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Sordid genealogies: a conjectural history of Cambridge Analytica's eugenic roots

Michael Wintroub¹✉

“Sordid Genealogies: A Conjectural History of Cambridge Analytica’s Eugenic Roots” explores the history of the methods employed by Cambridge Analytica to influence the 2016 US presidential election. It focuses on the history of psychometric analysis, trait psychology, the lexical hypothesis and multivariate factor analysis, and how they developed in close conjunction with the history of eugenics. More particularly, it will analyze how the work of Francis Galton, Ludwig Klages, Charles Spearman, and Raymond Cattell (among others) contributed to the manifold translations between statistics, the pseudoscience of eugenics, the politics of Trumpism, and the data driven psychology of the personality championed by Cambridge Analytica.

¹University of California, Berkeley, CA, USA. ✉email: wintroub@berkeley.edu

Once King Ptolemy gathered seventy-two elders and put them into seventy-two houses, and did not reveal to them why he gathered them. He entered each room and said to them: “Write the Torah of Moses your rabbi for me”. The Holy One, blessed by He gave counsel into each of their hearts, and their viewpoints (i.e., translations) all came out in agreement.

—(Tractate *Megillah*: 9a; MS Columbia 294–295, see Rodkinson, 1899)

Traduttore traditore: fidelity, treason, and meaning

Fidelity is the fulcrum upon which translation is poised between loyalty and betrayal. A true translation is said to be faithful, a false one, an untrustworthy lie. Meaning governs the sway between the two sides of this balance, adjudicating reliability, accuracy and truth. This relation however is often fraught and unstable, with translation’s legitimacy oscillating between the apocryphal verisimilitude of the Septuagint and the suspicion that the translator’s translation might traduce, as well as “translate”. *Traduttore traditore* indeed!

Questions as to the stability of meaning across languages, cultures, classes, geographies, generations and genders stymie simplistic notions of pure, and direct translation untainted by either the translator or her transference of meaning from one medium to another. However, what happens when meaning is taken out of this equation? Can we inhabit the method of the Septuagint again to discover again an “objective” measure of translation untainted by human interest and immune to the vagaries of cultural border crossings and linguistic frontiers?

Machine translation is founded in this desire. For the computer, meaning is irrelevant to the act of translation; rather, translation is governed by statistical algorithms based on probable location i.e., the likelihood of a correspondence between where a word in a cluster of words in one language stands in relation to a word in a cluster of words in another. Meaning is supplanted by place. As Robert Mercer, one of the pioneers of speech recognition and machine translation at IBM, put it: “*meaning* means, or at least I personally think, the French that’s written there is the meaning of the English that’s written in the other place. You do not need to worry about all that intermediate stuff of this is what it really means” (Post, 2013).

Google Translate operates in this way. However, one would hardly credit, at least for the present, Google’s algorithm with the divinely inspired insight of the Septuagint. Some might claim that fidelity will be secured as the data sets from which Google’s AI learns are grown. More data will lead to better outcomes. Meaning will be reclaimed as a statistically probable end-result; while the means of getting there—the act of translating—will be divorced from questions of significance, thus, in a sense, guaranteeing the “objective” neutrality—viz., authority—of translation. Others, however, might consider this a dangerous abdication of the task of the translator—a denial of interest as an obstruction to both meaning and the critical capacity to weigh and assess it: a kind of betrayal, a traitorous subordination of meaning to algorithms of cybernetic control and statistical number crunching.

The ambiguities regarding the place of meaning in translation are not, however, new to machine algorithms. As far back as the second century AD, the myth of the Septuagint carried an ideological message regarding the unalterable truth of divine translation that was every bit as colonial as those now promised by Google. Putting the persuasive power of the Almighty aside, one can imagine that while a pagan contemporary of Ptolemy II Philadelphus might have accepted the fidelity of the Septuagint’s

translation of the Old Testament from Hebrew to Greek, they might, in the same breath, have contested the veracity of its content.

