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RESEARCH

Genealogy of Algorithms: Datafication as Transvaluation

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This article investigates religious ideals persistent in the datafication of information society. Its nodal point is Thomas Bayes, after whom Laplace names the primal probability algorithm. It reconsiders their mathematical innovations with Laplace's providential deism and Bayes' singular theological treatise. Conceptions of divine justice one finds among probability theorists play no small part in the algorithmic data-mining and microtargeting of Cambridge Analytica. Theological traces within mathematical computation are emphasized as the vantage over large numbers shifts to weights beyond enumeration in probability theory. Collateral secularizations of predestination and theodicy emerge as probability optimizes into Bayesian prediction and machine learning. The paper revisits the semiotics and theism of Peirce and a *given* beyond the probable in Whitehead to recontextualize the critiques of providence by Agamben and Foucault. It reconsiders datafication problems alongside Nietzschean valuations. Religiosity likely remains encoded within the very algorithms presumed purified by technoscientific secularity or mathematical dispassion.

Keywords: political theology; machine learning; probability; justice; government; microtargeting

Subject and object have switched places. The sites, the apps, the ubiquitous platforms: Computers run the show now and we—mere data subjects […] work and worship them […] our ontic exhaust powering the megacorporate machinery. Perhaps the inevitability of the reversal was always there, coded in the words.[1]

[T]he more religious our views are, the more probable they become.[2]

Although the Italian mathematician Paolo Zellini refrains from overt espousal of genealogical inquiry by name, in *The Mathematics of the Gods and the Algorithms of Men* (2020) he expresses intellectual indebtedness to Nietzsche and Foucault with regards to history and origins.[3] Under their influence, Zellini posits a powerful "admixture" of calculations and mathematics with religions and metaphysics.[4] Drawing upon Vedic texts and their eventual admixture with the philosophy of mathematics that develops in ancient Greece, he claims:

From problems posed by the gods stems the basis of a way of thinking without which modern mathematics would be inconceivable. We can identify the reason behind this persistent link between divine and human orders, between foundational propositions of the gods and modern mathematics […]. The connection is [subtle and involves] the most technical and secret operations of calculation, the fundamental paradigms on which algebra and analysis are still based today.[5]

My project allies itself with these lines as guiding tenets. The current essay endeavors to practice them beyond Zellini's initial focus on the Axial Era. It suspects that such an admixture between calculation and religion continues into algorithmic computation and statistical mathematics. This is more readily discernible as computation and mathematics are developed by thinkers within the Abrahamic religious tradition:

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[1] The Editors, "Fantastic Planet," *WIRED*, September, 2019, 49.

[2] William Paley, *Natural Theology* (Oxford: Oxford University Press, 2006), 272; influential for Darwin.

[3] Paolo Zellini, *The Mathematics of the Gods and the Algorithms of Men* (London: Penguin, 2020), 20.

[4] Zellini, *The Mathematics of the Gods*, 24. Cf. the anticipated admixture of "Computer Science and Applied Theology" in Vernor Vinge, *A Fire Upon the Deep* (New York: Tor, 1992), 55.

[5] Zellini, *The Mathematics of the Gods*, 27.

algebraic formulation in Islam and a theistic element that seems indissociable with probability theory. The article emphasizes theological traces in the vantage over large numbers that exceed enumeration in probability theory, which further suggests collateral secularizations of predestination and theodicy as it optimizes into Bayesian algorithms and machine learning.

It begins by revisiting the Weberian critique and Protestant traces at play in the recent present. It insists that these are foundational to the data mining by Cambridge Analytica. I revisit the emendation of Calvin by Barth, probability in Peirce, Bayes, Laplace, and Whitehead, and critiques of providence in Agamben and Foucault. Returning to Nietzsche, I close in considering datafication in terms of valuation, for better and worse. The article suggests that religiosity remains encoded within the very algorithms presumed purified by technoscientific secularity or mathematical dispassion.

1. Elective Affinities

One might return to supplementing Foucauldian problematization with the later works of Habermas and noting gestures by both thinkers to Barth.[6] Foucault's *The Care of the Self* considers ancient sexual practices that influence "a certain ethics closely related to Christianity [...] which Karl Barth radicalized by making Epictetus into a true Christian."[7] Foucault suggests Barth is resistant to a certain *privatization of care*.[8] Pre-Christian austere elements become appropriated into Christianized matrimony—privatized to an exclusive spouse or progeny and rejecting care for others—while effacing Epictetus's broader human family. Foucault discerns a radical care in a Barthian regime of love no longer restricted to a familial chosen one[9] or few[10]

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[6] On bringing together Foucault and Habermas see, for instance, Colin Koopman, *Genealogy as Critique* (Bloomington: Indiana University Press, 2013), 216–70.

[7] Michel Foucault, *The History of Sexuality*, vol. 3, *The Care of the Self*, trans. Robert Hurley (New York: Pantheon, 1986), 236.

[8] The reason "according to Epictetus [to] forgo marriage" is "the mission of caring for humans [...] the whole of humanity." A "renunciation of [...] *private* ties," e.g., of the nuclear family, is "consequence of ties [one] establishes [...] with the human race" since one's "family is mankind." Foucault, *The Care of the Self*, 158; italics added.

[9] Cf. the connection between Protestant predestination and the alleged genetics of monogamy critiqued in Giuseppe Longo, "Scientific Thought and Absolutes: for an image of the sciences, between computing and biology," *Angelaki: Journal of the Theoretical Humanities* 25, no. 3 (2020): 120–30, esp. 128, fn. 4.

[10] In marriage or outside it, humans are called to love: "whether in love and marriage or outside this bond, every [human] should realize that [it] is committed to live [...] in this interrelationship, not [...] as

and hence open to greater numbers. In a similar vein, Habermas admires Barth's "attempt to do justice to the inner normative logic of revealed faith [against] the privatization of faith."[11] Barthian de-privatizations destabilize the secret, internal, and psycho-personalized modes of Protestant belief indicted by the Weberian critique utilized into econo-rationality. Following Foucault's and Habermas's interests in Barth, critical inquiry might benefit revisiting his theology as it might apply to algorithmic probability.[12]

What is at stake? If through the course of inquiry genealogy finds itself drawn into re-weighing the "Weberian set of problems of economic history and sociology,"[13] then Protestant proclivities ought not to be dismissed in analyses of neoliberal power techniques. As Foucault writes:

> If we believe Weber, it would seem that the enrichment of an individual in
> sixteenth century Protestant Germany was a sign of God's arbitrary election
> of that individual [...]. In twentieth century Germany, an individual's enrich-
> ment will be a sign [...] not, of course, of God's election, [but] the daily sign
> of the adherence of individuals to the state.[14]

Even as god disappears through secularizations of religious behavior into twentieth century economic practices, it is yet worth considering that this electoral regime remains in its transformation to state adherence. Weber suggests something even more peculiar to Protestant culture than its econo-rationality when he writes: "Even more are parliaments of *periodically elected representatives* [...] peculiar to us."[15]

[one's] own but as being in fellowship." Karl Barth, *Church Dogmatics: A Selection*, ed. and trans. G.W. Bromiley (New York: Harper Torchbooks, 1961), 213; [*CD* 3.4].

[11] Jürgen Habermas, *Between Naturalism and Religion*, trans. Ciaran Cronin (Malden: Polity, 2008), 237.

[12] They are not the only recent critical thinkers who share this interest. See also Jacques Derrida, "Deconstruction in America," trans. James Creech, *Critical Exchange* 17 (Winter 1985), 1–32; esp. 12.

[13] Michel Foucault, *The Birth of Biopolitics*, trans. Graham Burchell (New York: Picador, 2008), 166.

[14] Foucault, *The Birth of Biopolitics*, 85.

[15] Max Weber, *The Protestant Ethic and the Spirit of Capitalism*, trans. Talcott Parsons (New York: Routledge Classics, 2001), xxxi; italics added.

Protestant electoral regimes remain peculiar. Today the entanglements between providence, algorithms, predestation, and probability reemerge in the digital politics of information society through this mode of belief by microtargeting.[16] It has become customary in overviews of microtargeting to focus on its successes in the 2008 Obama campaign.[17] But the technique is statistically conceived and algorithmically developed for political deployment five years prior by Alexander Gage, a Michigan market researcher. The first political iteration of the word "MicroTargeting"[18] appears in a PowerPoint slide Gage presented in 2003 to Matthew Dowd, a polling operator plotting an electoral-college strategy for George W. Bush's presidential reelection bid.[19]

In earlier years of development in Michigan, Gage's larval method aided the gubernatorial campaign of George Romney, ex-Mormon missionary to the UK and father of Mitt.[20] Michigan voters do not register with parties.[21] All votes are assumed independent, which amounts to a "fatal math for Republican candidates" (which should be considered a fatal context for developments of electoral microtargeting) to partner with other rostered datasets. In Michigan this results specifically in data derived from the NRA and Christian Coalition.[22] The technique's developmental prehistory (as well as its growing datasets, patterns, and correlations) also includes Gage's earlier partnering with an Arkansas data vendor, Acxiom, whose datasets were conditioned by a "more reliant client than [even] parties and campaigns," the American Bible Society.[23] One of the largest psychographic clusters (nearly a half million) of Acxiom's data segments (once paired with the RNC voter records and applied

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[16] Cf. the political theology of *targeting* in Samuel Weber, *Targets of Opportunity: On the Militarization of Thinking* (Stanford: Stanford University Press, 2005), 40, 82–3, 105.

[17] Adrian Mackenzie, *Machine Learners: Archaeology of a Data Practice* (Cambridge: MIT Press, 2017), 14.

[18] The term was used prior only in clinical cancer research.

[19] Sasha Issenberg, *The Victory Lab: The Secret Science of Winning Campaigns* (New York: Crown, 2012), 131.

[20] Issenberg, *The Victory Lab*, 131–2. It should not go overlooked that this primal adoption of microtargeting into electoral politics, George "Romney's technocratic approach," is made by a gubernator characteristic of the most Americanized articulation of predestination: manifest destiny and its implicit colonialism internalized as Mormon religious calling. Cf. Weber, *The Protestant Ethic*, 235, fn. 25.

[21] State of Michigan Bureau of Elections, Lansing, "Questions and Answers: Michigan's Presidential Primary," March, 2016, https://www.michigan.gov/documents/sos/Voters_QA_MIPresPrim_516112_7.pdf.

