Extreme Academic Tales for Recorded Extreme Tails in Greece

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Short CV (@European Geoscience Union):

Dr Panayiotis Dimitriadis is a Civil Engineer, graduated from the National Technical University of Athens (NTUA) in 2006. In 2008 he received his Master of Science from Imperial College of London under a scholarship from the Eugenides Foundation in Hydrology for Environmental Management, and in 2017, he received his PhD in Stochastic analysis of large-scale hydrometeorological and small-scale turbulent processes. In 2018, he worked as a post-doctoral Researcher at the National Observatory of Athens in stochastic analysis of flow dynamics in natural rivers, and from 2018 he has served as an adjunct Assistant Professor at the University of West Attica, NTUA, and ASPETE in the courses of Urban Hydraulic Works, Dams-Hydrodynamic Works, Fluid Mechanics, Hydraulics, Introduction in Computational Hydraulics, and Flood Mitigation Works. He has collaborated as a freelancer Civil Engineer in consultancy companies in the UK (ENTEC UK Ltd, London) and Greece (among others, Public Power Corporation SA, Hellenic Ministry of Environment and Energy, Decentralized Administration of Attica), and worked as a Research Assistant in scientific programs held at NTUA, UNIWA and ASPETE in the fields of Water Resources Management, Hydrological Design, Computational Fluid Dynamics, Flood Risk Management, Stochastic Simulation of Water-Energy Resources, and Laboratory Hydraulic Experiments in Spillways Design and Sediment Transport. He is now also working at the Athens Water Supply & Sewerage Company SA as a Hydraulic Civil Engineer (https://www.linkedin.com/in/panayiotis-dimitriadis-19a516142/). He has earned a publication award (Thomaideio) at the NTUA and 2 academic scholarships at the UNIWA for teaching, has earned the Young Scientists Grant (MIS 5049175) under the NSRF/ESF Calls, and has excellent skills in programming languages and statistical analysis of large datasets. He has more than 2500 citations (h-index>25) and 50 publications in scientific journals (https://www.researchgate.net/profile/Panayiotis-Dimitriadis/research), and since 2024, he serves as a (Co)-Convener of the session HS3.8 ("Advances in stochastic analysis, modelling, simulation and prediction for hydrological and water-related processes") at the EGU.

1. Session, Abstract and Aim

Education, Ethics and Equity: The three Es of Geoscience Communication and Research

Co-organized by EOS

Convener: Solmaz Mohadjer

▸ Posters virtual ★ | Fri, 08 May, 14:00–15:45 (CEST) ■ vPoster spot 5, Fri, 08 May, 16:15–18:00 (CEST) ■ vPoster Discussion

Extreme Academic Tales for Recorded Extreme Tails in Greece

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One of the most life-changing experiences for scientists is when real-world events challenge theoretical knowledge and standard models in the literature. When facing such circumstances, scientists, instead of feeling disappointment and discouragement, must seize the opportunity to expand their knowledge and adjust for flaws in their initial assumptions, as academic integrity is rooted in fundamental scientific values, such as honesty and fairness. Considering this, and after decades of post-graduate, PhD, and post-doctoral studies in the fields of Hydraulics, Hydrology, and Stochastics, we witnessed a series of unprecedentedly extreme events in academia involving the official regulations for tenured professorships in Greece. These regulations mandate the formation of an Academic Board for candidate evaluation by randomly drawing lots from a pool of professors whose scientific fields are relevant to the subject of the position. This is intended to avoid "pre-designed" boards (i.e., those formed by blocking certain experts —often highly qualified ones— from the draw and favouring others —often poorly qualified ones— who may have scientific and financial conflicts of interest regarding specific candidates), which can cause severe long-term degradation of the educational system. Unexpectedly, even after multiple repetitions and strong reassurance regarding the validity of the above procedure, the probability of the outcomes (specifically, the consistent drawing of a handful group of lots) reached the extreme order of millionths. In this presentation, we will discuss these experiences with extremes and whether the concepts of statistical significance and reliability indices in scientific literature and academic regulations should be revisited.

