cuthbert Daniel. (1976). *Application of Statistics to Industrial Experimentation*. New York: John Wiley and Sons, p. 26.

See also: Analysis, Experiment

## RANGE

### Understanding

(T)he time may not be very remote when it will be understated that for complete initiation as an efficient citizen, of one of the new great complex worldwide States that are now developing, it is as necessary to be able to compute, to think in *averages* and *maxima* and *minima*, as it is now to be able to read and write.

Herbert George Wells. (1903). *Mankind in the making*.  
London: Chapman & Hall, ld, p. 204.<sup>57</sup>

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<sup>57</sup> GoogleBook image attached.

## RELIABILITY

### Ambiguity

At all times, we have striven to maintain a chronological day – day account, even though the original tapes (dictated by James Hacker MP). are much more confusing. There is a slight risk of historical inaccuracy in this approach, because Hacker was confused for most of his time in office and it could be argued that the diaries ought to reflect this confusion.

Jonathan Lynn and Anthony Jay (1986). *The Complete Yes Minister: The Diaries of a Cabinet Minister*. Salem House Publishers, p. 8.

## REPLICATION

### Principle

The necessity for replication has already been stated... It was early seen that different plots (of ground). located in the same way gave different yields. Hence, it is not sufficient to have two plots, say, to treat one with a fertilizer, to grow the crops and measure the yields, and to regard the difference as measuring the effect of the fertilizer. The experiment had to be replicated by treating several plots in each way and measuring the difference between the average yields.

L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey Cumberlidge Home University Library, Oxford University Press, pp. 103.

### Naive

Ho-ti of course wanted more roast pig, and so, ‘as often as the sow farrowed, so sure was the house of Ho-ti to be in a blaze;’ and later after the secret had been dragged into the light...’there was nothing to be seen but fires in every direction.

Charles Lamb, *Dissertation Upon a Roast Pig*. Quoted in L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey Cumberlidge Home University Library, Oxford University Press, pp. 127.

Comment: Ho-ti’s house burned down and in the process roasted a litter of nine pigs. Which tasted very good. Thereafter, he burned his house with each new litter, and the neighbor replicated his procedure to get the same gourmet results. Tippett points out how scientific research, partial replications as opposed to empirical replication, might have been done to enhance understanding.

### Incorrect

Of course experiments can give wrong results, so it may be a good idea for the theorist to wait before throwing away his or her theory. This was the case with the celisium – hafnium controversy, when the French results seemed to contradict Bohr’s prediction.

Wrong theories outnumbered correct ones by a wide margin, some of them stimulated by wrong experiments.

Gino Segré. (2007). *Faust in Copenhagen: A Struggle for the Soul of Physics*. New York: Viking, p. 174.

## Useful

The most useful replication will be which samples the populations about which E wants to make inferences. In this series, the best replication is done under different conditions, not under the same conditions.

Cuthbert Daniel. (1976). *Application of Statistics to Industrial Experimentation*. New York: John Wiley and Sons, p. 10.

Comment: Naïve expectations about exact replication of trials are commonplace. But see the discussion standards for replication developed by a committee of the Society for Prevention Research on this topic in

## Comparisons

In this book attention is confined to experiments in which two or more treatments are being compared with pre-assigned replication.

Oscar Kempthorne. (1952). *The Design and analysis of experiments*. New York: Wiley, p. viii.

## Crash, Bang, Cushion

In the test, the honeycomb cushion absorbed the impact to the extent that if the occupants had been people they would have suffered little or no injury...In fact the helicopter was so lightly damaged that it is being repaired so that the test can be repeated-but this time without the cushion in order to obtain comparable data.

Anonymous (2010). *The Economist*. Technology Quarterly. March 6 2010, p. 6.

See also: Experiment, Experimenter



## REPORTING

### Trust

If one trusts...information in its plain transmitted form...he often cannot avoid stumbling and slipping and deviating from the path of truth...This is especially the case with figures, either sums or money or of soldiers, whenever they occur...They offer a good opportunity for false information and constitute a vehicle for nonsensical statements.

Ibn Khaldun (13-14<sup>th</sup> Century). From N. J. Dawood (1969). *The Muqaddimah: an introduction to history ; in three volumes. 1.* Translated by Franz Rosenthal. Princeton University Press, p. 11.

### Commandments

Ten Commandments were not enough for Polish aphorist Stanislaw Jerzy Lec. He was fond of telling friends that he had come up with an eleventh – brevity – that superseded all the rest. Indeed, so great was Lec's insistence on concision that some of his aphorisms aren't even complete sentences.

James Geary. (2005). *The World in a Phrase*, p. 188, with reference to Tadeusz Nyczek, "Galatyka," *Gazeta Wyborcza*, 17 July 1996, II, on Page 208.

(B)y examination and mathematical computation I find that the proportion of the spoken lie to others is as 1 to 22,874. Therefore the spoken lie is of no consequence, and it is not worth while to go round fussing about it.

Mark Twain. (1899). *The Man That Corrupted Hadleyburg*. Twain, M., 1835-1910. (1917). *The man that corrupted hadleyburg, and other stories and essays*. Harper & brothers, p. 169.<sup>58</sup>

Let me put all my cards on the table.  
(Chartas meas omnes in tabulam ponam.)