[22] Issenberg, *The Victory Lab*, 114.

[23] Issenberg, *The Victory Lab*, 128.

nationally by Gage) was named "Bible Believers."[24] Benefitting from a base emotionally invested in a cultural war on terror, Bush's 2004 reelection took specific aim at the evangelical voting bloc.[25] It is important to maintain that the evangelical vote is a statistical minority and should not be over-estimated.[26] But is this not precisely the Protestant genius?

Critical inquiry must keep in mind these contextual kinds of data clusters and the inherited foundational traits inherent to them that, then, further compound, correlate, and optimize through the course of their development from Arkansas to Michigan to the Bush White House. All this is years in the making before micro-targeting methods and techniques are adopted in fuller development by the hyper-personalization tactics of the online Obama campaigns and eventually Cambridge Analytica (CA). Before CA was created, the test case and proof of concept the SCL Group pitched to Bannon and the Mercer family was performed in Virginia, which "has an enormous bloc of evangelical Christian voters," after buying access to their information through "Acxiom, and niche firms with specialist lists from evangelical churches."[27] It was the successful microtargeting of this particular religious electorate that secured the Mercer investment that instituted CA.

It is no secret that adherence to a simple majority fails to decide recent elections. Scales are tipped by a mere few to a consensus or plurality. A slight yet decisive few value-up the increasingly customary split-decision between two-party systems. Only scant numbers are needed, merely a micron. The microtargeting deployed by CA exploits personal fears and is highly effective with those predisposed to believing themselves chosen. It targets "beliefs and religiosity," specifically "whether [voters] believe they control their own destiny."[28] These enable CA to target religious belief in "the *just-world hypothesis*" (JWH):

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[24] Issenberg, *The Victory Lab*, 132–3.

[25] Janicke Strainer, *U.S. Foreign Policy and Religion During the Cold War and the War on Terror* (Lewiston: Edwin Mellen Press, 2012), 42, 102–19.

[26] J.S. Maloy, *Smarter Ballots* (Cham: Palgrave Macmillan, 2019), 145.

[27] Christopher Wylie, *Mindf*ck: Cambridge Analytica and the Plot to Break America* (New York: Random House, 2019), 70–1.

[28] Attributed to Alexander Nix of CA in a pitch to join the 2018 Mexican presidential campaign, Brittany Kaiser, *Targeted: The Cambridge Analytica Whistleblower's Inside Story of How Big Data, Trump, and*

> CA then discovered that for those with evangelical worldviews in particular, a 'just world' exists because God rewards people with success if they follow his rules [...]. Cambridge Analytica began feeding these cohorts narratives with an expanded religious valence. "*God is fair and just, right?* [...] *If minorities complain about receiving less, perhaps there is a reason—because He is fair. Or are you daring to question God?*" [...] For Bannon's free thinkers [i.e., targets], race reality [...] was becoming God's reality—a connection with a long history in America.[29]

Taking aim at personal dispositions to a just world *through theistic beliefs*, microtargeting becomes a deployment of theodicy: divine justice.[30] It is this statistical technique—in offline development at least since the 480 voter types activated in the Kennedy era[31]—by which a chosen few might be activated to decide the greater number that is peculiar to Protestant culture as both a place of inception and development as well as a populace of prime targets over which to be deployed.[32] One might confuse it with a providential machine.

How did this happen? True to his Nietzschean roots, Barth's critique of predestination in §32 of the *Dogmatics* 2.2 traces a genealogical thread from Kant, Bullinger, Scottish Confession, Synod of Dort, Lombard, Calvin, Luther, Aquinas, back to Augustine. His commitment to the genealogical method is laudatory and

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Facebook Broke Democracy and How It Can Happen Again (New York: Harper, 2019), 274. Along with superstition and paranoia, such traits are often attributed to the psychographic group labelled 'neurotics' in the big five index (BFI) targeted by CA. Kaiser, *Targeted*, 85, 137, 175; Wylie, *Mindf*ck*, 49. See also Vassilis Saroglou, "Religion and the Five Factors of Personality," *Personality and Individual Differences* 32, no. 1 (2002): 15–25.

[29] Wylie, *Mindf*ck*, 129–30.

[30] The suffix of theo-dicy derives from the Greek word for justice, *dikē*. The word is attributed to the title of a work by Leibniz, itself a primal text in the development of probability calculus. Noteworthy is his development of probabilistic weights of more (>) or less (<) from the gospels: "there will be *many* that are called and *few* that are chosen" (Matthew 22:14) and Paul of Tarsus "where sin abounded, grace did much *more*" (Romans 5:20). Gottfried Wilhelm Leibniz, *Theodicy: Essays on the Goodness of God, the Freedom of Man and the Origin of Evil*, trans. E.M. Huggard (Charleston: Bibliobazaar, 2007), 133, 135; italics added. Q.v., 93–100.

[31] Issenberg, *The Victory Lab*, 116–23.

[32] Once developed, its efficacy is not limited Protestant cultures.

under-appreciated. In Augustine he finds a thinker for whom providence and predestination are not yet divided. The latter eventually becomes subordinate to the former in Calvinism.[33] This is a rare point of convergence shared between Barth and Pascal.[34] The development of probability theory that Ian Hacking, for example, suggests in Pascal is but one valence of Pascal's endeavor to distinguish Calvinist predestination from Augustine.

How could things have been otherwise? Barth revaluates predestination as grace granted prior[35] to providence. This anticipates the 'given' prior to probability suggested by Whitehead, discussed in more detail below. Barth endeavors to revaluate predestination into a doctrine of *election*. A few noteworthy theological effects include: [1] non-secrecy;[36] [2] election of all;[37] and [3] no mandatory collateral rejection of any (effectuating [3+2]: rejection of none).[38] Were politics given time to secularize such tenets, they might emerge through [1] suspension of the secret ballot;[39] [2] non-binary voting practices electing all candidates; [3] by which votes do not elect by rejecting others, but rather elect all candidates by differential degrees.

These latter two policies are articulated in probability theory from its inception. Before citizens were datafied and algorithms deployed to inform or misinform micro-targets, the political ambition of probability was to minimize biased passions and misinformed opinion. Laplace endeavors to apply Bayes' theorem to "decisions of assemblies," which depend not only on "the plurality of votes [but] the impartiality of the"[40] voter (secularizing the absolute indifference of a Bayesian god). Laplace's

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[33] Karl Barth, *Church Dogmatics*, vol. 2, part 2, trans. G.W. Bromiley, et. al. (Edinburgh: T&T Clark, 1957), 46, 60.

[34] Blaise Pascal, *Pensées and Other Writings*, trans. Honor Levi (Oxford: Oxford University Press, 2008), 215–26.

[35] Barth, *Church Dogmatics*, 2.2, 18–9, 29.

[36] Barth, *Church Dogmatics*, 2.2, 18, 64–5.

[37] Barth, *Church Dogmatics*, 2.2, 11, 29, 71, 91.

[38] Only election "and not […] accompanying non-election or rejection." Barth, *Church Dogmatics*, 2.2, 16, 27–8; against the "blind fate" and "fatal parallelism" of "double predestination" (both election and rejection) in Calvin, Luther, and Zwingli. Barth, *Church Dogmatics*, 2.2, 17, 25.

[39] Cf. John Stuart Mill, *Essays on Politics and Society* (Toronto: University of Toronto Press, 1977), 331–6.

[40] Pierre-Simon Laplace, *A Philosophical Essay on Probabilities*, trans. Frederick William Truscott (New York: Dover, 1951), 126.

experience "clearly taught [...] that elections are always directed [...] by dominant opinions,"[41] so he "feel[s]" it "useful [...] to temper these opinions"[42] prone to "particular interests."[43] If "the assembly is poorly informed [...] each voter will err [and] the decision of the majority will be probably wrong."[44] Anticipating Nietzsche, Laplace desires to minimize political *ressentiment*, which decides electability only by rejection of the other(s). In elections formulated "to choose among [contraries,] the truth of the one excludes the truth of the others."[45] But Laplace insists that "the merit of a candidate does not exclude that of his competitors."[46] He therefore offers "the mode of election which the Theory of Probabilities indicates. Without doubt it would be better if each voter should write upon his ticket the names of the *candidates in the order of merit* which he attributes to them."[47] This is a larval articulation of what is today called ranked voting.[48]

Bayesian influences on Laplacean politics would not only derive from Bayes' mathematical *Essay on Chances*—if at all—but Bayes' cosmology, described in his theological treatise, *Divine Benevolence*:

> For the most happy universe is *not* one that consists of the greatest possible number of the most happy beings *only*; but one that consists of that, *and the greatest possible number* of beings *next inferior to the first rank*, and so downward, till we come to those that approach the nearest to insensible matter [...] a most regular and orderly advance of perfection [...] *without breaking the scale of beings*, quite up to the highest *rank*.[49]

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[41] Laplace, *Essay on Probabilities*, 131.

[42] Laplace, *Essay on Probabilities*, 131.

[43] Laplace, *Essay on Probabilities*, 128.

[44] Laplace, *Essay on Probabilities*, 126.

[45] Laplace, *Essay on Probabilities*, 129.

[46] Laplace, *Essay on Probabilities*, 129; cf. Bayes' problematization of why "one should be chosen" or "ought also to be rejected" in *Divine Benevolence*. Andrew I. Dale (ed.), *Most Honourable Remembrance: The Life and Work of Thomas Bayes* (New York: Springer, 2003), 136.

[47] Laplace, *Essay on Probabilities*, 128.

[48] Recently instituted in the U.S. state of Maine. Maloy, *Smarter Ballots*, 181–6, passim.

[49] Dale, *The Life and Work of Thomas Bayes*, 138; Bayes' italics of *without breaking the scale of beings*, all others, mine.

Bayes arguably offers a revaluation of Calvin centuries prior to Barth's genealogy. This is a doctrine of election "not" by "only" a chosen number rejecting greater or lesser remains, but rather a layering of ranked numerical degrees. One might even detect here—prior to Laplace—a schematic tabulation of an actual ranked-voting ballot (or at least a collateral tabulation of its results) initiated by the namesake of the primal probability algorithm,[50] himself, conceptualized within his singular providential theology informed by ground-breaking mathematics. Activist advancement for ranked-choice voting is merely one possibility by which genealogical inquiry into the political theology of providence, probability, and algorithms might be practiced in hopes of improving public life with amendable revaluations of the promise of large numbers. In Whiteheadian terms, it strains to value-down oppositional, partisan, private, or personal biases rather than value-up those of a microtargeted chosen few… for the enrichment of far fewer.