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Oral | Friday, 08 May, 14:18–14:21 (CEST) ■ vPoster spot 5

Poster | Friday, 08 May, 16:15–18:00 (CEST), Display time Friday, 08 May, 14:00–18:00 ■ vPoster Discussion, vP.7

Aim: "Πίστευε, και μη ερεύνα" (Believe, and do not search for the truth) vs. "Πίστευε και μη, ερεύνα" (Believe or not, search for the truth).

2. Definitions

The probability P_i of occurrence $P\{\underline{x} = x_i\}$ of an event x_i from all possible outcomes $x_j = \{x_1, x_2 \dots, x_w\}$ of the discrete stochastic variable $\underline{x}$ (where w is the total number of the possible outcomes), can be expressed (following the Dutch convention; Hemelrijk, 1966) as:

$$P_i \equiv P(x_i) = P\{\underline{x} = x_i\}$$

where $j = \{1,2 \dots, w\}$, and $P(x_j)$ is the probability mass function of $\underline{x}$, which can be defined based on the assumption that the occurrence probability of each possible event is a-priori known.

If n independent sequential events i_1, i_2, ..., i_n of the discrete stochastic variable $\underline{x}$ may occur, then their occurrence probability can be defined as (Kolmogorov, 1933):

$$P_{i_1 i_2 \dots i_n} \equiv P(x_{i_1} x_{i_2} \dots x_{i_n}) = P(x_{i_1}) P(x_{i_2}) \dots P(x_{i_n})$$

If the above events are dependent, then their occurrence probability is based on the conditional probability of the n^{th} sequential event occurring, given (i.e., symbolized by "|") the occurrence of n-1^{th}, ..., 1^{st} events, and it can be written based on the chain rules as:

$$P_{i_n i_{n-1} \dots i_1} \equiv P(x_{i_n} x_{i_{n-1}} \dots x_{i_1}) := P(x_{i_1}) P(x_{i_2} | x_{i_1}) \dots P(x_{i_n} | x_{i_{n-1}} \dots x_{i_1})$$

where Bayes/Price theorem (1763) can be applied: $P(x_{i_2} | x_{i_1}) = P(x_{i_1} | x_{i_2}) \frac{P(x_{i_2})}{P(x_{i_1})}$

3. Statistical Significance

The statistical significance of finding whether multiple sequential events (for example, when drawing numbers from a lottery) can occur by random selection is often based on Hypothesis Testing, which estimates the probability p of the null-hypothesis H_N (i.e., "The occurred events were likely drawn by random selection" meaning that the lottery random system works) that contradicts the alternative-hypothesis H_A (i.e., "The occurred events could not have been drawn by random selection" meaning that the lottery system is probably broken intentionally or not).

To decide whether the above probability of the null-hypothesis is significant or not, one must define a range of thresholds α and β (i.e., called significance levels), and agree that if $\beta > p > a$, then the null-hypothesis is likely true, whereas if $p < a$, then the null-hypothesis is rejected (i.e., unlikely to be true), and thus, the alternative-hypothesis is likely true.

The significance level is often based on experience and should be at the order of to the theoretical occurrence probability of the sequence of events (and the uncertainty of the recording method), which can be estimated analytically given the probability mass function; e.g., a lottery should have a uniform probability mass function (i.e., all events independent and equally likely to occur).

In the above Hypothesis Testing, the 2 main statistical errors are the Type-I (where H_N was falsely rejected), and the Type-II error (where H_N was falsely accepted), which can be both tackled by decreasing the significance level and, at the same time, increasing the repetitions of the experiment (since reducing one error tends to increase the other; Neyman and Pearson, 1933).