Similar conundrums have troubled the ways we have thought about translation since the invention of fiction as a genre in the early modern period. In staking out the ground of fidelity, a translation makes a claim to the truth and accuracy of its transposition of meaning from one language to that of another. This, undeniably, requires a great deal of cultural work in the cultivation of knowledge of both sources and targets: languages, audiences, cultures, and classes, etc. However, even in the case where a translation is deemed true and accurate, the text being translated, in the case of fiction, is false. Truth operates in a different register to that operating in the translation of putatively scientific or historical texts. In other words, one is faithfully translating something that is, strictly speaking, false.

Such difficult questions extend beyond the genre of fiction, posing more general challenges to the task of translation. How, for example, are we to think about the translation of Hitler’s *Mein Kampf*? Yes, it can be translated faithfully, but to do so, does one need to embrace Hitler’s—and his society’s—racism and anti-Semitism?¹ Does the translator need to become the other as a means of speaking Hitler’s words in her (the translator’s) “own” language? What are the ethical implications of translating such dangerous fictions and such horrific historical truths? Might similar dilemmas be associated with the translation of works now popular with the so-called “alt-right”, such as Jean Raspail’s *Le Camp des saints*? Moreover, might the same thorny problems be traced into the translation of scientific texts, or acts of scientific replication as well? Could one argue, for example, that the failure of an experiment is just a failure of translation? Or, conversely, that science is just a good translation—a persuasive fiction? Hence, perhaps, the continuing allure of books such as *The Bell Curve* by Richard Herrnstein and Charles Murray. What, then, would stand in the way of viewing Mesmer’s work on animal magnetism in these terms, or the antivaxer promotion of “nosodes” as an alternative to routine vaccinations, or indeed, the growing popularity of the “new” scientific racism put forward by the likes of Jared Taylor and Nicholas Wade (Saini, 2019)? I would argue, nothing. Indeed, such an analysis might shed light on the vagaries of translation and its entanglement with what STS scholars have implored us to acknowledge—that truth and falsity, the rational and the irrational, the authentic and the fake, ought to be treated symmetrically, that is without dismissing the later as merely social or valorizing the former as objective and “scientific”. In the current paper, I want to explore this possibility by investigating the power of translation to faithfully carry dangerous societal infections—faithful untruths, trustworthy lies, persuasive fictions, and “fraud guarantees”—from the bench to the provincial societal bedside (Holmes, 2019). The translation that I will investigate here is based on the case of Cambridge Analytica and the hidden history to be found in its methods.

Eugenic fruit

This image (Fig. 1), illustrating the roots of Eugenics, is well-known. We could, of course, imagine others: e.g., modernization, immigration, urbanization, xenophobia, nationalism, racism, colonialism, the rise of new professional classes, the fear of degeneration, and class conflict. More importantly, despite the commonplace dismissal of eugenics as a racist pseudoscience, we can point both to the continued vitality of its serpentine roots and their surreptitious evolution into new branches carrying such labels as data science, psychometry, marketing, and mass manipulation. We can, in this sense, complicate this illustration’s assumed teleology of statistics, mental testing, psychology,