2. Shay < Column > Icon

The previous section suggests ways by which electoral politics in datafied information society can exploit religious convictions (theodicy and predestination) by way of algorithmic computation (data-mining and Cambridge Analytica's probabilistic simulation/prediction of electoral behavior patterns). This section further inquires into the roles of religion and theology within the mathematical development of algorithms. The tenets of admixture by Zellini stated at the beginning of this article are adopted by the Italian biologist and mathematician, Giuseppe Longo. Longo maintains Zellini's position that mathematics is "shaped by metaphysical debate" from Euclid and Aristotle to Aquinas. Critical inquiry must ask, along with Longo, "how [was metaphysics] picked up by Mathematics" as a discursive object and proof component?[51] Longo notes two essential innovations made by theology in the development of mathematical notation, specifically Islamic theoeconomics at the time of al Khwarizmi's innovations (of the Hindu art of reckoning) and the subsequent aesthetic geometry of Christendom.

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[50] *Bayes' theorem*, discussed in more detail below.

[51] Giuseppe Longo, "Mathematical Infinity '*in prospettiva*' and Spaces of Possibilities," *ISTE Open Science* 3, no. 1 (2019): 2, doi: 10.21494/ISTE.OP.2019.0415.

Although algorithmic techniques are arguably already at work in ancient Mesopotamia,[52] the nominal advent of algebra and algorithm in al Khwarizmi's 9th century text, "*al-jabr* and *al-moquabala*" [algebra/fixing and balancing/reckoning], revolutionize the Euclidean linear-geometric object into more generalized practical applications, such as commerce, distribution, inheritance, and law:

> To solve these problems, al Khwarizmi invented the new mathematical notion of 'shay,' the Arabic word for 'the thing,' 'the unknown,' [...] which applied to arithmetical and geometric quantities alike [...]. Schools for juris-prudence [...] were developed to (re)construct civil laws about will, inherit-ance and distribution according to the instructions of Quran. These often needed a complicated calculation [...]. [A] al Khwarizmi not only further developed and put such calculations on strong, *apodictic* foundations, but also created a completely new area of mathematics, which contributed to bridge the gap between Arithmetic and Geometry.[53]

The "nature of God's knowledge among early Muslim theologians [e.g., Zaydî Sulaymân] led to the assumption that it was a 'thing' (*shay'*)."[54] Many of these theologians "with Christian antecedents [...] merely transferred their [Christian] accustomed patterns of thought to the new religion."[55] An important example is *effectiveness*,[56] how pondering the "*effect (athar)*" of a thing is considered an "infe-rior mode of perception inadmissible in God."[57] The formulaic elements that give rise to the algorithm enact civic principles here-below, according to Qu'ranic instruction. Al Khwarizmi formulated a specifically verbal practice (or rhetorical algebra) that grows from the first Arabic dictionary combining the "'divine language' (Quran)"

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[52] Zellini, *The Mathematics of the Gods*, 23.

[53] Arezoo Islami and Giuseppe Longo, "Marriages of Mathematics and Physics: A Challenge for Biology," *Progress in Biophysics and Molecular Biology* 131 (2017), 179–192, esp. 181–2, doi: 10.1016/j.pbiomolbio.2017.09.006.

[54] Franz Rosenthal, *Knowledge Triumphant: The Concept of Knowledge in Medieval Islam* (Boston: Brill, 2007), 123.

[55] Rosenthal, *Knowledge Triumphant*, 112, cf. 98.

[56] Cf. Zellini, *The Mathematics of the Gods*, 178, 195.

[57] Rosenthal, *Knowledge Triumphant*, 114.

with "pagan" Arabic spoken prior to Islam, based on phonemes that combine into "words with neither phonetic or semantic value,"[58] "drawing not at all on symbolism, but only on terms from natural language." "The algebraists [al Khalīl and al Khwarizmi] adapt themselves to this kind of relationship as well."[59] Algebra is born as an operation of "restoring [or] reduction," "rectifying or correcting using some form of constraint" emerging as "a discipline no one had ever conceived [in] which one can indifferently reduce both arithmetic and geometrical problems."[60]

Algorithmization by shays is initially formulated to resist idolatrous tendencies to the dead letter of the law—written symbology—indicative of Abrahamic religions (and monotheisms more broadly). It aspires to iconicity against potential misuse as idolatry. The algebraic capacity to find correlations beyond individuated shay punctuality applied to correlates learnable by human machines, but nevertheless correlated to truths designated distinctively to divine reckoning. Islami and Longo make little direct reference to the Qu'ran. Noteworthy is a divine practice of meticulous book-keeping[61] enmeshed in Mariological chosenness.[62] As Sura 4:86 states, "Allâh is Ever a Careful Account Taker of all things." The last word encompasses the universal set of any shay, from Allâh's divine vantage.

Al Khwarizmi's "method [...] facilitated a new form of 'physical abstraction' [...] of great importance in the scientific revolution"[63] of 17th century Europe. Longo suggests a spatio-visual analogue in Christian culture to the Islamic al-jabraic passage just described. This emerges in Italian Renaissance paintings of Mary: "the quite particular surge in complex geometric constructions [...] in annunciation scenes [that] play with the rules of geometric perspective in order to show the paradoxical entry of

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[58] Roshdi Rashed, *Classical Mathematics from Al-Kwarizmi to Descartes*, trans. Michael H. Shank (London: Routledge, 2015),106.

[59] Rashed, *Classical Mathematics*, 112.

[60] Rashed, *Classical Mathematics*, 107–8.

[61] "And when you release their property to them, take witness in their presence; and Allâh is All-Sufficient in taking account." Sura 4:6. Cf. the Hebrew Bible's book of Numbers.

[62] "O Maryam! [...] Allâh has chosen you, purified you [...] and chosen you above the women of the *'Alamîn* [humanity and jinns of her lifetime]" Sura 3:42. Q.v., Suras 2:87, 3:36–37, 66:12.

[63] Islami and Longo, "Marriages of Mathematics and Physics," 182.

infinity into the finite."[64] Focusing on the paintings of Lorenzetti (in which a christic "column" attenuates to—and overlaps with—a vanishing axis), there emerges "an extraordinary innovation: a rigorously drawn projective space, with a limit line, not just a point [...]. Then, by the effect of the geometry [...] that goes from man to God, a new space is deployed."[65] The new space deployed from this inventive column[66] is a monumental precursor in the history of mathematics that develops into the "epistopic viewpoint" that can be operated within vector space, which "generates a new column-vector [...] and some new numbers, *statistics.*"[67]

This mathematical infinity through mariological imaging "is a tool for the intelligibility of the world."[68] Even if aesthetics makes for unviable politics, it has nevertheless contributed to "a buildable world."[69] In Renaissance painting, "projective geometry, a mystical decision, organizes at once the space of God and of man."[70] This "technique [...] soon become[s] widespread in Europe, will help Copernicus, Kepler and Galileo to 'see' the solar system from the [...] new '*prospettiva*' of modern science."[71] Such "'seeing through'" passes "a choice of *viewpoint*"[72] into other languages and cultures. Its "metaphysical position will [...] become *a technique, without necessarily losing its religious undertone.*"[73] This last phrase evokes the critique by William James of certain aspects in Anglo-American philosophy:

> [S]o-called transcendental idealism of the Anglo-Hegelian school [e.g., Royce] has greatly influenced the [...] protestant ministry. It is pantheistic, and [has] blunted [...] traditional theism in protestantism [...]. *That theism*

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[64] Longo, "Mathematical Infinity," 3.

[65] Longo, "Mathematical Infinity," 3.

[66] Cf. the "column" of Barth, *Church Dogmatics*, 2.2, 16.

[67] Adrian Mackenzie, *Machine Learners: Archaeology of a Data Practice* (Cambridge: MIT Press, 2017), 70, fn. 16.

[68] Longo, "Mathematical Infinity," 5.

[69] Colin Koopman, *How We Became Our Data: A Genealogy of the Informational Person* (Chicago: University of Chicago Press, 2019), 192.

[70] Longo, "Mathematical Infinity," 5.

[71] Longo, "Mathematical Infinity," 4.

[72] Longo, "Mathematical Infinity," 11, fn. 3.

[73] Longo, "Mathematical Infinity," 3.

remains, however. It is the lineal descendant [...] of the dogmatic scholastic theism still taught rigorously in the seminaries.[74]

This Anglo-Hegelianism would include Peirce.[75] Both pragmatist and scientific critique demands inquiry to keep the theistic and religious undertone of techniques just described by Longo ever in mind. For centuries,[76] if not a full millennium, theologians were the "humble technicians [who] may not [have] fully appreciate[d] the massive impact their work could come to have."[77] It is the task of genealogy to appreciate this impact. Its tones remain under the Peircean icon and, by consequence, its iconic role in Mackenzie's analysis of the fundamental concepts of statistics in his Foucauldian critique of data practice.[78] This technique of projective geometry, which Longo suggests is made possible in religious paintings, might be read as an introduction to the further technical development of projective geometry that becomes deployed in statistics and data-correlations analysed by Mackenzie. The innovative geometry once projected from a mariological point of view on a canvas is now virtually projected from a vectoral point of view in a cyberspace. Mackenzie's detailed explanations of statistical geometry also help bridge the gap between Longo's interest in the algebraic thing, *shay*, and rhetoric with contemporary machine learning, empowered in no small part by Mackenzie's astute engagements with the probabilistic pragmatism of Peirce.

   The perspectival problem persists in the multiple dimensions of statistical vectorization. After Longo's introduction of the religious undertones at play in the prehistory of mathematical development, it is perhaps not surprsing to find that the statistical machine learning described by Mackenzie also follows a methodical chosenness (appointment of a *chosen one*) that can be discerned in the stepwise

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[74] William James, *Pragmatism and Other Essays* (New York: Washington Square Press, 1963), 11; emphasis added.

[75] Charles S. Peirce, *Philosophical Writings of Peirce*, ed. Justus Buchler (New York: Dover, 2011), 365–6, 371; cf. Gilles Deleuze, *Cinema I*, trans. Hugh Tomlinson and Barbara Habberjam (London: Bloomsbury, 2013), 220.