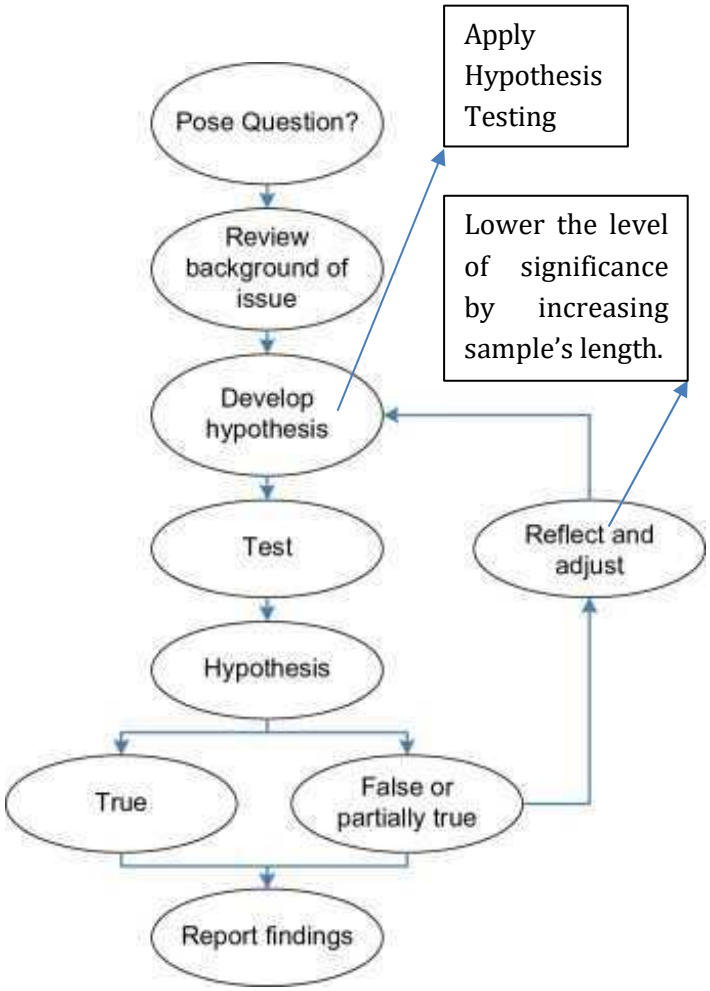
4. Ranges of Significance in Different Scientific Fields

The level α (typical value 5%) means that there is a chance of falsely rejecting the null-hypothesis, whereas β (typical value 20%) means that there is 1-β chance of correctly detecting differences in a sample that may exist in the larger population (and can be reviled if larger samples are taken and the significance levels decreased). Below, there are some significance ranges for certain scientific disciplines, although many scientists revolt against their strict use in science (Amrhein et al., 2019), while others argue even in the assumption of independence (Koutsoyiannis, 2023):

Discipline	**α (%)**	**β (%)**	**Example Reference**
Medicine	5	10-20	ICH E9 (1998)
Psychology	0.5-5	20	Benjamin et al. (2018)
Physics	$\sim 10^{-5}$	-	Particle Data Group (2020)
Biology	5	20	Nakagawa & Cuthill (2007)
Economics	1-10	20	McCloskey & Ziliak (1996)
Engineering	5	10	Montgomery (2017)
Environment	5-10	20	Mapstone (1995)
Epidemiology	5	10-20	Grimes and Schulz (2005)

Many criticize how the levels are determined (Wasserstein and Lazar, 2016), leading to the most serious consequence of Type-I errors of null-hypotheses being falsely rejected, and thus, false innovations are proposed in chase of statistical significance (see also results in Ioannidis, 2022).

5. Statistical Significance in Legal Decision-Making



The steps of the Scientific Method (Source: Smith et al., 2013) with some extra attributes regarding the Hypothesis-Testing and the level of statistical significance.