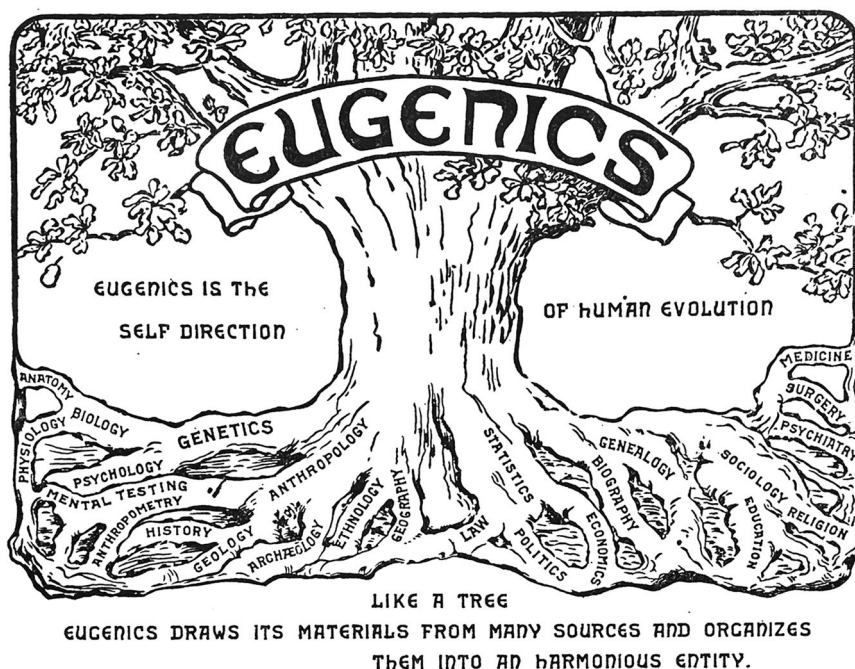


Fig. 1 The Eugenic tree. Logo designed by Harry H. Laughlin for the Second International Eugenics Congress, September 25–27, 1921 (public domain, Wikimedia commons).

anthropometry, etc. resulting in eugenics by asking, rather, how these disciplines grew in symbiosis with the development of eugenics and subsumed it in all but name. Cambridge Analytica, and the methods it employed to micro-target American and British voters in 2016, was one of the strange pseudo-scientific fruits that, I will argue, has grown from these tangled roots.

Electioneering and psy-ops

Cambridge Analytica (CA) has closed its doors. The public outcry and scandal over the revelation of its illicit harvesting of personal data from Facebook left it insolvent and facing mounting legal actions across multiple jurisdictions in Britain and the United States.

CA was founded as a subsidiary of Strategic Communications Laboratory (SCL). SCL is a British company specializing in psy-ops; that is, in behavioral data collection, voter targeting, digital messaging, disinformation, and media-branding, or what the “whistle-blower”, Christopher Wylie, has called “scaled perspective”—the active deconstruction and manipulation of popular perception” (Wylie, 2019).

SCL is a hired gun that sells its expertise in mass manipulation and election hacking to any who can pay its price; their client list has included NATO, the British Ministry of Defense, the US National Security Agency, and the US State Department. In the past, it has worked to “influence” voters in Italy, Latvia, Ukraine, Albania, Romania, South Africa, Nigeria, Kenya, Mauritius, India, Indonesia, The Philippines, Thailand, Taiwan, Colombia, Antigua, St. Vincent & the Grenadines, St. Kitts & Nevis, and Trinidad & Tobago (Hilder, 2019).

Cambridge Analytica (aka SCL US) was established with a specific purpose in mind—to allow SCL to extend its reach into US elections (something prohibited by US law to foreign entities). It was effectively set up as a front for the American “big data billionaire” and conservative donor, Robert Mercer who bought a 90% stake in the company for 15 million USD. Mercer placed one of his trusted associates, Steven Bannon, Breitbart editor, and future Trump administration senior advisor, in charge. Like its UK parent company, Cambridge Analytica specialized in mass

manipulation, psy-ops, and the perversion of democratic process; what differentiated it was its unprecedented breach of digital privacy through massive data theft and its innovative crunching of this stolen data through algorithms supposedly based in psychometrics and personality trait theory.