[76] Michel Foucault, *The Government of Self and Others: Lectures at the Collège de France 1982–1983*, trans. Graham Burchell (New York: Palgrave Macmillan, 2010), 348.

[77] Koopman, *How We Became Our Data*, 180.

[78] Mackenzie, *Machine Learners*, 42–3, 48, 144–5, 199.

development of Mackenzie's explanations. For example, "the problem of fitting a linear model to a given dataset" by way of least squares calculates parameters that "set the slope and location of a flat surface or plane in nine-dimensional vector space using all of the [...] variables apart from *one* variable *chosen* as the response or predicted variable."[79] The chosen one may then extend itself toward members of a *chosen few* through a perspectival shift or turn: once the linear model is relayed (by, e.g., a sigmoid function), new variables appear, one of which is "membership of a group or class."[80] This is one way of trying to surpass a dimensional curse by which a given point fails to lovingly correlate with its nearest k neighbors (when delimited to mere linearity).[81]

One discerns the legacy of thing semblance by algorithmic shays in Peirce's icon. "Anything [...] is an Icon of anything, [but only] insofar as it is *like that thing* and used as a sign of it."[82] Shayed rhetorical algebra recalls Peirce's description of interpretant symbols that "grow" from multiple "icons"[83] as "pure rhetoric."[84] Al Khwarizmi's shay is perhaps an icon that is not yet a sign. But as it operates (or is simply thought) as an element of a composite algorithm, it becomes iconic: "[E]very algebraical equation is an icon."[85]

The qualitative distinction between Islamic law and its notation is maintainable in Peirce since an icon refers to its object, "whether any such Object actually exists or not."[86] This arguably applies as much to the non-ontological status of transcendental numbers such as π as to a rhetorical balancing of algebraic numbers endeavored by al Khwarizmi. By a process "like mathematical reasoning, we can reach conclusions as to what *would be* true signs [by which] modes of thought of a God, who should possess an intuitive omniscience superseding reason, are put out of the question."[87]

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[79] Mackenzie, *Machine Learners*, 71; emphasis added.

[80] Mackenzie, *Machine Learners*, 91.

[81] The "curse of dimensionality" described by Richard Bellman, discussed in Mackenzie, *Machine Learners*, 62, fn. 6. Q.v., 111, fn. 8 (on k nearest neighbors).

[82] Peirce, "Logic as Semiotic: The Theory of Signs," *Philosophical Writings of Peirce*, 102.

[83] Peirce, *Philosophical Writings of Peirce*, 115; the plurality is crucial.

[84] Peirce, *Philosophical Writings of Peirce*, 99.

[85] Peirce, *Philosophical Writings of Peirce*, 107.

[86] Peirce, *Philosophical Writings of Peirce*, 102.

[87] Peirce, *Philosophical Writings of Peirce*, 98–9.

It would be a mistake to reductively interpret this as simple scientific dismissal of god by mathematics. It might be considered alongside the theoeconomic politics of al Khwarizmi and algorithmic implementation of Islamic law. In his explanation of a symbol as *legisign* (a law that is a sign; a sign that refers to its denoted object "by virtue of a law"), Peirce writes that "this law is *usually* established by men."[88]

Such mathematical reasoning might describe how the function of a shay, icon, or algorithm is a pragmatic practice of delimited human reason applied to creaturely existence distinct from whatever those elements may mean to divine reason (if anything, and, as such, resists idolizing its own capacities as anything resembling conceptions of gods). One discerns influences of both al Khwarizmi's algorithmic ambition against idolatry and expectant human judgments in Bayesian *Divine Benevolence* as Peirce explains how "discoveries of science [and] their enabling us to *predict* what will be the course of nature, is proof conclusive that, though we cannot think any thought of God's, we can catch a fragment of [God's] Thought, as it were."[89] The shay (and arguably its algorithm) is such a fragment and intends nothing more beyond.

Peirce is outspoken and confessional about his theism.[90] He is a probability theorist[91] as much as he is also a Pauline thinker. His essays, "On the Doctrine of Chances, with Later Reflections" and, in particular, "Evolutionary Love," evince a commitment to salvage both Paul[92] and the gospels[93] from the opportunistic theoeconomic political theology at the basis of the Hellenization of their messianic tradition of love[94] into an institutionalized Roman state religion[95] and its subsequent perversion into the Protestant ethic of capitalism.[96] These commitments are not divorced from his probability theory. He takes recourse to both "the principles of probability"[97] and empiri-

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88 Peirce, *Philosophical Writings of Peirce*, 102; italics added.

89 Peirce, "The Concept of God," in *Philosophical Writings of Peirce*, 376.

90 Peirce, *Philosophical Writings of Peirce*, 364.

91 Peirce, "On the Doctrine of Chances," "The Probability of Induction," "The General Theory of Probable Inference," in *Philosophical Writings of Peirce*, 157–217.

92 Peirce, *Philosophical Writings of Peirce*, 164, 367.

93 Peirce, *Philosophical Writings of Peirce*, 363–4, 369.

94 Cf. Barth, *Church Dogmatics*, 2.2, 25.

95 Peirce, *Philosophical Writings of Peirce*, 368–9.

96 Peirce, "Gospel of greed," in *Philosophical Writings of Peirce*, 363–4.

97 Peirce, *Philosophical Writings of Peirce*, 367.

cal sociological statistical data in the very same discussion. Bayes similarly discusses the rift among mathematicians regarding proportion and ratio in *Divine Benevolence.*[98] Peirce's probability is nearly apostolic as a pragmatic philosophy of love through which he explains even Darwin with energetic *agapism.*[99] Peirce is no doubt participant in Protestant proclivities, but he is not uncritical of these tendencies as well as of Hegel, from whom he inherits them. Peirce practices a probabilistic logic poignantly critical of both the logic of predestination[100] and its collateral complacent physics reduced to blind mechanistic determinism (*tychasm*)[101] which he finds scathingly unscientific, obstructive to inquiry,[102] and apostate to the true promise of probability calculus.

Peirce's concern with god attempts to distinguish itself from religion. In "The Approach to Metaphysics" he suggests scientific curiosity much analogous to theology and regrets the religious tendencies of theologians to devolve into an "army [of] sworn fidelity."[103] The Anglo-Hegelian tendency identified by James, as well as this irreligious, yet theistic, trend in probability theory persists in the works of Alfred North Whitehead. The next section attempts to attend to ways by which these trends emerge within Whitehead's criticism of probability.

3. Given Contingents

This section follows a certain "Whitehead revival"[104] in recent scholarship. It is discernible in thinkers inspired by Foucault and Deleuze, such as M. Beatrice Fazi, Steven Shaviro,[105] and Mackenzie. After co-authoring *Principia Mathematica,*[106]

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[98] Dale, *The Life and Work of Thomas Bayes*, 126.

[99] Peirce, *Philosophical Writings of Peirce*, 363–5.

[100] Peirce, *Philosophical Writings of Peirce*, 371; Cf. the "faith of the logician" in "certain predetermined conclusions" in "What is a Leading Principle?," in *Philosophical Writings of Peirce*, 130.

[101] Peirce, *Philosophical Writings of Peirce*, 364–70, which is specifically Constantinian (368).

[102] Peirce, "The Concept of God," in *Philosophical Writings of Peirce*, 377.

[103] Peirce, *Philosophical Writings of Peirce*, 313. Cf. the difference between "ecclesial reasons" and "theological ones" in Giorgio Agamben, *The Kingdom and the Garden*, trans. Adam Kotsko (New York: Seagull Books, 2020), 28, 34.

[104] M. Beatrice Fazi, *Contingent Computation: Abstraction, Experience, and Indeterminacy in Computational Aesthetics* (London: Rowman & Littlefield, 2018), 62.

[105] Steven Shaviro, *Without Criteria: Kant, Whitehead, Deleuze, and Aesthetics* (Cambridge: MIT Press, 2009).

[106] A foundational presupposition Russell and Whitehead identify as necessary to ground deduction and symbolic logic in the *Principia* is akin to what Whitehead, alone, critiques as ignored yet instantiated by probability. "Treated as a 'calculus,' the rules of deduction are capable of many other interpreta-

Whitehead exemplifies a mathematical mastery contributing to probability theory at a developmental pinnacle, while also levelling criticisms.

For Whitehead, Laplacean physics of efficient causation embodies a potentiality that is yet "the correlative of [a prior] 'givenness.' The meaning of 'givenness' is that what *is* 'given' might not have been 'given'; and what *is not* 'given' *might have been* 'given.'"[107] There must "be limits to the claim that all the elements in the universe are explicable by 'theory.' For 'theory' itself requires that there be 'given' elements so as to form the material for theorizing."[108] Probability is no exception. Its statistical application relies on a given. The given is that which gives activation to any mathematical formulation of it. Yet the given seems ever prone to escape the presumptive attempts by statistical probability to grasp it as foundational to practical application. Chapter 9, §5 of *Process and Reality* questions the legitimacy of probability by its own self-referential measure.

> The notion of 'probability,' in the widest sense of that term, presents a puzzling philosophical problem. The mathematical theory […] is based upon certain statistical assumptions […]. But it is not easy to understand how the statistical theory can apply to all cases to which the notion […] is habitually applied […]. [W]e seem to be influenced by *some analogy* which is very difficult to convert into an appeal to any definite statistical fact. We may consider that it is probable […] if we only knew where to look. This is *the belief that the statistical probability is itself probable* […]. [W]e must provide a reason not based on 'probability,' why one [ground for statistical comparison] is

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tions. But all other interpretations [which would include statistical probability] depend upon the one here considered, since in all of them we deduce [even if inverted or induced] consequences from our rules, and thus presuppose the theory of deduction [even as induction presumes itself beyond deduction…]. [S]ymbolic logic is merely the most elementary part of mathematics, and the logical prerequisite of all the rest." Alfred North Whitehead and Bertrand Russell, *Principia Mathematica to *56* (Cambridge: Cambridge University Press, 1967), 115. Peircean abduction perhaps approaches a solution to this problem.

[107] Alfred North Whitehead, *Process and Reality* (New York: Harper & Row, 1957), 70. Q.v., contingency of logical conditionals in Wolfhart Pannenberg, *Toward a Theology of Nature*, ed. T. Peters (Louisville: Westminster/John Knox Press, 1993), 82, 96.