The court can assess the reliability, relevance, and methodology of statistical evidence through independent experts' qualified testimony, the transparency of the data (also models, assumptions, and limitations), and whether the evidence is probative and not unduly prejudicial; these principles are based on the Popperian scientific ethics regarding falsifiability, testability, and the logic behind the progress of the scientific method from Popper (1959; Albright, 2023) and beyond.

Any level of statistical significance cannot be a standalone determinant in court and must be based on the concept of "beyond reasonable doubt"; therefore, the communication of uncertainty (through total evidence, motive, proof, etc.) rather than fixed p-value thresholds or methods (e.g., Benford's Law; Nigrini, 2012) should assist the court to its final decision (Taroni et al., 2006).

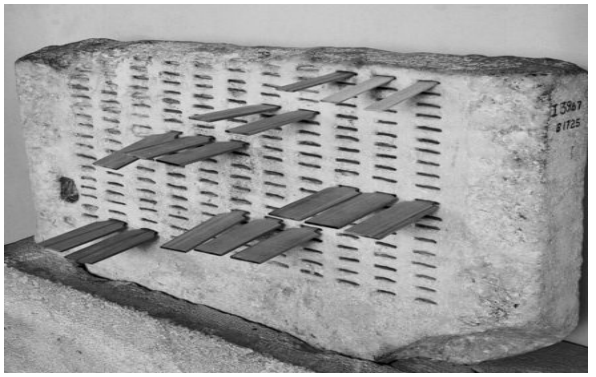
For example, the quality failure rates in DNA forensics are shown to range from as low as the technical threshold of 10^{-10} (i.e., unique for each person) to the typical case of 0.0007% (in Parental test; Ge and Budowle, 2020), and even 0.5% in case of human errors and sample contamination (Kloosterman et al., 2014).

6. Uncertainty in the Service of Democracy (I)

Although there was no concept of "statistical significance" in ancient Greek courts to mitigate any manipulation risk, they introduced several concepts in the Athenian Constitution (Ober, 1989):

➢ The Democratic Fairness of the process (Kleroterion, Pinakion, and sortition).

[Left] The best-preserved Kleroterion, which dates back to the 2nd century BC and was found in the excavations of the Ancient Agora of Athens (exhibited in the Museum of the Agora, in the Attalian Gallery) and [Right] Representation of the lottery with the plates of the Kleroterion in the notches (Sources: wondersofthepast.quora.com;http://www.mixanitouxronou.gr/i-syskeyi-klirosis-poy-chrisimopoioysan-oi-archaioi-athinaioi-gia-na-epilegoyn-dikastes-kai-axiomatoychoys/).



The Kleroterion (randomization device) was a stone slab with rows of notches and with a pipe attached. Each citizen had a wooden token with his name (known as Pinakion) that was placed in one of the 2 slots with 5 columns each (one for each of the ten tribes of the Athenians).

The tube attached to the edge of the plate could be fed with a (white and black) dice, and it is thought that there were two spikes there, one to block the open end and another to separate the next die to fall from the rest of the dice above it (like an airlock).

As the dice fell into the tube according to their color, they randomly selected a full row of tiles (so, one citizen from each tribe of Athens) or eliminated their chips if they were selected by black dice.

7. Uncertainty in the Service of Democracy (II)

- Public Oversight at the Heliaia in Athens (priority and verifiable outcomes; Rhodes, 2012).

Composition: Consisted of 6000 magistrates (Heliastes), 600 from each of the 10 Athenian tribes, over the age of 30, who were drawn at the last minute by the Kleroterion.

Sections: Heliaia was often divided into ten sections (courts) of 500-600 people, which tried separately to process cases quickly. (in serious trials, several chambers were collaborating).

Operation: Trials were completed on the same day to avoid bribing the judges and could impose severe punishments (monetary penalties in political and criminal cases, even death).

The day before, they would publish a schedule and the number of judges required for the next day.

Since there was pay, citizens who wanted to be judges lined up to the entrance of the court early in the day.