Beard (Barbatus) (1900)

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<sup>58</sup> GoogleBook image attached.

## RESEARCH

The bounded is loathed by its possessor. The same dull round, even of a universe, would soon become a mill with complicated wheels.

William Blake. (1788). *There is No Natural Religion*. In Blake, W., Eaves, M., Essick, R. N., & Viscomi, J. (1993). *The early illuminated books*. London?;Princeton, N.J.;: Princeton University Press, p. 26.

If you wish to advance into the infinite, explore the finite in all directions.

Johann Wolfgang von Goethe. (1964). *Goethe : [selected Verse]*; Translated by David Luke. Penguin Books, p. 280.

## RESPONSE ERROR

When the officials in charge are questioned about their armies, when the goods and assets of wealthy people are assessed, and when the outlaws of extravagant spenders are looked at in ordinary light, the figures will be found to a tenth of what those people have said.

Whenever contemporaries speak about the dynastic armies of their own or recent times, and whenever they engage in discussions about Muslim or Christian soldiers, or when they get to figuring the tax revenues and the money spent by the government...they are quite generally found to exaggerate to go beyond the bounds of the ordinary, and to succumb to the temptation of sensationalism.

Ibn Khaldun (13-14<sup>th</sup> Century). From N. J. Dawood (1969). *The Muqaddimah: an introduction to history ; in three volumes. 1.* Translated by Franz Rosenthal. Princeton University Press, p. 13.

Our years, our debts, and our enemies are always more numerous than we imagine.

Charles Nodier (1780-1944), in (1983). *The Oxford Book of Aphorisms*. Oxford University Press, p. 70.

Every journey into the past is complicated by delusions, false memories, false naming of real events.

Adrienne Rich. (1976). *Of woman born: Motherhood as experience and institution (1st ed.)*. New York: Norton, p. xiv.

## **RUNS**

Fortune soon tires of carrying us too long on her shoulders.  
(Cánsase la fortuna de llevar a uno auestas tan a la larga.)

Baltasan Gracian. (1702). Gracián y Morales, B., & Jacobs, J. (1892). *The art of worldly wisdom*. New York;London;: Macmillan and Co, p. 23.

## SAFETY FACTOR

### Measurement

The British physicist William Thompson, better known as Lord Kelvin (1824-1907), claimed that, without measurement, of something — anything — is “meager and unsatisfactory.” ...As an engineering student, I began to measure my chosen profession through quantification – by measuring things. I learned to think not “the bridge is really strong” (meager and unsatisfactory knowledge), but rather that “the bridge has a safe load limit of 10 tons. “ (now I really know something about the bridge).

John Henshaw (2006). *Does Measurement Measure Up? : How Numbers Reveal and Conceal the Truth*. JHU Press, Preface. Page x.

Comment: In the social, educational, and criminological sciences, there seems to be no similar sensitivity to the ideas of safe loads.

## SAMPLE

### Bias

The tendency of the casual mind is to pick out or stumble upon a sample which supports or defies its prejudices, and then to make it the representative of a whole class.

Walter Lippman (1922). *Public Opinion*, New York: Harcourt, Brace, and Company, p. 151.

### Decalogue

Decalogue, n. A series of commandments, ten in number—just enough to permit an intelligent selection for observance, but not enough to embarrass the choice.

Ambrose Bierce. (1911). *Devil's Dictionary, Volume 7 of The Collected Works of Ambrose Bierce*. Neale, p. 64.

### Suppression

What is told in the fullest and most accurate annals bears an infinitely small proportion to what is suppressed. The difference between the copious work of Clarendon and the account of the civil wars in the abridgment of Goldsmith vanishes when compared with the immense amount of fact respecting which both are equally silent.

Macaulay, Thomas Babington Macaulay, Baron, 1800-1859. (1859). *Essays, critical and miscellaneous*. Philips, Sampson, and Company, p. 54.

### Personal

In a hamlet of ten households, there are bound to be those who are my equal in doing their best for others and in being trustworthy in what they say, but they are unlikely to be as eager to learn as I am.

(十室之邑，必有忠信如丘者焉，不如丘之好學也。)

Confucius (551-479 B.C.). In Confucius, & Lau, D. C. (1979). *The analects (lun yü)*. New York; Harmondsworth; Penguin Books., p. ##.

Bias: Blind Men and the Elephant.

And so these men of Indostan,  
Disputed loud and long,  
Each in his own opinion  
Exceedingly stiff and strong;  
Though each was partly in the right,  
And all were in the wrong.

John Godfrey Saxe (1816-1887). *The Blind Men and the Elephant*. In Saxe, J. G. (1882). *The poetical works of John Godfrey Saxe* (Household ed.). Boston: Houghton, Mifflin and company, p. 112.

See also: Population

## SCIENCE

### Soft

The soft sciences are not as soft as one might have thought, it turns out, nor are the hard ones as hard.

John Henshaw (2006). *Does Measurement Measure Up? : How Numbers Reveal and Conceal the Truth*. JHU Press, p. 8.

Comment: Henshaw is professor of mechanical engineering at the University of Tulsa.

### Scientific Laws

Thirdly, if laws are to be inferred from numerical data, this must be done by methods that are largely statistical, as opposed to experimental... The consequence is that the economist can only learn by observing events that happen outside his control

L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey Cumberlege Home University Library, Oxford University Press, pp. 164.