The ocean of computational politics

In 2007, David Stillwell, a psychologist at Cambridge University, created a Facebook app called “MyPersonality” that allowed users to take a Big Five personality test measuring the OCEAN personality traits: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism.² These traits, according to personality psychologists, provide the “objective” foundations for the study of human behavior. As one of the psychologist most closely associated with the Big Five, Paul Costa proclaimed: they “may be a human universal” (Quoted in Murphy Paul, 2004, p. 191). Objective or not, seen through the lens of digital data, they are said to be powerful predictive tools. The “MyPersonality” app took off with over 4 million users completing a personality test and about a third of them opting in to sharing their Facebook profile data as well including their Facebook Likes. In 2013, a graduate student based at Cambridge University’s Psychometrics Centre, Michal Kosinski, teamed up with Stillwell to publish research showing that Big Five personality and many other intimate traits could be predicted from Facebook Likes. Their algorithms could infer personality traits from online activity alone, that is, without responses from on-line personality tests. Psychological profiles could thus be extrapolated by reference to online user behavior.³ This increased the data sample exponentially, allowing data scientists to track digital footprints back to “personality traits” that could then be hunted down and exploited in the “wild”. The research warned that algorithmic predictions could be “applied to large numbers of people without obtaining their individual consent and without them noticing” (Kosinski, 2013). As few as 170 Facebook likes per Facebook user could “accurately predict”: ethnicity (95%), gender (93%), sexual orientation (88%), politics (85%), religion (82%), relationship status (67%), etc. With as many as 300 likes, they declared, they would “know you better than your spouse” (Carroll, 2017).

The year after their research was published, Cambridge Analytica tried hiring Kosinski and Stillwell but were rebuffed. Instead, CA teamed up with the psychologist Aleksandr Kogan. It has been reported that Kogan created his own personality testing Facebook app called “ThisIsYourDigitalLife” and then paid around 250,000 Americans a few dollars each to complete his personality test and share their Facebook profile data. Critically, users did not just share their own data but also shared the Facebook Likes of their friends, which was possible on Facebook at the time— this increased the sample size by approximately 300 times. Armed with his own data, Kogan developed personality prediction algorithms and provided them to Cambridge Analytica. Prior to the 2016 presidential election, Cambridge Analytica claimed to have acquired detailed personal data on 87 million Facebook users, while Alexander Nix, Cambridge Analytica’s CEO, boasted that they had developed the means “to determine the personality of every single adult in the United States of America” (Kranish, 2016). In other words, it allowed them to translate digital traces left in social media into the Five-Factor Personality Profile, and then to identify and search for specific profiles in the larger population—e.g., angry voters, resentful white men, undecided democrats, etc. (Matz et al., 2017).

In the spring of 2016, CA took on the Trump Campaign as a client. Armed with data collected on the American electorate, and knowledge of psychometrics, they claimed they could identify both individual voters and populations of voters who would be susceptible to Trump’s message, and/or neutralize those who were not. Indeed, properly crunched, Facebook data gave the Trump campaign an unprecedented ability to direct human and monetary resources, allowing Trump and his surrogates to visit precisely those geographical areas where they were most needed, e.g., Wisconsin, Pennsylvania and Michigan. “Personality demographics”, moreover, allowed the Trump campaign to channel personal “dark posts” on Facebook that were tasked to appeal explicitly to their targets, only to disappear hours later as if they had never been there at all. A feedback loop of clicks, reposts, and likes, allowed for a constant refinement of this “dark” messaging. As Martin Moore, Director of the Center for the Study of Media, Communication and Power at King’s College, told the *Guardian*, Trump’s campaign “was using 40–50,000 variants of ads everyday that were continuously measuring responses and then adapting and evolving based on that response” (Quoted in Illing, 2018).

The effectiveness of Cambridge Analytica’s psychological targeting for Trump is a matter of some dispute (a question to which I will return at the end of this essay), but the narrowness of his margin of victory perhaps speaks both to the investment savvy of its billionaire computer scientist owner and to the future possibilities for computational politics and the targeting of personality demographics for the purpose of voter manipulation and/or targeted “demotivation”—that is, for the engineering of elections (Oremus, 2018; Sumpter, 2018, pp. 46–63; Kosinski et al., 2013, pp. 5802–5805).