Public visibility acted as a deterrent to manipulation and as a check on the process.

Corruption and nepotism could be prevented in the above procedure by giving everyone a chance to serve.

Since the pay was rather low (Under Pericles, a daily wage of one obol, and under Cleon three obols by 425 BC), the lower income citizens were commonly participated in these courts.

8. Uncertainty in the Service of Democracy (III)

- Ritualized/Formal Procedures (oaths, scrutiny, and accountability)

Multiple layers of oversight, the involvement of many citizens, and the possibility of appeal or scrutiny contributed to the integrity of the process.

Accountability involved severe punishments in case of fraud (including even whole family).

The oaths and religious sanctions reinforced adherence and discouraged fraud (Frankel, 1878):

ψηφιοῦμαι κατὰ τοὺς νόμους καὶ τὰ ψηφίσματα τοῦ δήμου τοῦ ᾽Αθηναίων καὶ τῆς βουλῆς τῶν πεντακοσίων, περὶ δ᾽ ὧν ἂν νόμοι μὴ ὦσι γνώμῃ τῇ δικαιοτάτῃ, καὶ οὔτε χάριτος ἕνεκ᾽ οὔτ᾽ ἔχθρας. καὶ ψηφιοῦμαι περι αὐτῶν ὧν ἂν ἡ δίωξις ᾖ καὶ ἀκροάσομαι τῶν τε κατηγορουντων καὶ τῶν ἀπολογουμένων ὁμοίως ἀμφοῖν. ὄμνυμι ταῦτα νὴ τὸν Δία, νὴ τὸν ᾽Απόλλω, νὴ τὴν Δήμητρα, καὶ εἴη μέν μοι εὐορκοῦντι πολλὰ καὶ ἀγαθά, ἐπιοκοῦντι δ᾽ ἐξώλεια αὐτῷ τε καὶ γένει.

I will vote according to the laws and the votes of the Demos of Athenians and the Council of the 500 and concerning matters about which there are no laws by my most just gnome, and for the sake of neither favor nor enmity. And I will vote concerning the matters about which the prosecution is, and I will listen to both the accusers and defendants, both equally. I swear these things by Zeus, Apollo, and Demeter, and may I have many good things if I swear well, but destruction for me and my family if I forswear.

For more information on the Pillars of Democracy in ancient courts, society, and citizens' everyday life, see the ch.5 in Kalenteridis (2025).

9. Regulations for Modern Greek Academia

Regulations in Greek Academia are in a state of constant flux (for a brief overview of the shift from traditional to contemporary institutional ethics see https://anamniseis.substack.com/p/1bb).

Some important stages of the recruitment process for academic positions in public universities are:

GGI:4957/2022/Ch.IZ (free summary)

1) Title and Description of the Tenured Professorship Position in a Department/School of a public University, and Publication in the GGIs (where legal acts are publicly published).

2) Formation of the Pool of eligible Academic Electors that are mostly relevant to the Title and Description of the Position.

3) Lottery performances in the public Universities (on site) to form an 11-members Electoral Academic Board, comprising an Internal Board with 5 members from the Department/School and an External one with 6 members from other Greek Universities.

4) Appointment of a 3-Member Advisory Committee (3MAC) that will Compile a Report on the scientific coherence and strength of the Applicants regarding the Position's Title and Description, and where the Board can later be based on to form a scientific opinion of the most suitable Applicant for the Position.

5) Legitimacy checks by the Dean, then by the Rector of the University, later by the Minister of Education, and ultimately by the Supreme Court.

Interestingly, regulators have strived to uphold principles rooted in ancient Greek traditions to mitigate the risk of manipulation and prevent fraud within Greek Academia; specifically:

- The principle of democratic fairness is enshrined in the legislation through a double-lottery system (stage 3), to select electors from both the internal and external pools to form an 11-member electoral board.
- Public oversight (also in stage 3) serves to resolve concerns by allowing observers to verify the integrity of the randomized selection system.
- Formal procedures are also enshrined in the above process, predicated on the oath of office taken by professors to serve public universities and the Greek educational system, and in the 5th stage of administrative scrutiny, ensuring accountability through disciplinary action should any fraud be detected.