Comment: Tippett forgot about Newton, who experimented so as to get to the law of gravity. He could not, of course, anticipate an era of manpower training and welfare experiments in economics or a Nobel Prize being awarded in the laboratory oriented arena of experimental economics.

### Simplification

Science can be described as the art of systematic over-simplification.

Sir Karl Popper. In Popper, K. R., & Bartley, W. W. (1982). *The open universe: An argument for indeterminism*. Totowa, N.J: Rowman and Littlefield, p. 44.

### Aim



The grand aim of all science... is to cover the greatest possible number of empirical facts by logical deduction from the smallest possible number of hypotheses or axioms.

Albert Einstein. (1934). *Einstein's Essays in Science*;  
Translated by Alan Harris. Courier Corporation, p. 69.

## Human

In this, then, modern science differs from its classical predecessor: it has recognized the anthromorphic origin and nature of human knowledge. Be it determinism, or rationality, empiricism, or the mathematical method, it has recognized that *man is the measure of all things and there is no other measure*.

Tobias Dantzig (2007). *Number: The Language of Science*.  
Penguin, p. 341

See also: Experiment, Measurement

## STATISTICAL SIGNIFICANCE

### Level

It should be noted that the level of significance has no relationship to the probability of the hypothesis being true, and in fact no such probability exists.

Oscar Kempthorne. (1952). *The Design and analysis of experiments*. New York: Wiley, p. 12.

### Distrust

“Many good scientists instinctively distrust a measurement which is *always* on the ragged edge of statistical significance, and have learned to be very skeptical of marginal statistics.”

Philip Anderson  
Quoted in Andrew Robinson (2007). *The Story of Measurement*. Page 66.

### Meaning

... only results as cannot be reasonably attributed to errors of random sampling are held to be *statistically significant*.

L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey Cumberlege Home University Library, Oxford University Press, pp. 86.

### Null

The Null Hypothesis is Not Called That for Nothing.

Robert Boruch (2007). Title of an Article *Journal of Experimental Criminology*, in Boruch, R. (2007). The null hypothesis is not called that for nothing: Statistical tests in randomized trials. *Journal of Experimental Criminology*, 3(1), 1-20.

## Null Hypothesis

Verification of a theory cannot be absolute; we can only show that the observations are compatible with the theory within the limits of error to which observations are subject. This somewhat negative approach, i.e. being able only to prove a hypothesis false, is the major reason for the use of the null hypothesis in statistics.

We shall avoid the term “proof”, except in mathematical argument...because of the fact that a hypothesis can only be disproved.

Oscar Kempthorne. (1952). *The Design and analysis of experiments*. New York: Wiley, pp. 1 - 3.

## Realism

As soon as the contract is signed, or the grant is awarded, the size of the target group available for the experiment drops in half.

Anonymous. Quoted in Robert Boruch. (1997). *Randomized Experiments for Planning and Evaluation: A Practical Guide*. Thousand Oaks, CA, p. 71.

## Silly

Falk said, “What I think is that the discoverers are correct, that it’s a totally new species in the genus Homo that is a so called insularly dwarfed species.”

.....

But despite the new evidence (statistical studies of skulls shaped like microcephalic humans), some scientists still couldn’t shake their value attributions. “What they said,” Falk recalled, “was, oh well, your sample size wasn’t big enough. We want bigger a sample size of microcephalitics.” Well, our sample size was statistically significant...”

Ori Brafman and Rom Brafman (2008). *Sway: The Irresistible Pull of Irrational Behavior*. New York: Doubleday, pp. 61-63

Comment: Any bright undergraduate in a student course in statistics will tell you why.

## Purpose

The main purpose of a significance test is to inhibit the natural enthusiasm of the investigator.

Frederick Mosteller and Robert Bush (1954). Selected Quantitative Techniques, pp. 331-332. In G. Lindze (Ed). (1954). *Handbook of Social Psychology*. Reading, Massachusetts: Addison-Wesley, p. 332.

See also: Hypotheses and Hypothesis Testing

## STATISTICIAN

### Recruitment

Jem, there's a good opening among the fellows, and they want men. I wonder you don't go in for statistics.

Jem, rather taken up by the novelty of the idea, and very hard up for a change, was ready to go in for statistics as for anything else.

Charles Dickens. (1848/1868). *Hard Times: For These Times*. New York and Boston: Books, Inc., p. 111.<sup>59</sup>

Comment: Jem, loaded himself up on a book or two, and got to be a politician.

### Who's Who

Egon Pearson sent me a few days ago a folder advertisement of *Who's Who*. The inside was 'People in the News' and there was given seven specimen biographies, Anthony Eden, Sir Patrick Hastings, General Smuts, Sir John Reith, Ellen Wilkinson, ME!!! And Sir Basil Zaharoff. Isn't this fame?...If any reporters do come to a paper of mine at the Stat. Soc. They soon rise up and walk out gently with bowed heads, moaning like the wind in the keyhole...

George Udny Yule. (1971). *Statistical papers of George Udny Yule*. Hafner Pub. Co., p. 5.

### Spies

"Daniel's a statistician. He sees numbers,-- fractions, equations, totals -- and they spell out the odds for him. God knows he's brilliant at it; he's saved the lives of hundreds with those statistics.