[108] Whitehead, *Process and Reality*, 67.

selected rather than another […] a chain of vaguer and vaguer probabilities […]. [A]fter a finite number of steps we must reach a 'ground' which is not selected for any reason of probability. It must be selected because it is *the* 'ground' presupposed in all our other reasonings.[109]

This is a legitimation crisis in the very foundations of decision theory. For "where there is no decision […] there is no givenness."[110] Without "some such ultimate 'ground,' the statistical theory […] must inevitably fail. This failure arises by reason of the complete arbitrariness of the ultimate 'ground' upon which the whole estimate of probability finally rests."[111]

Mathematical application remains probability's proper horizon. Whitehead claims that any "ultimate ground" to equiprobability (e.g., that any of the six sides of a die may land face up, all six being equally probable) must be "explicable without reference to any notion of probability."[112] The six equiprobabilities must be as distinct from probability itself as the six respective faces of the die are distinct from the die itself. "A die is a *given fact*; and its faces do not differ […] in any circumstance relative to their fall […] beyond this *given fact*, there is ignorance."[113] But since the ultimate ground for Whitehead "must not require any appeal to probability beyond itself […] the statistical *facts as to the ground, must be 'given' and not merely 'probable.'*"[114] That which lies beyond probability must be given to it from beyond the scope of its proper vantage, but on which it nonetheless relies. Statistical probability seems unable to quantify or enumerate an element necessarily extrinsic to it that is yet required, according to Whitehead, if it is to be more than merely probable.

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[109] Whitehead, *Process and Reality*, 305–6; emphasis added. The italicized line corroborates Hacking's suspicions as Whitehead rearticulates a question posed by Pascal: "*Mais est-il probable que la probabilité assure?*" *Œuvres complètes* (Paris: Éditions du Soleil, 1963), 584; [Pensée 496].

[110] Whitehead, *Process and Reality*, 69.

[111] Whitehead, *Process and Reality*, 307.

[112] Whitehead, *Process and Reality*, 307.

[113] Whitehead, *Process and Reality*, 307; emphasis added.

[114] Whitehead, *Process and Reality*, 308; emphasis added. Cf. "conditional probabilities […] already partially determined" in N. Katherine Hayles, *Unthought: The Power of the Cognitive Nonconscious* (Chicago: University of Chicago Press, 2017), 22–3.

A given, understood as "not merely 'probable,'" invites alternative considerations of datafication that might be worth trying to salvage (akin to the Nietzschean ambition towards revaluation). The "alternative non-statistical ground"[115] Whitehead offers is an attempted revaluation of data as properly given: data worthy of the name. This would be a strained reception of one's self-datafication by the given world of one's experiential surroundings. Once Whitehead discloses the given non-statistical ground for probability, he further socializes the given as data of the world one experiences. Probability and the given converge in data received by a judging subject: "[T]hese data are not extrinsic to the [subjective] entity; they constitute that display of the universe which is inherent in the entity. Thus the data upon which the subject passes judgment are themselves components conditioning the character of the judging subject."[116]

The process occurs between "every creature" and the order "constituting the primordial nature of God."[117] Whitehead defines the latter as god's "complete envisagement of eternal objects."[118] A more socialized mode of datafication emerges through a qualitative distinction from which subjective judgements are not merely datafied by the physical or statistical data of vulgar temporality. Such "objective data"[119] discover merely "causal feelings"[120] that do not merit valuation at all. But the "subjective form of a conceptual feeling has the character of a 'valuation'"[121] that "arises [as] the eternal object, which is the datum of the conceptual feeling, is an ingredient in some sort of datum in which the other components are the objective data [...]. This new datum is the integrated datum [...], some sort of contrast."[122] Conceptually datafied, as such, subjective judgment of eternal objects evaluates by ascension or descension: "[T]he valuation of the conceptual feeling is a 'valuation up' or a 'valuation down,'

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[115] Whitehead, *Process and Reality*, 314.

[116] Whitehead, *Process and Reality*, 309.

[117] Whitehead, *Process and Reality*, 315.

[118] Whitehead, *Process and Reality*, 70.

[119] Whitehead, *Process and Reality*, 367, 402, 472.

[120] Whitehead, *Process and Reality*, 361, 365–6.

[121] Whitehead, *Process and Reality*, 367.

[122] Whitehead, *Process and Reality*, 367.

the importance [therefore is either] enhanced, or attenuated."[123] This rearticulates the para-numerical "addition and diminution"[124] that Bayes attributes to god and remains crucial to probability theory.[125]

Whitehead's "given" gradually grows into a god of process theology nearly synonymous with his very name. Reminiscent of *Naturreligion* (no doubt influenced by Hegel), Whitehead suggests it is beyond categorization as religion. He is aware that he is performing a secularization of theological concepts. He concedes this and even suggests that "the secularization of the concept of God's functions" is a necessary, "urgent [...] requisite of [human] thought."[126] He intimates an important distinction between theology and religion: "It must not be assumed that my non-statistical judgments are in any sense religious."[127] Whereas the "concept of god" may be an "essential element in religious feeling," the "converse is not" the case: "[R]eligious feeling is not an essential element in the concept of God's function in the universe."[128]

Whitehead evokes god without forfeiting mathematical probability, a Pascalian insight, rearticulated in Ramsey[129] and Peirce, above. Whitehead endeavors not to dismiss probability but to correct it from miscategorical tendencies to transvaluate its conditional given into just a statistically enumerated datum. Not only does his theology remain compatible with mathematical probability, it seems urgent and requisite that probability take account of itself as secularized theology. By falsely grounding itself on its own efficacy, which is no doubt remarkable (yet nevertheless difficult to dissociate from the self-sufficient ontotheologies of Anselm, Descartes, or Hegel), probability seems prone to mutate into a secular fundamentalism akin to the very religiosity it presumes to overcome.

To give a brief sketch, the remaining sections of this article attempt to employ key motifs in Whitehead's critique of probability as they apply to three exemplary

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[123] Whitehead, *Process and Reality*, 368.
[124] Dale, *The Life and Work of Thomas Bayes*, 117.
[125] John Maynard Keynes, *A Treatise on Probability* (Lexington: Wildside Press, 2017), 20–3.
[126] Whitehead, *Process and Reality*, 315.
[127] Whitehead, *Process and Reality*, 315.
[128] Whitehead, *Process and Reality*, 315–6. *Science and the Modern World* devotes more patience to religion.
[129] F.P. Ramsey, *Philosophical Papers*, ed. D.H. Mellor (Cambridge: Cambridge University Press, 1990), 72, 79.

practitioners of genealogy: Foucault, Agamben, and Nietzsche. It will return to the latter keeping in mind a given beyond the merely probable. But these next two sections address Foucault and Agamben attending to problems of political theology alongside evaluative envisagement.[130]

4. Theodicy & Theogony

The envisagement of Whitehead converges with a supra-historical perspective overviewing from a site of truth described in Foucault's "Nietzsche, Genealogy, History." The opening section, above, suggested ways by which the algorithmic microtargeting of Cambridge Analytica deployed information tailored to recipients whose statistical psychography identified a significant probability of religious interpretations of the just world hypothesis. In the political aftermath of its efficacy, it is perhaps not surprising to recall that theodicy has always been one of genealogy's primary targets. Foucault suggests that it seems prone to inhibit any genealogical thinking at all.

As he explains that no "genealogy of values" should ever be confused "with a quest for their 'origins,'"[131] Foucault returns to the preface of the *Genealogy of Morals* as Nietzsche retraces his own primitive concerns with theodicy: "involvement with the question: [...] if God must be held responsible for the origin of evil. [Nietzsche] now finds this question amusing and properly characterizes it as a search for *Ursprung.*"[132] Foucault discloses an entanglement between primal theodicy and theogony. This "lofty origin [...] is associated with the gods, and its story is always sung as a theogony."[133]

But the genealogical overcoming of outdated theogony is perhaps premature. Given time, the emergence of probability ushers in a reemergence of this strange

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[130] Importantly, this is only one of several valences attributable to the term 'envisagement' in Whitehead.

[131] Michel Foucault, "Nietzsche, Genealogy, History," in *The Foucault Reader*, ed. Paul Rabinow, trans. Donald F. Bouchard and Sherry Simon (New York: Penguin, 1984), 80.

[132] Foucault, "Nietzsche, Genealogy, History," 78.

[133] Foucault, "Nietzsche, Genealogy, History," 79. The suffix of *theo-gony* is the prefix of *gene-alogy*, the Greek word for birth, *genos*. Theogony is divine genealogy, canonically associated with Hesiod's text of the same name as a family tree of gods and demigods. This eventually mutates into angelology by Pseudo-Dionysius, defined as super-intelligences (*nous*) that exceed human capacities. In this context Pseudo-Dionysius invents the word *hierarchy*.

song anticipating the coming of "an optimal Bayesian agent."[134] A Bayesian response to a grid not far removed from Foucault's "heterogenous layers that threaten the fragile inheritor from within or underneath"[135] is offered by Nick Bostrom in "Are You Living in a Computer Simulation?"

> If we do go on to create our own ancestor-simulations [...] we would therefore have to conclude that we live in a simulation. [...] [W]e would have to suspect that the posthumans running our simulation are themselves simulated beings; and their creators, in turn, may also be simulated beings. Reality may thus contain many levels. Even if it is *necessary* for the *hierarchy* to bottom out at some stage—the metaphysical status of this claim is somewhat obscure—there may be room for a *large number* of levels of reality [...].
>
> In some ways, the posthumans running a simulation are like gods [...]; they are of superior intelligence; they are 'omnipotent' [...]; they are 'omniscient' [...]; all the demigods except those at the fundamental level of reality are subject to sanctions by the more powerful gods living at lower levels.
>
> Further ruminations on these themes could climax in a *naturalistic theogony* that would study the structure of this *hierarchy* [...].[136]

Foucault suggests that *Ursprung* fixation fabricates otherworldly religiosities because it is prone to think effects as causes.[137] It errs by "complete reversals"[138] or inversions:

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[134] Nick Bostrom, *Superintelligence* (Oxford: Oxford University Press, 2014), 12–3.

[135] Foucault, "Nietzsche, Genealogy, History," 82.