10. Tale of Extreme Tail in Greek Academia (I)

In accordance with the aforementioned regulations, we were involved in the recruitment process for an academic position at the School of a prominent Greek Technical University, and during the 3rd stage of the procedure (which was repeated three times over three years following two successful legitimacy challenges at the 5th procedural stage), we gathered data from 6 lotteries, i.e., 4 lotteries conducted using the same pools (16 internal and 19 external members), while the 2 most recent lotteries involved a pool of 15 internal and 22 external members.

Passionate about statistics, we roughly estimated the occurrence probabilities of all the 6 lotteries, after receiving written reassurances by the former Dean of the School regarding the validity of the above lotteries (i.e., by stating that *"Statistical peculiarities may occur in draws, without this meaning technical errors during the conduct of the draws."; the articles "*H*", "*στα*", and "*το*" in [*] are added by the author for clarity). Thus,

> * **Η** στατιστική αξιολόγηση των αποτελεσμάτων της κλήρωσης για την επιλογή μελών των εκλεκτορικών σωμάτων δεν αποτελεί δόκιμο τρόπο αξιολόγησης της συγκρότησης εκλεκτορικών σωμάτων, όπως εμφαίνεται και από τη συχνότητα επιλογής συγκεκριμένων μελών ΔΕΠ * **στα** προηγούμενα χρόνια. Στις κληρώσεις ενδέχεται να προκύψουν στατιστικές ιδιαιτερότητες, χωρίς αυτό να σημαίνει τεχνικό λάθος * **το** κατά τη διεξαγωγή της κλήρωσης. Συνολικά η ΓΣ της Σχολής απέρριψε.

it was certain we witnessed extreme probabilities never encountered in real events; particularly:

O1: A group of 4 full professors (with scientific fields of low relevance to the position, and who are also heads of laboratories; 3 in external universities and 1 in an internal laboratory but not the one related to the position) were consistently selected in every draw of the lottery.

O2: A pair of professor (who were external to the laboratory that the position intended to reinforce), that are also the head and co-head of the group the proposed applicant (by them, at the 3MAC) has been employed in the last decade (thus, financially dependent), consistently appeared in all outcomes (but never at the same lottery outcome and board).

O3: Two professors (1 external and 1 internal, with the latter being the most scientifically relevant to the position and the most senior member of the laboratory that the position intended to reinforce) never appeared in any of the lotteries' outcomes.

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11. Tale of Extreme Tail in Greek Academia (II)

Following simple laws in Statistics, we estimated all possible combinations C based on the above observations of the outcomes. Specifically, let's assume that we have a lottery with N numbers, and from where we draw randomly M ($\leq N$) numbers; we estimated what is the probability P, in each repetition T of the experiment, to draw (unordered) the same K ($\leq M$) numbers, i.e.,

since $C(N,M) = \frac{N!}{M!(N-M)!}$, the probability would be $P(N,M,K) = \frac{C(N-K,M-K)}{C(N,M)} = \frac{(N-K)!M!}{(M-K)!N!}$.

Regarding the O3 observation, the occurrence probability is $P'(N,M) = 1 - M/N$, and thus, the product of all probabilities would result in the overall probability F for all observations O1, O2, and O3, which is also considered a conservative estimation (since several other low probability factors were not taken into account, such as the order of each outcome in each lottery, etc.).