But I'm a lawyer. I see complications, ramifications. Parties of the first part turning on parties of the second part...there are times when the odds aren't found in numbers. They're found in things you can't perceive at the moment."

Robert Ludlum. (1982). *The parsifal mosaic* (1st ed.). New York: Random House, p. 151-152.

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<sup>59</sup> GoogleBook image attached.

## Scottish

Stuart was a statistician in the Scottish Executive – and there had been an intense discussion in an internal meeting of how figures might be presented. The optimists had been pitted against the pessimists, and Stuart was not sure exactly into which camp he fitted. He believed that there were sometimes grounds for optimism and sometimes grounds for pessimism, and that one might on occasion choose between them at the level of subtle, and permissible, nuances but in general should stick to the truth, which was often uncomfortable.

Alexander McCall Smith. (2006). *Espresso tales* (1st Anchor Books ed.). New York: Anchor Books, p. 34.

## Person

Gosset came in to see me the other day. He is a very pleasant chap. Not at all the autocrat of the t-table...

George Udny Yule. (1971). *Statistical papers of George Udny Yule*. Hafner Pub. Co., p. 5.

## Christ

The organized charity, scrimped and iced.  
In the name of a cautious, statistical Christ.

John Boyle O'Reilly, 1844-1890. (1886). *In Bohemia*. Pilot publishing Company, p. 15.

## STATISTICS

STATICAL. Adj. [from the noun] Relating to the Science.

STATICK. of weighing.

STATICKS. n.f. (...Fr.). The science which consists the bodies of weights.

Samuel Johnson (1755). *A Dictionary of the English Language*. Reproduced by Arno Press, (New York, 1979), No Pagination.

### Honorable

Statistics is a science which ought to be honorable, the basis of many important sciences; but it is not carried on by steam, this science, any more than others are; a wise head is requisite for carrying it on.

Thomas Carlyle. (1899). *Critical and miscellaneous essays*. Oxford University, p. 124.<sup>60</sup>

### Thurso

The big event in Thurso, according to civic records, was in 1834 when Sir John Sinclair, a local worthy, coined the term statistics in the town, although things have calmed down considerably since then. When he wasn't contriving neologisms, Sinclair also extensively rebuilt the town...

Bill Bryson (1995). *Notes from a Small Island*. New York: Double day, p. 292.

Comment: Thurso, Bryson explains is "the northernmost town on the British main line, the end of the line in every sense of the word."

### Understanding

To pick fairly a good sample of a large class is not easy. The problem belongs to the science of statistics, and it is a most difficult affair for anyone whose mathematic in primitive, and mine

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<sup>60</sup> GoogleBook image attached.

remain azoic in spite of the half dozen manuals which I once devoutly imagined that I understood.

Walter Lippman (1922). *Public Opinion*. New York: Harcourt, Brace and Company, p. 148.

## Citizenship

(T)he time may not be very remote when it will be understood that for complete initiation as an efficient citizen of one of the new great complex worldwide states that are not developing, it is as necessary to be able to compute, to think in *averages* and *maxima* and *minima*, as it is now to be able to read and write.

Herbert George Wells. (1903). *Mankind in the making*. London: Chapman & Hall, 1d, p. 204.<sup>61</sup>

## Honorable

Statistics is a science which ought to be honorable, the basis of many most important sciences; but it is not to be carried on by steam, this science, any more than others are; a wise head is requisite for carrying it on. Conclusive facts are inseparable from inconclusive except by a head that already understands and knows.

Thomas Carlyle. (1899). *Critical and miscellaneous essays*. Oxford University, p. 124.

## Object

The object of statistical science is to discover methods of condensing information concerning large groups of allied facts into brief and compendious expressions suitable for discussion. The possibility of doing this is based on the constancy and continuity with which objects of the same species are found to vary.

Galton, S. F. (1883). *Inquiries into human faculty and its development*. New York: Macmillan, p. 49.

## Compendium

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<sup>61</sup> GoogleBook image attached.



“One of the major selling points of that wholly remarkable travel book, the Hitchhiker’s Guide to the Galaxy, apart from its relative cheapness and the fact that it has the words DON’T PANIC written in large friendly letters on its cover, is its compendious and occasionally accurate glossary. The statistics relating to the geo-social nature of the Universe, for instance, and deftly set out between pages nine hundred and thirty- eight thousand three hundred and twenty-four and nine hundred and thirty-eight thousand three hundred and twenty-six....

Douglas Adams. (2005). *The Ultimate Hitchhiker’s Guide: Five Complete Novels and One Story*. Gramercy Books, p. 243.

Scottish

Bertie was good at mathematics, and had absorbed the basic principles of calculus, but did not think that it would be very satisfying to do mathematics all day, as his father did. And what did the Scottish Executive need all those statistics for in the first place? Bertie wondered. Surely there was a limit to the number of statistics one needed.

Alexander McCall Smith. (2006). *Espresso tales* (1st Anchor Books ed.). New York: Anchor Books, p. 165.

## SUFFICIENCY

### Sufficiency

You can fool all of the people some of the time, and some of the people all of the time; and that should be sufficient for most purposes.

You can fool some of the people all of the time, and all of the people some of the time, but you can't fool all of the people all of the time.