[136] Nick Bostrom, "Are You Living in a Computer Simulation?" *Philosophical Quarterly* 53, no. 211 (2003): 243–255; esp. 253–4; Bostrom's italics of *naturalistic theogony*; other italics mine. Bostrom's recourse to hierarchy in this essay (and elsewhere) recalls its philological invention by Pseudo-Dionysius to ordinate divine administration by angelic bureaucracy. Giorgio Agamben, *The Kingdom and the Glory: For a Theological Genealogy of Economy and Government*, trans. Lorenza Chiesa (Stanford: Stanford University Press, 2011), 152, 148.

[137] Cf. Karl Marx and Friedrich Engels, *The German Ideology* (Amherst: Prometheus, 1998), 188–9.

[138] Foucault, "Nietzsche, Genealogy, History," 81. Cf. "the fall of the devil shows "[...]" that the causation is reversed." Adam Kotsko, *Neoliberalism's Demons* (Stanford: Stanford University Press, 2018), 84; q.v., 30–1.

"Fathers have only *to mistake effects for causes*, believe in the reality of an '*afterlife*' [...] and the bodies of their children will suffer."[139]

With new theogony, new theodicy soon follows. Articulations of such societal rationalization are legion in current discourse. Its popularity alone warrants critical scrutiny. A recent example proclaims:

> *Some* of the *bad* stuff *is very bad* [...] *if* you have *nations* trying to *interfere in elections*, if you have the Burmese military trying to spread hate to aid their genocide, how can this be a positive thing? [...] [I]t's *difficult to internalize* that, as painful as some of these things are, the positive *over the long term* can still dramatically *outweigh* the negative.[140]

It becomes difficult to distinguish the old internalized rationales of Calvin and Leibniz from the bleeding-edge probabilistic weighting functions of Cambridge Analytica or "what [Steve] Bannon called *Facebook's God's-eye view*."[141] The final postulate of theodicies or theogonies of *Ursprung* is their omniscopic assumption "in being the site of truth."[142] This is "the vantage point of an absolute distance, free from the restraints of positive knowledge" from which only a metaphysician or a god oversees.[143] This absolute vantage is addressed as "a suprahistorical perspective [...] whose perspective on all [...] implies the end of time, a completed development."[144]

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[139] Foucault, "Nietzsche, Genealogy, History," 82; italics added. Following Foucault's critique of whatever an afterlife might be, Bostrom insists on naturalistic and physical layers, but no less simulated by their physicality, that he assumes purified from religiosity. But he concedes the effectuated semblance: "[I]f nobody can be sure that they are at the basement-level [reality] then everybody would have to consider the possibility that their actions will be rewarded or punished [...]. An *afterlife* would be a *real possibility*." Bostrom, "Are You Living in a Computer Simulation?," 254; emphasis added. Q.v., Eric Steinhart, "Theological Implications of the Simulation Argument." *Ars Disputandi* 10, (2010), 23–37; esp. 29, 31–4.

[140] Mark Zuckerberg, quoted in Steven Levy, *Facebook: The Inside Story* (New York: Blue Rider Press, 2020), 526; italics added.

[141] Wylie, *Mindf*ck*, 83.

[142] Foucault, "Nietzsche, Genealogy, History," 82.

[143] Foucault, "Nietzsche, Genealogy, History," 82.

[144] Foucault, "Nietzsche, Genealogy, History," 86–7.

Foucault invokes the theodicy of any such panoptic perspective with apocalyptic derision. The tacit theodicy of "the historian's history […] pretends to base its judgments on an apocalyptic objectivity."[145] History plays god long before Hegel's "*wahrhafte Theodizee.*"[146] Foucault notes flawed forms of sorting that result in violent historical vicissitudes of central European history: "[T]his origin allows the sorting out [*de débrouiller, pour les mettre à part*] of different traits: the Germans imagined […] they were fooled by a simple computation [*bon chiffre*] […]."[147] This is a dense summary of statistical probability's operativity in genocidal ambition through the enumeration and computation of people as reported in Black's *IBM and the Holocaust.*[148]

A differing of values emerges by violent appropriations of a "system of rules […] in order to *impose a direction* […] to force its participation in a different game."[149] Transvaluation plays upon some move of redirection. Invaluable is the capacity to reverse-engineer. Alongside the inversion of effects and causes, on this point genealogy might begin problematizing Bayes' theorem, the primal probability algorithm. The "crucial question is exactly how […] posterior probability should evolve as you see more evidence. *The answer is Bayes' theorem.* We can think of it in terms of cause and effect,"[150] which Pedro Domingos simplifies:

P(cause | effect) = P(cause) x P(effect | cause) / P(effect).[151]

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[145] Foucault, "Nietzsche, Genealogy, History," 87.

[146] G.W.F. Hegel, *Werke in 20 Bänden*, vol. 20, *Vorlesungen über die Geschichte der Philosophie III* (Frankfurt am Main: Suhrkamp, 1986), 455.

[147] Foucault, "Nietzsche, Genealogy, History," 81; "Nietzsche, la généalogie, l'histoire," in *Hommage à Jean Hyppolite* (Paris: Presses Universitaires de France, 1971), 145–72.

[148] Edwin Black, *IBM and the Holocaust* (Washington, D.C.: Dialog Press, 2001). Tragic sequels include Cathy O'Neil, *Weapons of Math Destruction* (New York: Crown, 2016), Safiya U. Noble, *Algorithms of Oppression* (New York: NYU Press, 2018), Caroline Criado Perez, *Invisible Women: Exposing Data Bias in a World Designed for Men* (London: Vintage, 2019), and Shoshana Zuboff, *The Age of Surveillance Capitalism* (London: Profile, 2019).

[149] Foucault, "Nietzsche, Genealogy, History," 86; italics added.

[150] Pedros Domingos, *The Master Algorithm* (New York: Basic, 2015), 146; italics added.

[151] Domingos, *The Master Algorithm*, 147.

It is difficult to imagine a more explicit codification of causal reversal than *P(effect | cause)*. Its reversibility is precisely Domingos' intention:

> [W]hat we usually know is the probability of the effects given the cause [P(cause | effect)], *but what we want to know* is the probability of the causes given the effects [*P(effect | cause*) […] *Bayes' theorem lets us go from one to the other.*[152]

Its statistical application reverse-engineers from given data collected by past empirical experience to predict probabilities of future events, to infer inversely from effects observed to causes of their probable repetitions to come. The "devotion [of Bayesians] to this idea is near religious."[153]

Bayes is not the first to think from effect to cause. He is a Protestant parrot. Calvin rarely gets the credit he deserves for this contribution to intellectual history. The *Institutes* introduce a new causal hybridity (primacy, efficiency, and love), conceptual only from divine vantage to which human works are not the cause of election since the efficient cause of election is divine love. This anticipates Peirce's recourse to primal agapism while endeavoring to correct probability from both religious predestination and deterministic scientism, discussed above. For Calvin, "[n]o obstacle arises from these [works effectuated in the world] to prevent good works being considered by the Lord as *inferior causes.*" God's governing cause "denominates the cause of that which follows. For this reason [god] *sometimes deduces* eternal life from works [or effects and] […] justifies the [effected] objects of [god's] election […] [God] makes [our effects] a *step* to the succeeding [next effect], *in some sense the cause of it.*"[154] Predestination is occasional divine deduction in which an effect is sometimes the cause of itself.

As evoked in the first section on elections, above, prior to Bayes' watershed *Essay on Chances* (discovered and amended by Laplace), he writes an anonymous

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[152] Domingos, *The Master Algorithm*, 148; italics added.

[153] Domingos, *The Master Algorithm*, 149.

[154] John Calvin, *Institutes of the Christian Religion*, vol. 2, trans. John Allen (Eugene: Wipf & Stock, 2010), 20; emphasis added.

theological treatise on providential theodicy while serving as a Presbyterian minister. *Divine Benevolence* (1730) follows the standard Calvinist line. The divine cause is in no way dependent on creaturely works or effects. By "observing the works of God," one "will always observe the marks of goodness" that "are the effects of general laws."[155] Bayes stresses the importance of repeated observation and expectation. Through observation (the "greater number" of which "we know," provided the observed events are "really distinct from each other"), allows observers to "judge what […] to expect from Him [god]."[156] In such "effects of general laws […] we shall never find any that really overthrow our notion of a perfectly good and benevolent Deity."[157] From the divine vantage, any unilateral successive order from cause to effect seems merely a human shortcoming: "[T]here is no manner of reason to suppose, that *any particular order or proportion* of things appears to the divine mind more excellent […] than another."[158]

My opening sections focused on entanglements of Protestantism with politics, providence, and probability. The previous section emphasized Whitehead's critique of statistical deployments of probability by way of a given beyond the probable and the envisagement of god. This section closes upon consideration that Calvin and Bayes are perhaps complicit in the kind of reversal of cause and effect, which Foucault suggests originates in the implicit theogony assumed from a supra-historical perspective and indissociable with theodicy. We move into the next section anticipating that, as Agamben attempts to further develop Foucault's critique, he notes the special perspective of governance and providence. This develops into his own confrontation with probability.

5. Providence & Probability

Foucault's supplementary adoption of Nietzsche's genealogical method into critiques of theogony and theodicy sets the stage for Agamben's idiomatic adoption of Foucauldian notions of governmentality and biopower into a critical mode of politi-

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[155] Dale, *The Life and Work of Thomas Bayes*, 114.

[156] Dale, *The Life and Work of Thomas Bayes*, 106.

[157] Dale, *The Life and Work of Thomas Bayes*, 114.

[158] Dale, *The Life and Work of Thomas Bayes*, 124; italics added.

cal theology deployed as genealogical inquiry. Agamben revisits Foucault's encoun-ter with Aquinas in *Security, Territory, Population*,[159] finding it "surprising that in his genealogy of governmentality, Foucault mentions Thomas's booklet *De regno* while leaving aside his treatise *De gubernatione mundi*, in which he could have found the basic elements of a theory of the government as distinct from the kingdom."[160] Agam-ben points out that "the term *gubernatio* […] is synonymous with providence, […] the way in which God articulates and carries out his providential action. […] [T]he doc-trine of *oikonomia*—and that of providence that depends on it—can be seen […] as machines that found and explain the government of the world."[161] This "Providen-tial Machine"[162] prepares the way for Agamben's problematization of probability in *What Is Real?*[163] nearly a decade later. Without addressing Hume's pivotal relation to probability,[164] he evokes the Humean legacy's entanglement in providential theology:

> Modern science's image of the world has often been opposed to the theo-logical concept of providential government of the world. However, in their conceptual structure they are more similar than we customarily think. […] [T]he model of general providence is based on eternal laws that are entirely analogous to those of modern science. […] [F]rom Hume to Adam Smith, a concept arises that, in a perfect analogy with the theory of providence, breaks with the primacy of final causes and replaces them with an order produced by the contingent game of immanent effects.[165]

Here, Agamben's "perfect analogy" reiterates Whitehead's previous suspicion that statistical probability is "influenced by some analogy."[166]

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[159] Cf. Michel Foucault, *Security, Territory, Population: Lectures at the Collège de France*, trans. Graham Burchell (New York: Palgrave Macmillan, 2007), 232–3, 258.