Statistical Analysis: O1+O2			**Repeats**	**Pool**	**Lots**	**Common Lots**	**Combinations**	**Lottery Prob.**	**Prob.O3**	**Lottery Prob.**	**Overall**
Lottery	*Name*	*Type*	*T*	*N*	*M*	*K*	*C*	*P*	*P'*	*P*P'*	*F*
1	1AI	Interior	1	16	7	2	11440	0.175	0.563	9.8E-02	9.8E-02
2	1AE	Exterior	1	19	8	3	75582	0.058	0.579	3.3E-02	3.3E-03
3	2AI	Interior	2	16	5	2	4368	0.083	0.688	5.7E-02	1.9E-04
4	2AE	Exterior	2	19	6	3	27132	0.021	0.684	1.4E-02	2.7E-06
5	3AI	Interior	3	15	5	2	3003	0.095	0.667	6.3E-02	1.7E-07
6	3AE	Exterior	3	22	6	3	74613	0.013	0.727	9.4E-03	1.6E-09
Total	**6**	**2**	**3**	**6**	**4**	**6**	**196138**	**2.2E-08**	**7.4E-02**	**1.6E-09**	

Note: If only the O1 observation is considered (i.e., that there were the same 1 interior and 3 exterior members in all Outcomes, then F =5.2E-08.

12. Conclusions

The main conclusions drawn from this investigation are as follows:

- One of the lowest statistical significances is found in DNA forensics (i.e., $\sim 10^{-10}$), assuming an absence of contamination or external errors (extremely difficult conditions to guarantee).
- The occurrence probability estimated in this study (i.e., $<< 1.6 \times 10^{-9}$) represents the most extreme case ever recorded in academic lotteries, reaching an uncertainty level of 1 in 10 billion (equivalent to casting a die 12 times and receiving the same outcome every time).
- Although certain democratic concepts of ancient Greece remain within academic regulations, core moral safeguards (such as oaths) have lost their meaning, mostly due to the lack of procedural transparency and of technical guarantees for the implied (by law) uncertainty.
- Instead, rising bureaucracy within the educational system has fostered corruption by providing groups with quasi-legal (or illegal) loopholes to exert power, resulting in unfairness toward the broader scientific community (often through bureaucratic obstacles/tricks that can obstruct legal rights), driving scientists to academic burnout, mobbing, and blacklisting.
- To combat the eventual hacking/falsification of the procedure, we recommend reintroducing concepts from ancient Athens, like the procedural public transparency and the idea of the Kleroterion (i.e., a device that can ensure a certain level of easily refutable randomization), to prevent anyone from further artificially inflating (through the lack of these concepts) their academic impact without often the necessary skills and knowledge, and eventually leading to the degradation of the educational system and, in the long-term, of the pillar of Education.

References (I)

Albright, T.D., A scientist's take on scientific evidence in the courtroom, 120(41):e2301839120. doi: 10.1073/pnas.2301839120, Proc Natl Acad Sci U S A. 2023.

Amrhein, V., S. Greenland, and B. McShane, Scientists rise up against statistical significance, 567(7748):305-307, doi: 10.1038/d41586-019-00857-9, Nature, 2019.

Bayes, T. and R. Price, An Essay towards solving a Problem in the Doctrine of Chance. By the late Rev. Mr. Bayes, communicated by Mr. Price, in a letter to John Canton, A.M.F.R.S. Philosophical Transactions of the Royal Society of London. 53: 370–418. doi:10.1098/rstl.1763.0053, 1763.

Benjamin, D.J., J.O. Berger, M. Johannesson, et al., Redefine statistical significance, Nature Human Behaviour, 2, 6–10, doi.org/10.1038/s41562-017-0189-z, 2018.

Fränkel M., Der attische Heliasteneid (The Athenian Heliastic Oath), Hermes13, pp. 452–466, 1878.

Ge J., and B. Budowle, How many familial relationship testing results could be wrong?, PLoS Genet, 16(8):e1008929. doi: 10.1371/journal.pgen.1008929, 2020.

Grimes, D.A., and K.F. Schulz, Compared to what? Finding controls for case-control studies, Lancet, 365(9468):1429-33, PUBMED:15836892, 2005.