Attributed to Lincoln, but never contemporaneously quoted, during his Bloomington, Illinois, speech on May 29, 1856.

Abraham Lincoln. In Bob Blaisdell (Ed). (2016). *Lincoln: A Book of Quotations*. Courier Dover Publications, p. 43.<sup>62</sup>

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<sup>62</sup> GoogleBook image attached.

## SUMMARY

### Consolidation

I have a problem with the Ten Commandments. Here it is: Why are there ten? We don't need that many. I think the list of commandments was deliberately and artificially inflated to get it up to ten. It's clearly a padded list.

George Carlin (2004). *When Will Jesus Bring the Pork Chops?* New York, Hyperion, p. 24.

Comment: Mr. Carlin showed how the original list of ten can be reduced to two.

### Essence

Break the bone, and suck out the substantive marrow.

François Rabelais. (1871). *The works of Rabelais, with variorum notes*; Translated by Sir Thomas Urquhart. Oxford University, p. 5.

See also: Average, Meta-Analysis, Variance

## SURVEY

### History

The developments of statistics are causing history to be rewritten. Till recently, the historian studied nations in the aggregate, and gave us only the story of princes, dynasties, sieges, and battles.

Now, statistical inquiry leads him into the hovels, homes, workshops, mines, fields, prisons, hospitals and all other places where human nature displays its weakness and its strength. In these explorations he discovers the seeds of national growth and decay, and thus becomes the prophet of his generation.

James A. Garfield. Garfield, J. A., & Hinsdale, B. A. (1882). *The works of James Abram Garfield*. Boston: J.R. Osgood and Company, p. 454.

### Careful

There is nothing like a good painstaking survey full of decimal points and guarded generalizations to put a glaze like a Sung vase on your eyeball.

S.J. Perelman, *Keep It Crisp*, 1946, p. 174  
Sidney Joseph "S. J." Perelman. (1946). *Keep it crisp*. New York: Random House, p. 174.

### Interviews

It took a stray copy of the *Buffalo Evening News*, abandoned ... on my bus seat by some upstate transient, to reveal the true nature of the (John B. Pierce Foundation). survey and dispel any apathy. "Married Couples Favor Double Beds" trumped the dispatch. "Eighty-seven per cent of husbands and wives sleep together in double beds but 5% of the wives are dissatisfied with this and 40% think maybe twin beds would be ideal ... Other conclusions included: In summer 70.3% of the wives sleep in nightgowns, 24% in pajamas, 5% in the nude, and .7% in shorts. Sixteen percent of the women reported they would like to sleep in the nude, causing the Pierce Foundation to comment: 'Here we have clear-cut evidence of an inhibition ... ' Fifty per cent of the husbands report no activity after getting into bed, 22% read, 12% talk, 7% listen to the radio, 3% say their prayers, 4% smoke, 2% eat. Comparable percentages for wives were 40% no activity, 29% read, 11% talk, 8% listen to the radio, 5% say their prayers, 3% think, 2% smoke, 2% eat."

Though one could speculate on the foregoing until the cows come home and distill all manner of savory psychological inferences, I cannot help wondering what machinery the Foundation used to obtain its statistics.

Perelman's wondering was brief and he wrote a story about the machinery. It involves one "Otis 'Speedball' Ismay, ace statistician ... " who crawls out from under the bed, salutes respondents, Monty Stringfellow and his spouse Tanagra with "Evening friends. Close, isn't it," to which Tanagra replies..." archly...I never realized how close," and pursues his questions.

S.J. Perelman "Sleepy Time Extra

"A large and wooly region of academic study is still searching for its vocabulary as well as its identity. This region includes economics, sociology, political science, management science, demography, psychology...and every aspect of knowledge where the human imponderable plays an important part. These disciplines lack the scientific vigor, the precise technical jargons, and *indeed the discipline* of the psychical sciences." Are people who use jargons jargonauts?

Philip Howard. (1979/1983). *Weasel words*. Corgi Books, p. 92.

To the Dreiser chapter, however, I resolved to add some statistics showing the distribution of Dreiser's books in American public libraries, and to that end I began to send out letters of inquiry in May 1917. The response from librarians was ready, and on the whole surprising and gratifying...they had shelved virtually the whole canon.

Henry Louis Mencken, Jonathan Yardley Mencken (1993). *My Life as Author and Editor*. Knopf, p. 175

## Distinction

The real distinction between two of the applications of statistics, the design of experiments and sample surveys, is that, in the design of experiments...the populations that are studied are formed by the experimenter in a specified way, whereas, in a sample survey dealing with the same problem, the population under study has arisen from a set of forces, the relaxation of which to the forces under consideration are unknown.

Oscar Kempthorne. (1952). *The Design and analysis of experiments*. New York: Wiley, p. 7.

See also: Experiment, Interview, Questionnaire

## **Taxonomy**

### Anthropology

Dowayes...divide diseases between infections diseases, head witchcraft, ancestor interference and pollutions.

Nigel Barley (1992). *The Innocent Anthropologist*. Henry Holt & Co (P), p. 102.

## THEORY

### Sufficient Data

Statistical analysis can separate the effects of various factors, given sufficient data, but usually only after the factors are stated by theory.

L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey Cumberlege Home University Library, Oxford University Press, pp. 165.