Statisticians and degenerates

The study of personality is at the heart of these methods. The Big Five Personality Inventory, the OCEAN model, derived through a direct, though uneven, lineage from nineteenth century eugenics and its founder, Francis Galton. This genealogy can be traced to the Sixteen Factor Model of Raymond Cattell, the veritable father of personality trait measurement. In Cattell’s thought we can discern the convergence of the three strands of descent that nourished CA’s methods—ideology (a lifelong commitment to eugenics), statistics (the sophisticated use of multivariate factor analysis), and finally, the lexical hypothesis (the idea that words found in everyday usage were definitive of key personality traits). We can trace these three components of CA’s psychometrics from Cattell directly back to Galton himself.

Personality, as an analytical category and as a subject of study, is inextricably entangled with the nineteenth century fear of degeneracy. From Benedict Augustin Morel’s *Traité des dégénérescences physiques, intellectuelles et morales* (1857), to the works of Cesare Lombroso, Max Nordau and Francis Galton (to name only a few), degeneracy haunted the late nineteenth century. It was widely assumed that society was facing certain extinction in the face of the procreative prowess of idiots, imbeciles, criminals and dark-skinned degenerates. The “better” and more “fit” were being swamped by the dregges of humanity and the heritable pestilential traits they carried. Galton conceived of Eugenics as a response to this threat—a secular religion that aimed at the “scientific” improvement of the human race by better breeding (Kevles, 1985, pp. 3–19). This “positive” notion of eugenic optimism that encouraged the best to breed was balanced by a negative one that sought to circumscribe the reproduction of the “inferior” sorts through the regulation of marriage, forced sterilization, isolation and murder.⁴

The statistical study and measurement of the characteristics of bodies and minds developed in tandem with both positive and negative eugenics. Galton’s dream of a eugenic paradise inhabited by a superior race of “fit” men was the inspiration behind his work in biometry, psychometry, and statistics, particularly the tools of regression and correlation by which he sought to unlock the mysteries of heredity. These were, he believed, the rational tools by which society could best be governed (Cowan, 1972, p. 511; Kevles, 1985, p. 17).

Galton: counting solutions

“Whenever you can, count”, Galton was often heard to say (Quoted in Kevles, 1985, p. 7). Galton was indeed an obsessive counter—he stalked and rated the beauty of women across the UK as “attractive”, “indifferent” or “repellent”; he followed the work of the French criminologist, Alphonse Bertillon, by seeking to measure specific physical characteristics such as heads, hands and feet; he collected data on fingerprints, on the size and characteristics of peas, and sought to trace the connections between the traits of men through the collection of family histories from one generation to the next, etc.

In 1884, he began to collect biometric data on the English population by setting up an Anthropometric Laboratory at the International Health Exhibition in South Kensington, a kind of late nineteenth century precursor of Kosinski’s and Stillwell’s twenty-first century MyPersonality app on Facebook. By 1885 over 9000 people had paid the small sum of three pence for the privilege of being prodded, tested and measured. In the end, Galton had accumulated a huge trove of information about height, weight, strength, respiration, reaction time, acuity of color perception, hearing, etc., from those who entered his lab (MacKenzie, 1981, p. 63; Kevles, 1985, p. 14; Galton, 1885).

What today would be considered a relatively small data set was, for Galton, almost inconceivably complex. Statistics in his time was dominated by the so-called law of error, which saw variation from the mean solely in terms of deviation, that is, as a measure of error and uncertainty. His work on the societal distribution of genius led him to reorient his statistics away from thinking of variability as error to study it rather as an opportunity against which he could leverage his ideas about race, class, intelligence and social worth. In his view, economic, moral, and intellectual differences among men were all linked and were owing to nature not to nurture. Variations were not accidents or errors, they were the human material from which a new and superior race of men could be bred (MacKenzie, 1981, pp. 58–59). As he put it, “If a twentieth part of the cost and pains were spent in measures for the improvement of the human race that is spent on the improvements of the breed of horses and cattle, what a galaxy of genius might we not create” (Quoted in Holt, 2005).