Hemelrijk, J., Underlining random variables, Statistica Neerlandica, 20(1), 1-7, 1966.

ICH E9Title: Statistical Principles for Clinical Trials, Adopted Reference Number: CPMP/ICH/363/96Step 4, 1998.

Ioannidis J.P.A., Correction: Why Most Published Research Findings Are False, PLOS Medicine 19(8): e1004085, doi.org/10.1371/journal.pmed.1004085, 2022.

Kalenteridis, S., GODS OF DEMOCRACY, ISBN978-618-5590-94-9, pgs. 290, Infognomon, 2025.

Kloosterman, A., M. Sjerps, A. Quak, Error rates in forensic DNA analysis: Definition, numbers, impact and communication, Forensic Science International: Genetics, Vol12, pgs. 77-85, ISSN1872-4973, doi.org/10.1016/j.fsigen.2014.04.014, 2014.

Kolmogorov, A. N., Grundbegrijfe der Wahrscheinlichkeitsrechnung, Ergebnisse der Math. (2), Berlin, 1933; 2nd English Edition: Foundations of the Theory of Probability, 84 pp. Chelsea Publishing Company, New York, 1956.

References (II)

Koutsoyiannis, D., Stochastics of Hydroclimatic Extremes - A Cool Look at Risk, Edition 5, ISBN: 978-618-85370-0-2, 420pgs, doi:10.57713/kallipos-1, Kallipos Open Academic Editions, Athens, 2025.

Mapstone, B.D., Scalable decision rules for environmental impact studies: Effect size, type I, and type II errors, Ecological Applications, 5: 401–410, 1995.

McCloskey, D.N., and S. Ziliak, The Standard Error of Regression, Journal of Economic Literature, 34, 97–114, 1996.

Montgomery, D.C., Design and Analysis of Experiments, 9th ed., John Wiley & Sons: Hoboken, N.J., USA, 2017.

Nakagawa, S. and I.C. Cuthill, I.C., Effect size, confidence interval and statistical significance: a practical guide for biologists, Biological Reviews, 82: 591-605, doi.org/10.1111/j.1469-185X.2007.00027.x, 2007.

Neyman, J., and E.S. Pearson, On the Problem of the Most Efficient Tests of Statistical Hypotheses, Philosophical Transactions of the Royal Society of London, Series A, Vol.231., pp. 289-337, 1933.

Nigrini, M.J., Benford's Law: Applications for Fraud Detection, Wiley, 2012.

Ober, J., Mass and Elite in Democratic Athens: Rhetoric, Power, and Civic Culture in the Golden Age. Princeton University Press, 1989.

Popper, K.R., The Logic of Scientific Discovery, London: Hutchinson, Foundational for falsifiability, testability, and the logic of scientific method, 1959.

Rhodes, P.J., Constitution of the Athenians, [Aristotle]. In The Encyclopedia of Ancient History, eds. R.S. Bagnall, K. Brodersen, C.B. Champion, A. Erskine and S.R. Huebner, doi.org/10.1002/9781444338386.wbeah08017, 2012.

Smith, C.L., and J. David, Brooks, Chapter 1 - Concept of Security, Security Science, Butterworth-Heinemann, pgs1-22, ISBN9780123944368, doi.org/10.1016/B978-0-12-394436-8.00001-1, 2013.

Taroni, A., C. Aitken, P. Garbolino, and P. Biedermann, Statistics and the Evaluation of Forensic Evidence, Wiley, 2006.

Wasserstein, R.L., and N.A. Lazar, The ASA Statement on p-Values: Context, Process, and Purpose, pgs. 129-133, doi.org/10.1080/00031305.2016.1154108, 2016.

Zyla, P.A. et al. (Particle Data Group), The review of particle physics, Prog. Theor. Exp. Phys., 083C01, 2020.