### Theory versus Empirical Evidence

Lord Keynes wrote in 1933:

‘In economic discussions Ricardo was the abstract and *a priori* theorist, Malthus the inductive and intuitive investigator who hated to stray too far from...the facts...

‘One cannot rise from a perusal of this correspondence [i.e. between Malthus and Ricardo] without a feeling that the almost total obliteration of Malthus’ line of approach and the complete domination of Ricardo’s for a period of a hundred years has been a disaster to the progress of economics?’

John Maynard Keynes. (1933). Review. *Journal of the royal Statistical Society*, vol. XCVI, Part III (1933), pp. 512-514. In McCann, C. R. (Ed). (1998). *John Maynard Keynes: Critical Responses*. Taylor & Francis, pp. 283 - 284.

### Without

“Let us work without theorizing,” said Martin; “‘tis the only way to make life endurable.”

Voltaire, V. (1946). *Candide: or Optimism*. Wiley, p. 114.

Now my own suspicion is that the universe is not only queerer than we suppose, but queerer than we *can* suppose.



Haldane, J. B. S. (1928). *Possible worlds, and other papers*. London: Chatto and Windus, p. 186.

Dawayos

Pollution diseases usually require the attention of experts - circumciser, sorcerer rain chief. Often causes and effects can be linked in a rather oblique fashion. For example, what we would term a sprain is held to hurt because worms have got into the limb; worms come from rain, so only the rain chief can cure them.

Nigel Barley (1992). *The Innocent Anthropologist*. Henry Holt & Co (P), p. 102

See also: Experiment, Hypothesis, Economics, Cause, and Explanation

## TIME

### Time Series

It has been said that figures rule the world; maybe. I am quite sure that it is figures which show us whether it is being ruled well or badly (tr. S.H. Steinberg).

(Man hat behauptet, die Welt werde durch Zahlen regiert: das aber weiss ich, dass die Zahlen uns belehren, ob sie gut oder schlecht regiert werde.)

J.W. von Goethe: in conversation with Eckerman, 31<sup>st</sup> January 1830 (the motto of *The Statesman's Yearbook*, since its inception in 1864). (German)

### Timing

The timing of events in Dowayland is a nightmare for anyone seeking to plan more than ten minutes in the future.

Nigel Barley (1992). *The Innocent Anthropologist*. Henry Holt & Co (P), p. 78.

### Policy

In foreign policy you have to wait twenty five years to see how it comes out.

James Reston (Paris, Nov. 18, 1991). International Herald Tribune. Quoted in Robert Andrews (2003). New Penguin Dictionary of Modern Quotations. London: Penguin, p. 473.

See also: Analysis, Cause and Effect, Extrapolation, Prediction

## TRUTH

(W)hen you have eliminated the impossible, whatever remains, however improbable, must be the truth.

Sir Arthur Conan Doyle. (1890/2000). *The sign of four*.  
Spencer Blackett, p. 60.

## Casualty

The first casualty when war comes is truth.

Quoted in: Philip Knightley. (1975). *The First Casualty*. New York and London: Harcourt Brace Jovanovich, preface page.

Senator Hiram Johnson

Comment Knightley's book is an engaging and well documented account of governmental suppression of information and censorship of reporting in wartime, journalists' acceding to pressures to propagandize, and journalists' heroism and plain reporting, from the Crimean War to the Viet Nam War. Knightley cites Senator Johnson who serves in the U.S. Senate often during 1917-1945 and was also Governor of California. The Guardian's Notes and Queries section (below). included others who have expressed the same sentiment.

## Calamity

Among the calamities of war may it be jointly numbered the diminution of the love of truth, by the falsehoods which interests dictate and credulity encourages.

Samuel Johnson, *The Idler*, No. 60. In Frank Brady,  
William Wimsatt (Ed). (1978). *Samuel Johnson: Selected  
Poetry and Prose*. University of California Press, p. 252.

## Death

A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents will eventually die, and a new generation grows up that is familiar with it.

Max Planck. (1948). *Wissenschaftliche Selbstbiographie. Mit einem Bildnis und der von Max von Laue gehaltenen Traueransprache*. Johann Ambrosius Barth Verlag, Leipzig, p. 22, as translated in (1949). *Scientific Autobiography and Other Papers*, trans. F. Gaynor. New York, pp. 33–34.

Lies

It is easy to lie with statistics, but easier to lie without them.

Frederick Mosteller. (1916-2006). In Petrosino, A. (2004). *Charles Frederick [Fred] Mosteller (1916-2006)*. JLL Bulletin: Commentaries on the history of treatment evaluation.

Not enough

Teiresias (to Oedipus):

How dreadful knowledge of the truth can be  
When there's no help in truth!

Sophocles. (496 – 406 bc). (429 bc). *Oedipus Rex*. In Sophocles, Fitts, D., & Fitzgerald, R. (1977). *The Oedipus cycle: An English version*. San Diego: Harcourt, Brace & Co., p. 17.<sup>63</sup>

Insufficient

It is a piece of idle sentimentality that truth, merely as truth, has any inherent power denied to error of prevailing against the dungeon and the stake. Men are not more zealous for truth than they often are for error, and a sufficient application of legal or even of social penalties will generally succeed in stopping the propagation of either.