Statistics, for Galton, was to be the mathematical handmaiden to a eugenic solution to the societal problem of degeneracy (Porter, 2004, p. 267). Galton's intellectual heir and first holder of the Galton Chair of Eugenics at the University of London, Karl Pearson, went so far as to suggest that the future consummation of the statistical revolution Galton had inaugurated would be found "with Reichskanzler Hitler and his proposals to regenerate the German people". As he put it, "in Germany a vast experiment is in hand, and some of you may live to see its results. If it fails it will not be for want of enthusiasm, but rather because the Germans are only just starting the study of mathematical statistics in the modern sense" (Pearson, 1934, p. 23; Stern, 2018, pp. 243–244).

Words and traits

Galton believed it was possible to correlate inherited bodily characteristics with heritable forms of mental energy, that is, with character. He assumed that measures of the former could be linked to measures of the latter. His well-known experiments in composite photography were an early attempt to fuse biometry and psychometrics into ranked types (Anonymous, 1877, p. 573). Galton worked to scale-up and generalize these taxonomies, postulating that there were also national "characters" that similarly depended on heredity. He puzzled over how to measure these, but realized that the simplest and most accurate measures of character were to be found in the "statistics of each man's conduct in small every-day affairs" (Galton, 1884, p. 185). As a first step, he proposed to search for words commonly used to describe these traits. As he explained:

I tried to gain an idea of the number of the more conspicuous aspects of the character by counting in an appropriate dictionary the words used to express them. *Roget's Thesaurus* was selected for that purpose, and I examined many pages of its index here and there as samples of the whole, and estimated that it contained fully one thousand *words expressive of character*, each of which has a separate shade of meaning, while each shares a large part of its meaning with some of the rest (Galton, 1884, p. 181).

The correspondence between words and character traits proposed by Galton is known as the "Lexical Hypothesis". According to Anne Murphy Paul, the idea is simple: "if an important aspect of personality exists, people will have invented a word for it. The more significant a quality is, the more synonyms our language will offer to describe it. If a characteristic is less vital, words referring to it will be fewer, will be used less often, and may even drop out of the vernacular altogether. The lexical hypothesis proposes that people talking about other people—over back fences, on street corners, over a cup of coffee or a mug of beer—have created the most comprehensive catalog of personality traits imaginable" (Murphy Paul, 2004, p. 174). Personality researchers did not rely on ethnography to deduce their lists of significant words. Rather, for them, dictionaries already contained all the words they needed to circumscribe a "comprehensive catalog of personality traits". The problem that obsessed them in the decades after Galton's death, was the reduction of this comprehensive list into a concise list of elemental psychological traits.

Klages: words, race, and character

The German philosopher, psychologist and graphologist, Ludwig Klages was among the first to embrace the analytic power of the lexical hypothesis in his *Prinzipien der Charakterologie* (1910). Klages championed a fierce and mystical anti-modernism. He believed that German society had degenerated from its heroic

ancient past into a species of empty rationalism that had lost its connection to the authenticity of the primordial biologic soul. It was, he thought, through the "creative power" found in the "blood" of the "pure", that a "cosmic rebirth" of the true German spirit from the degenerate age of the intellect (characterized by the Jew) might occur (Moore, 2002, p. 208). Like Galton, Klages sought to locate "traits of character" and relative human worth by identifying some 4000 words in German dictionaries to "denote the simplest as well as the most complicated processes, conditions, and properties of the inner life" (Klages, 1929, p. 41). With Galton, he believed that degeneracy was inscribed in both body and mind, thus linking biometrics to character. Characterology, for Klages, offered a solution to the problem of Germany's social and cultural decline. He employed the study of graphology—as handwriting—as the means to uncover, and measure, the instinctual habits and characteristics definitive of racial personality traits hidden behind the performed persona of everyday life (Lebovic, 2013, p. 12).