[160] Agamben, *The Kingdom and the Glory*, 111.

[161] Agamben, *The Kingdom and the Glory*, 111.

[162] Agamben, *The Kingdom and the Glory*, 109–43.

[163] Giorgio Agamben, *What is Real?*, trans. Lorenzo Chiesa (Stanford: Stanford University Press, 2018).

[164] Ian Hacking, *The Emergence of Probability: A Philosophical Study of Early Ideas about Probability, Induc-tion and Statistical Inference* (Cambridge: Cambridge University Press, 1975), 19, 76, 180–2.

[165] Agamben, *The Kingdom and the Glory*, 122.

[166] Whitehead, *Process and Reality*, 305.

But Foucault had already twice invoked problems of providence in "Nietzsche, Genealogy, History." That which Nietzsche indicts as *Umwertung aller Werte*, Foucault identifies as ways by which forces of domination "disguise themselves," "invert their meaning, and redirect" by "substitutions, displacements […] and systematic reversals."[167] In contrast to the historian's history, an effective history [*wirkliche Historie*] of entangled events opens itself to genealogical thinking as "the inverse of the Christian world, spun by a divine spider." Genealogy "knows only one kingdom, without providence or final cause."[168] The alleged "objectivity of historians" is, for Foucault, "a necessary belief in providence, in final causes and teleology" which "place the historian in the family of ascetics."[169]

Probability is beyond the scope of Agamben's *Homo Sacer* series, but its comingling of providence with Hume, science, contingency, gaming, and the analogical replacement of causes with effects develops over time into what he later identifies as "the emergence of probability."[170] Prior to Agamben's providential machine, Ian Hacking notes the convergence of providence with mechanization: "Europe began to understand concepts of randomness, probability, chance and expectation precisely […] when theological views of divine foreknowledge were being reinforced by the amazing success of mechanistic models."[171] Hacking discloses the genealogical primacy of Port Royal. The pivotal problem in probability's emergence is "something lacking in pre-Pascalian times," which were saturated in views of theological foreknowledge. During Pascal's lifetime something "that is not probability […] [transformed into probability] […] through something like a mutation […]."[172]

Agamben notes that Pascal insists on an interruption of a game for the sake of predictive calculation. This demands a state of suspension, deploying governmentality through which the game of politics is revealed: "This means that probability is never punctually realized [but] it allows us to intervene in reality, as considered

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[167] Agamben, *The Kingdom and the Glory*, 86.

[168] Foucault, "Nietzsche, Genealogy, History," 88–9.

[169] Foucault, "Nietzsche, Genealogy, History," 92.

[170] Agamben, *What is Real?*, 17.

[171] Hacking, *The Emergence of Probability*, 2.

[172] Hacking, *The Emergence of Probability*, 8–9.

from a special perspective, in order to govern it."[173] This special perspective is crucial to both political arts of government and theological accounts of governance. The former emerges from the latter. Agamben suggests,

> [I]t is precisely the exclusively probabilistic character of the phenomena of quantum physics that authorizes the investigator's intervention, [...] "commanding" the phenomenon itself to move in a certain direction, [...] justifying the intervention of the investigator as inevitable.[174]

Probabilistic science no longer seems "to know reality, but [...] only intervene in it in order to govern it."[175] This updates his earlier providential machine:

> Well before jurists began to formulate [the paradigm of modern government's] first elements, philosophers and theologians had already elaborated its canon in the doctrine of providential *gubernatio* of the world. Providence and fate [...] are not, in this sense, theological-philosophical concepts, but categories of law and politics. [The modern State] wears the regal clothes of providence [...]. What the government aims at can be obtained [...] only as a collateral effect, in an *area in which* [...] calculation and unexpected events tend to *overlap* [...]. It is not so much that effects [...] depend on being [...] but rather that being consists of its effects: such is the vicarious and effectual ontology that defines the act of government.[176]

The effectual ontology of *gubernatio* in *The Kingdom and the Glory* converges with the "ontology of command"[177] in *Opus Dei* and supplements "the ontology of the probable"[178] in *What Is Real?* The "area in which" calculation and events "overlap"[179]

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[173] Agamben, *What is Real?*, 34–5; emphasis added.

[174] Agamben, *What is Real?*, 12–13; emphasis added.

[175] Agamben, *What is Real?*, 14.

[176] Agamben, *The Kingdom and the Glory*, 142; italics added.

[177] Giorgio Agamben, *Opus Dei: An Archaeology of Duty*, trans. Adam Kotsko (Stanford: Stanford University Press, 2013), 129.

[178] Agamben, *What Is Real?*, 28.

[179] Agamben, *What Is Real?*, 28.

is the vectoral cyberspace where algorithms function as machine-learning via vast data mining at a site of chosen perspective from which to compute correlations and formulate probabilistic predictions.

As humans initially create god in their own image, they come to operate and encode algorithms in god's image. This is the political theology of probability and the secularized theodicy of machine learning. Theodicy had claimed that only god's special perspective might discern the overall glory and benevolence of creation (imperceptible or incomprehensible to the stunted perspective of temporal creatures). This becomes the popular operation of rationalizing evil or suffering by formulation of the just world hypothesis. Such justifications extrapolate probabilistic recreations of realities in images naively presumed to be merely human yet ever encrypted as a god. Political government, genealogically enabled by divine *gubernatio*, now algorithmically self-optimizes by statistical correlations of machine learning. The very name, 'cybernetics,' of course shares these gubernatorial roots with providential theology. This is reflected in Wiener's interest in Augustine and golems. Wiener explains his coinage of the word "derived from the Greek word *kubernetes*, […] the same Greek word from which we eventually derive our word for 'governor.'" Only later did he learn "that the word had already been used […] with reference to political science [in] the earlier part of the nineteenth century."[180] But the theopolitical legacy of cyber/gubernation is at work long before, as analyzed in exhaustive genealogical detail by Agamben throughout *The Kingdom and the Glory*.

6. *Umwertung* & Datafication

If Whitehead's evaluative process, discussed above, falls short of Nietzschean revaluation, it at least endeavors to correct upward toward something akin to it. Nietzsche's transvaluation of values arguably marks the instauration of genealogical inquiry. Twenty-first century humanity finds itself living through new experiences of *Umwertung*, inversion, reversal, substitution, or displacement through a seemingly virtual disguise of datafication.

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[180] Norbert Wiener, *Cybernetics: Or Control and Communication in the Animal and the Machine* (Mansfield Centre: Martino, 2013), 11–2; *The Human Use of Human Beings* (London: Sphere Books, 1968), 17.

Today the human machine is dangerously displaced and supplemented with a "digital *doppelgänger*,"[181] "*quantified* self,"[182] or "*digitized* identity"[183] compounded into "algorithmic identities"[184] conflated into "datafied selves."[185] The subtle but solemn differences between *identity* and *self* take on new importance in the information age. These technical forms of "*transindividuality*"[186] undergo a transvaluation of the very meaning of *data*. As Nietzsche unveils values inversely coopted to misrepresent any originary value (if there is such a thing), today *data* suffers such reversal. Data is devalued as this *Umwertung* virtually datafies anything that might have been valuable. Philology reminds us what seems increasingly forgotten or repressed: that the term "data" comes from the Latin word *datum* and means "given." Not long ago, *data* invoked and denoted givens. But this is no longer the case. As Nowotny writes: "Welcome to the age of big data. Despite their name, they are no longer given, but made."[187] In times of crisis, datafication machines even attest to this transvaluation of the very data they deploy (by way of alibi): "Maybe they *took* it. But we didn't *give* it."[188]

Following Foucault's first step in "Nietzsche, Genealogy, History," it is instructive to revisit the preface to the *Genealogy* regarding data and value. Nietzsche arguably anticipates our current probability problems in §6: "[T]he value of these values must be called into question […]. One has taken the value of these 'values' as given, as factual [*als gegeben, als tatsächlich*], as beyond all question."[189] The birth pangs of gene-

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[181] Bernard E. Harcourt, *Exposed: Desire and Disobedience in the Digital Age* (Cambridge: Harvard University Press, 2015), 25, 145–7.

[182] Natasha Dow Schüll, "Self in the Loop: Bits, Patterns, and Pathways in the Quantified Self," in *A Networked Self and Human Augments, Artificial Intelligence, Sentience*, ed. Zizi Papacharissi (New York: Routledge, 2019), 25–38, esp. 28–9.

[183] Jean-Luc Marion, *Negative Certainties* (Chicago: University of Chicago Press, 2015 [French, 2009]), 32.

[184] John Cheney-Lippold, *We Are Data: Algorithms and the Making of Our Digital Selves* (New York: NYU Press, 2017), 154.

[185] Cheney-Lippold, *We Are Data*, 195, 264.

[186] Gilbert Simondon, *On the Mode of Existence of Technical Objects*, trans. Cecile Malaspina and John Rogove (Minneapolis: Univocal, 2017 [French, 1958]), 253; cf. Harcourt, *Exposed*, 157.

[187] Helga Nowotny, *The Cunning of Uncertainty* (Cambridge: Polity, 2016), 42.

[188] Alexander Nix of Cambridge Analytica ["we"] referring to data ["it"] made available to Leave.EU Brexiters ["they"]. Kaiser, *Targeted*, 251.