The real advantage which truth has consists in this, that when an opinion is true, it may be extinguished once, twice, or many times, but in the course of ages there will generally be found persons to rediscover it, until some one of its reappearances falls on a time when from favorable circumstances it escapes persecution until it has made such head as to withstand all subsequent attempts to suppress it.

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<sup>63</sup> GoogleBook image attached.

John Stuart Mill. (1859). *On liberty*. London: John W. Parker and Son, West Strand, p. 53.<sup>64</sup>

Principle 6.

Example: I'm a liar. Therefore, I don't believe what you are saying.

Scott Adams (1996). *The Dilbert Principle*. New York: Harper Business, Chapter 6, p. 153.

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<sup>64</sup> GoogleBook image attached.

## USE OF EVIDENCE

### Motives

It may be now asked, to what purpose tends all this laborious bustling and groping? To know the number of ...people, fighting men, teeming women, what years are fruitful, what proportions neglect the Orders..." and so forth (p. 71)

To this I might answer in general by saying that those who cannot apprehend the reason of these enquiries are unfit to trouble themselves to ask them (pp. 71-72).

...the foundation of this honest and harmless policy is to understand the land and the hands of the territory to the governed according to all their intrinsic and accidental differences...by the knowledge whereof trade and government may be made more certain and regular...so as trade might not be hoped for where it is impossible...(all). necessary to good, retain, and easy government...(p. 73-74)

John Graunt. (1620-1674). Graunt, J., & Willcox, W. Francis. (1662/1939). *Natural and political observations made upon the bills of mortality*. Baltimore: Johns Hopkins Press.

Comment: Graunt's later remarks make it clear that he thinks it is in government's interest to pay attention to statistics. But he is not at all convinced that there is any reason for disclosing the data to the general public (see the section of Access).

### Theory

Thus it seems that, in existing circumstances, theory inevitably controls the analysis of observational data and is almost unaffected by the results. It is not altogether unreasonable for economists to cling to their theories in spite of discordant statistical facts which so often are only *apparently* discordant.

L.H.C. Tippet. (1943). *Statistics*. London: Geoffrey Cumberlege Home University Library, Oxford University Press, pp. 166.

### Selective

"...he (Dr. Adam Smith). has not stopped to take notice of these instances, where the wealth of a society may increase (according to his definition of wealth). without having any tendency to increase the comforts of the labouring part of it."

Thomas Malthus. (1798). *An essay on the principle of population, as it affects the future improvement of society. with remarks on the speculations of mr. godwin, M. condorcet, and other writers.* London: printed for J. Johnson, p. 304.

## Unhappy

“...the most baleful mischiefs can be expected from the unmanly conduct of not daring to face truth, because it is unpleasing.

“...if we proceed without a thorough knowledge...of the difficulties we have to encounter...we shall not only exhaust our strength in fruitless exertions...we shall be perpetually crushed by the recoil of this rock of Sisyphus.”

Thomas Malthus. (1798). *An essay on the principle of population, as it affects the future improvement of society. with remarks on the speculations of mr. godwin, M. condorcet, and other writers.* London: printed for J. Johnson, p. 347.

## Pedestrian

There are presumably men who innovate without possessing knowledge, but that is not a fault I have. I use my ears widely and follow what is good in what I have heard; I use my eyes widely and retain what I have seen in my mind. This constitutes a lower level of knowledge.

Confucius (551-479 B.C.). In Confucius, & Lau, D. C. (1979). *The analects (lun yü)*. New York; Harmondsworth;: Penguin Books., p. 89.

## Non-Use

The Cabinet Ministers, the army of their subordinates...have for the most part received a university education, but no education in statistical method. We legislate without knowing what we are doing. The War Office has some of the finest statistics in the world. What comes of them? Little or nothing. Why? Because the Heads do not know how to make anything of them. Our Indian statistics are really better than those of England. Of these no use is made

in administration. What we want is not so much (or at least now at present). an accumulation of facts, as to teach men who are to govern the country the use of statistical facts.

Florence Nightingale, Letter to Benjamin Jow. (1891). In Nightingale, F., & McDonald, L. (2003). *Florence Nightingale on society and politics, philosophy, science, education and literature*. Waterloo, Ont: Wilfrid Laurier University Press, Pag 110.

## Anticipated

You remember what Quetelet wrote--'Put down what you expect from such and such legislation; after \_\_\_ years, see where it has given you what you expected, and where it has failed. But you change your laws and your administering of them so fast, and without an inquiry after results past or present, that it is all experiment, see-saw, doctrinaire, a shuttlecock between two battledores.'

Florence Nightingale, Letter to Francis Galton. (1891). In Nightingale, F., & McDonald, L. (2003). *Florence Nightingale on society and politics, philosophy, science, education and literature*. Waterloo, Ont: Wilfrid Laurier University Press, p. 113.

## Capital Punishment

This belief in the irreplaceable deterrent value of the death penalty has been proved to be a superstition by the long and patient inquiries of the Parliamentary Select Committee of 1930 and the Royal Commission on Capital Punishment of 1948; yet it pops up again and again. Like all superstitions, it has the nature of a Jack-in-the-box; however often you hit it over the head with facts and statistics, it will solemnly pop up again, because the hidden spring inside it is the unconscious and irrational power of traditional beliefs.