Although Klages was not actively involved in the National Socialist party (Vollgraff, 2017, p. 114), his work strongly resonated with its leaders. Among Klages most ardent followers were Julius Deussen, Hans Eggert Schroder, Kurt Seesemann, and Hans Kern. All subscribed to Klages's racial theories, his biocentrism, and his attempts to solve the problem of degeneracy by using the psycho-diagnostic practices associated with characterology, graphology and biometrics. In 1933, seeking to popularize and disseminate Klages' theories, these men established the "Workshop for Biocentric Research" (*Arbeitskreis für biozentrische Forschung*), which "met regularly with members of the Gestapo, the SS, and other Nazi institutions for racial research and biological and medical studies" (Lebovic, 2013, pp. 199–202). Not surprisingly, all these men promoted notions of racial hygiene closely allied to Nazi eugenics. Julius Deussen, for example, traveled in the same circles as the founders of the Organization against the Jewish Takeover (publishers of the *The Protocols of the Elders of Zion*), such as Eugen Diederichs, Ernst zu Reventlow, Martin Bormann and Alfred Rosenberg. Later, Deussen took over the management of the Department of Genetic Psychology at the German Research Institute of Psychiatry in Munich, where he was also Gauleiter of Munich's Racial Policy Office. Between 1943 and 1945 he worked closely with the Nazi eugenicist, Ernst Rüdin, and helped coordinate Carl Schneider's experiments in "national therapy" that sought to cleanse the genetic and blood contaminants that threatened the psychological and physical well-being of the Aryan nation by experimenting on, and then murdering, thousands of disabled children (Wise, 2010, p. 178; Rotzoll and Hohendorf, 2017, pp. 171–174).

Allport and Odbert's dictionaries of progress

The most significant mid-century Anglo-American psychologists to rely on the Lexical Hypothesis in personality research were Gordon Allport and Henry Odbert. They cited, and affirmed, Klages' belief that traits encapsulated in everyday and commonly used words would allow the psychologist greater and more precise knowledge of character than could be provided by putatively more scientific methods. Indeed, they use Klages' words as the epigraph beginning their influential book, *Trait-names: A psychological study* (1936). Thus, their journey into the lexical treatment of personality begins with Klages' observation that

Language excels in unconscious insight the acumen of the most talented thinker, and we contend that whoever, having the right talent, should do nothing but examine the words and phrases which deal with the human soul, would know more about it than all the sages who omitted to do so,

and would know perhaps a thousand times more than has ever been discovered by observation, apparatus, and experiment upon man (Allport and Odbert, 1936, p. 1).

Allport and Odbert were careful to steer a course between the reification of terms as realist codifications of so-called personality traits and conventional nominalist attributions that were, they averred, “a mixture of ethical, cultural and psychological interests” (Allport and Odbert, 1936, 20). Nevertheless, they insisted, like Klages before them, that “common usage establishes a pre-supposition that some human beings possess actual dispositions or traits roughly corresponding to these symbols” (Allport and Odbert, 1936, p. 20). In their book, Allport and Odbert selected 17,953 words that could “distinguish the behavior of one human being from that of another” (Allport and Odbert, 1936, p. 24). They pared down this large number to 4504 “primary traits”, such as sociable, aggressive, and fearful, which they defined as “generalized and personalized determining tendencies—consistent and stable modes of an individual’s adjustment to his environment”, and categorized the remainder as temporary moods or activities, physical characteristics, capacities or talents, and censorious—social or character—judgments (Allport and Odbert, 1936, p. 26; Oliver and Srivastava, 1999).

Neither Allport nor Odbert subscribed to eugenic ideas, in fact, they found the data collected by the Eugenic Record Office—which purported to “afford a vocabulary for the use of those who are attempting the analysis of personality”—to be entirely inadequate to the task, remarking that “it includes 3000 entries, but over half of these pertain to physical peculiarities (abscess, acne, albinism, ingrowing toenails, and the like), and many others are racial or occupational designations. The classification includes relatively few psychological trait-names” (Allport and Odbert, 1936, p. 23). Their ultimate choice for the empirical bedrock of words from which they were to choose their personality traits was the 1925 edition of *Webster’s New International Dictionary*. This source betrays a close eugenic connection.