[189] Friedrich Nietzsche, *On the Genealogy of Morals*, trans. Walter Kaufmann (New York: Vintage, 1967), 20; *Zur Genealogie der Moral* (Berlin: Berliner Ausgabe, 2016), 9; [§6].

alogy already suggest that problems of given-data might be even more primal than those of value itself. The two are likely indissociable. This is perhaps why data seems prone to valuation or transvaluation might become predisposed to appropriate the data of any given time. It is perhaps because given-data are prone to misappropriation that values are, collaterally, apt to be transvaluated. Genealogy must suspect tacit transdatafications within the vast accumulation and refinement of big data.

Statistics also gives way to value inversions: "[C]ontrary to what the etymology of the unfortunate term 'data' suggests, very few 'data' are actually 'given.'"[190] As data becomes more utilized as statistics, its socioeconomic transvaluations assume statistical articulations. Like the long forgotten language in which the referent of "data" remains "given," the more publicized "value added" (of national taxation and accounting) in statistical languages of the past "appears to have been forgotten" as statistical languages progress into more personalized "value creation" (of finance and assets of shareholders).[191] These emerge through financial formulations of privatization by which any "socialist" concern can no longer integrate its objectives into an ordoliberal "political game, since the givens had been reversed."[192]

Umwertung sets the stage for Nietzsche's broader criticism of modern science which he suggests remains contaminated by religion and the ascetic ideal: Such scientists "view nature as if it were a proof of the [...] providence of a God [*Obhut eines Gottes*] perpetual witness to a moral world order [...] as if everything were preordained [*als ob alles Fügung* [...] *sei*]."[193] This draws near to critiquing the "Providential Deism"[194] that stubbornly survives laicity and the disenchantment of the world. The providential presumptions Nietzsche alleges of modern science anticipate its development into preordained conceptions of natural science and further formulation into predictive analytics by probability. Nowotny notes the latter's reliance on physics: "[I]t is important to realize the crucial importance [of] 'prediction' in physics and

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[190] Alain Desrosières, "How Real are Statistics?" *Social Research* 68, no. 2 (Summer 2001): 339–355; esp. 347.

[191] Desrosières, "How Real are Statistics?," 353.

[192] Foucault, *The Birth of Biopolitics*, 90.

[193] Nietzsche, *Genealogy*, 160–1; *Genealogie*, 154–5; [§27].

[194] Charles Taylor, *The Secular Age* (Cambridge: Belknap Press, 2007), 221.

the considerable historical change it has undergone […] Prediction became restricted to the probability distribution of the system at large timescales."[195] She juxtaposes probabilistic prediction with past religious "prophets [that] relied on sacred texts […] believed to be built on a fixed divine plan, the sources for contemporary analysts lie in an enormous amount of data they can work on with unprecedented computational power."[196]

Nietzsche's critical legacy persists in enabling us to articulate resistances to the transvaluation of data. The optimization of algorithmic probability through the 20th and 21st centuries remains ever unsettled by philosophical countercurrents. These often come about under the name of phenomenology (even when critical of it). The scientisms under critique by such countercurrents expand their datafying techniques at the turn of the century after the information explosion, cloud-computing, proliferation of online social mediation, and unparalleled computational infopowers set in motion in the early 1900s.[197] The remarkable advances in probability theory by Keynes, Wittgenstein, Ramsey, or Turing are accompanied, blow by blow, by mirrored philosophies of Husserl, Heidegger, Deleuze, or Derrida. The latter camp offer diverse endeavors to salvage some data through critical ontologies attending to problems of reception, ownness, *Ereignis*, *es gibt*, gift, givens, or graces. Several philosophers are exemplary of this. Its present pinnacle is perhaps Marion's phenomenology of excess, saturation, and givenness [*donation*].

This section suggests that Nietzsche's introduction of the dangers of transvaluation by way of a primal problematization of values given as factual might perhaps still have much to teach us about the current datafication operations proliferating our everyday lives. It is worth considering that the "new datum" of valuation articulated by Whitehead, above, discloses possible datafication processes worth embracing in critical resistance to the transvaluative tendencies formulated through statistical probability, big data, or surveillance and platform capitalisms.[198] If contemporary

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[195] Nowotny, *The Cunning of Uncertainty*, 41–2.

[196] Nowotny, *The Cunning of Uncertainty*, 42.

[197] Koopman, *How We Became Our Data*, 14, 42, 35–107, 171, 189.

[198] Nick Srnicek, *Platform Capitalism* (Malden: Polity, 2017), 57.

datafication mechanisms are re-emerging through digitized activations or computational deployments of transvaluation, then there is all the more reason to reconsider the possibility by which Whitehead's understanding of a given beyond the merely probable might enable revaluations of data beyond the merely enumerable. This would seem to require a reconsideration of the secularization of theological concepts beyond the merely religious, *especially* if the more religious we are the more merely probable we shall likely remain.[199] But a possible alliance survives between any Nietzschean politics to come with a Laplacean electoral practice driven to minimize *ressentiment* with probability, which yet remains unapologetically influenced by providential deism saturated in an alleged divine indifference.

7. Conclusion

The epigraph from the editors of *WIRED* on which this article commenced might be forgiven for heralding inevitable reversals encoded into computational platforms. But as genealogy works its way from Cambridge Analytica back to Nietzsche, this could only ever be considered *inevitable* if we have already succumbed to the alleged reversals without critically suspecting them of transvaluating through digital disguises of datafication. We began on a possible admixture of religion and algorithmic calculation. I suggested a continuation of this into further admixtures of Protestant predestination and algorithmic probability through manipulative microtargeting. This tactic develops as much from statistical probability as from psychographic information correlations to specifically religious data clusters. The probability of Laplace and Bayes are arguably already critically attuned to such problems. Electoral techniques that value-up smaller numbers to determine an allegedly larger consensus are statistical redeployments of the chosen few characteristic of Calvinist predestination (itself a redeployment of an Abrahamic chosen people). Even the appealing alternative of ranked ballot voting aspires to a Laplacean impartiality on the part of the voter that is yet a subjective secularization of divine indifference presumed in the providential theology of Bayes.

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[199] Cf. the second epigraph above from Paley, *Natural Theology*.

Such indifference is presumed indifferent to creaturely effects. A Christian conception of effectiveness survives the Abrahamic transition to Islam, the theopolitics and legalism of which are indissociable from the advent of algebra and algorithms as articulated by al Khwarizmi. The innovation of projective geometry Longo finds in religious paintings sets the stage for the statistical correlations made operational from the perspective of a chosen point in the virtual dimensions of vectoral cyberspace made visibile to machine learning, critically explained by Mackenzie. Mathematical, scientific, and pragmatist critiques can be found that all insist on the importance of not dismissing the theistic or religious undertones that develop over time into modern algorithmic techniques. The pragmatist probability of Peirce articulates itself in collateral critiques of religious predestination and scientistic determinism. This is echoed by Whitehead insisting on a non-statistical givenness prior to and beyond the merely probable. I suggest that this is a mathematical iteration of the electing grace prior to providence in Barth. The nearly Nietzschean valuations enabled by the given in Whitehead are founded on the envisagement of god. Mathematical probability, as such, is equally enabled to move beyond any chosen religion without forfeiting the concept of god. The more the concept of god is dismissed to the whims of religion, the more religious sentiments remain exploitable as microtargets prone to believing themselves chosen.

Religious conceptions of envisagement assume the supra-historical perspective critiqued by Foucault in terms of providence and theogony. These function through a reversal of causation associated with religious conceptions of an afterlife. But causal reversal must also be considered at work in both the mathematical probability calculus of Bayes' theorem derived from the *Essay on Chances* and the providential theology of Bayes' theodicy in *Divine Benevolence*. Neither is indemnified from the other. To this day Bayes' theorem remains the core code of contemporary algorithms, be they deployed as sorting predictions by the Google search engine or microtargeted advertisements by Amazon. Agamben furthers the Foucauldian critique of governmentality through probability's reliance on a special perspective generalized in order to govern. The earlier admixture of predestination and election problematized by Barth and Pascal anticipates the admixture of gubernation and providence in Agamben.

This contextualizes not only the governmental capacities of cybernetics, but even the very word coined by Wiener. If there is a given reality beyond the merely probable as Whitehead suggests, this in no way incapacitates the possible activation of algorithmic probability to interrupt, control, or command over it. The spirit of capitalism indicted in the Weberian critique still spooks our valuations. Wiener always regretted his inability to communicate the application of cybernetics and probability to the benefit of "labor unions."[200] He confesses his eventual recourse to psychological and physiological research as a form of ascetic retreat "most remote from war and exploitation"[201] against the tendency to minimize "human values" merely to maximize "buying and selling."[202]

Just as there is no human lifeform that is not to some extent cyborg, there is no algorithm indemnified from some element of humanity. Even base-10 decimal enumeration is a byproduct of aleatory evolution into the anthropoid manual anatomy of fingers and thumbs.[203] But it seems incumbent for any human element, as such, to attend to what Peirce considers a precious "instinct"[204] effectuated by anthropogenesis toward theism, rather than feign victory over it by assuagement or repression. There are no *de facto* malicious algorithms or data practices, only formulaic activations of them by an equally human element of self-interest, biased desire, fear, or calling: the very opinions Laplace longed for probability to minimize.

It has become commonplace in contemporary critical circles, even in seminaries, to identify the death of god as a distinctly Christian invention.[205] It would be a precious cultural accomplishment to the Christian tradition's credit if this were the case. Genealogical inquiry suggests that the same likely applies to probability theory. This includes the technical practices and algorithms by which it functions and

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[200] Wiener, *Cybernetics*, 28. Cf. Barth's organizational labor activism in Angela Dienhart Hancock, *Karl Barth's Emergency Homiletic. 1932–1933* (Grand Rapids: William B. Eerdmans, 2013), 53.

[201] Wiener, *Cybernetics*, 28.

[202] Wiener, *Cybernetics*, 28.

[203] Wiener, *Cybernetics*, 118.

[204] Peirce, "Pragmatism in Retrospect: A Last Formulation," in *Philosophical Writings of Peirce*, 289.

[205] Especially in its Nietzschean or Hegelian articulations, which are not the only ways to try to think it. Christian roots are suggested of secularity itself in Marcel Gauchet, *Disenchantment of the World*, trans. Oscar Burge (Princeton: Princeton University Press, 1997), 101–61.

operates. Cursory awareness of the Bayesian legacy set forth from the Presbyterian pulpit might easily identify probability as the new religion and its administrative algorithms as the new angels. Both remain susceptible to the seductions of religious metaphysics and must be criticized accordingly.

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