Arthur Koestler. (1957). *Reflections on hanging*. New York: Macmillan, p. 6.  
Arthur Koestler. (1980). *Bricks to Babel : selected writings with comments by the author*. London: Hutchinson, p. 541.

## Action

Action taken as a result of intellectual conviction derived from hard facts is likely to be more resolute than action stimulated by an emotional appeal alone; and statistical facts are the hardest metal.



L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey  
Cumberlege Home University Library, Oxford University  
Press, pp. 154.

Comment: This is a bold announcement. In the 21<sup>st</sup> century it has been sustained by  
governmental shifts toward “evidence based policy” and of professional service providers toward  
evidence based practice. But the matter is nip and tuck.

## VALIDITY

### Correspondents/ Journalists

Somewhat to the amazement of the British correspondents, he [Charles Bean, Australian correspondent], set himself the task of visiting, on the day of the battle or soon afterwards, every important trench or position occupied by Australian troops in Gallipoli and France. He accepted little second hand information.

Philip Knightley. (1975). *The First Casualty*. New York and London: Harcourt Brace Jovanovich, p. 10.

What is needed is a scientific inquiry into the matter (of chiropractic), under rigid test conditions, by a committee of men learned in the architecture and plumbing of the body, and of a high and incorruptible sagacity. Let a thousand patients be selected, let a gang of selected chiropractors examine their backbones and determine what is the matter with them, and then let these diagnoses be checked up by the exact methods of scientific medicine. Then let the same chiropractors essay to cure the patients whose maladies have been determined. My guess is that the chiropractors' errors in diagnosis will run to at least 95% and that their failures in treatment will push 99%. But I am willing to be convinced.

H.L. Mencken, from Alistair Cooke (1955), *The Vintage Mencken*. Vintage Books, p. 152-153.

### Bold Claims

Section 20 [of R.A. Fisher's Design of Experiments] does state that the simple precautions outlines [notably randomization] supply absolute guarantee of the validity of experimental conclusions. It would have been sufficiently impressive if only on occasional improvement in validity had been claimed.

Cuthbert Daniel. (1976). *Application of Statistics to Industrial Experimentation*. New York: John Wiley and Sons, p. 26.

### False Negatives

I can't think he's a spy, but I am not 100% convinced because of the money situation.

Polygraph Officer quoted in John Diamond (2008). *The CIA and the Culture of Failure*. Stanford, California: Stanford University Press, p. 218.

Comment: The Officer's subject was Aldrich Amos, later convicted of spying for Russia from 1985 to 1994. Diamond reports that the Officer had to refrain from asking questions about finances so as not to indirectly disclose to Archer the reasons for his polygraph test.

## Observation

One need not be Caesar to understand Caesar.  
(Nicht Caesar sein, um Caesar zu verstehen.)  
(um Caesar zu verstehen, nicht Caesar sein muß)

Max Weber, George Simmel. In Weber, M., Krumeich, G., Lepsius, M. R., Rudhard, B., & Schön, M. (2008). *Briefe: 1915 - 1917*. Tübingen: J.C.B. Mohr, p.729. Quoted in David Sills and Robert Merton (1991). *Social Science Quotation*. New York: MacMillan, p. 249. <sup>65</sup>

## Corroboration

Certainty not based upon mathematical demonstration is only probability; most history must be that. When Marco Polo described the greatness and the people of China, being the first and for a time the only western writer who had described them, he was not believed. The Portuguese, who later came into communication with that vast empire through trade with it, began to make the description probable. It is now a matter of certainty, for thousands of witnesses from different nations know about it, unopposed by contrary testimony.

Voltaire, 1694-1778. (1901). *A philosophical dictionary Volume 10 of The Works of Voltaire: A Contemporary Version with Notes*, Voltaire. E.R. Du Mont, p. 200.

See also: Prediction, Response Error

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<sup>65</sup> GoogleBook image attached.

## VARIABLES

The cause **of the fountain** is hidden, but the effect is very obvious.  
(Causa latet, vis est notissima **fontis**.)

Ovid (1997). *Ovid's Metamorphoses, Books 1-5*. University of Oklahoma Press, Book 4, p. 114. <sup>66</sup>

## Theory

Without some theories or ideas, the investigator will be unable to choose which elements in the situation to observe.

Oscar Kempthorne. (1952). *The design and analysis of experiments*. New York: Wiley, p. 3.

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<sup>66</sup> GoogleBook image attached.

## VARIANCE

### Ignored

As Professor A.L. Bowley has written: “Of itself, an arithmetical average is more likely to conceal than to disclose important facts; it is of the nature of an abbreviation, and is often an excuse for laziness.” The average does not measure the important facts that arise from the variation. ...It is no consolation to the man who can only spend, say 4s. per week on food ...to know that the average expenditure is 9s per week.

L.H.C. Tippett. (1943). *Statistics*. London: Geoffrey Cumberlege Home University Library, Oxford University Press, pp. 69.

### Outliers

When you have a taste for exceptional people you always end up meeting them everywhere.  
(Quand on possède le goût des gens exceptionnels, on finit toujours par en rencontrer partout.)

Pierre Mac Orlan. (1969). *Marguerite de la nuit: Le bal du pont du nord (la nuit de Zeebrugge)*. Entre deux jours. [Édito-Service; Évreux] distribué par le Cercle du bibliophile, p. 254.

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