Dictionaries, of course, are written by people; they are not objective and neutral repositories of meaning. Indeed, the words found between their covers are typically those used and understood by the affluent and the well-educated; in other words, a dictionary’s words are inflected by the social and class interests of those who write, read and use them. This was certainly the case with *Webster’s New International Dictionary*, whose chief editor was former United States Commissioner of Education, William Torrey Harris.

A product of Phillips Academy and Yale, William Torrey Harris was a progressive educational reformer preoccupied with notions of degeneracy and crime, and with what he characterized as “the weakling classes of society—the paupers, the insane, and the criminals, who”, he said, are “grow[ing] apace with the rapid increase of cities” (Torrey Harris, 1898, p. 5). Although he publicly distanced himself from eugenics, as vociferously advocated throughout the 1890s by his assistant Arthur MacDonald (Gilbert, 1977), he nevertheless subscribed to a “soft”, though no less pernicious, form of Haeckel’s recapitulation theory, believing that societies, like individuals, progress through a series of stages from children and savages to adults and citizens. In his view, non-White cultural groups represented earlier—inferior and childlike—states of development that would require the tutelage of superior European (Americans) if they were ever to become truly civilized (Fallace, 2012). As he put it:

In all branches of science it is known that comparative study, that is to say, a comparison of one order of beings with another, is very fruitful and suggestive. The physiology of man has been compared with that of various orders of the lower animals and with plants. This comparative study

has led to an insight into the order of historical development and into the idea of arrested growth and of survival of lower stages of development in more advanced epochs. This study is very profitable in education; in fact, the school has to deal very often with children whose growth has been arrested at some low stage and fixed at that point. Much of the difficulty in dealing with the problem of the slums in our fast-growing cities is due to this circumstance (Torrey Harris, 1898, p. 4).

One cannot escape the racial—and hereditarian—aspects of Harris’s ideas about evolutionary development and their clear affinities with eugenicist thought, or with the colonial projects undertaken by the US in the wake of the Spanish-American war (Torrey Harris, 1899). According to Harris’s introduction to *Webster’s*,

What greater help to the self-instruction of [the American] people [could there be] than a dictionary that should be a key to the wisdom of the English-speaking race.... The Anglo-Saxon race has continued to become more and more a cluster of nations that is active on the borderland of the civilized world. With the industrial results of science and the application of the powers of nature to the subjugation of the elemental forces, the race has been joined gradually by the other races one after the other, until at present the home-staying nations have learned or are learning the lesson and are joining the people who are to take possession of the earth in the interest of the highest civilization. Not a savage people but shall be put to school to learn... intercommunication of experience and ideas. In this intercommunication the English language is to play a leading part (Torrey Harris, 1911)

An echo of Harris’s educational beliefs can perhaps be detected in the words of Klages that began Allport’s and Odbert’s study, it also shows a marked similarity to the work of another of Klages’s followers, Ernst Krieck, author of *Persönlichkeit und Kultur* (1910) and principal philosopher of Nazi education in the 1930s and 40s: “Language”, he said, “is not simply a pure external form; a good language is not an ornament of life. Rather, it expresses thought in its *Völkisch* form and in its essence. Hence, the cultivation of language means simultaneously the cultivation of thought and character” (Quoted in Lebovic, 2013, p. 195).

For Harris, education—as enclosed between the covers of *Webster’s New International Dictionary*—aimed to stave off degeneracy by preserving and extending the civilization of the superior races; he conceived his work as part of a grand evolutionary struggle for the survival of the fittest. Harris argued for a form of neo-Lamarckian evolutionary progress where “individual efforts at adaptation become social through heredity” (Torrey Harris, 1909, p. vi). For him, education was the most important aspect of this progress. Evolutionary development, from savagery to civilization, recapitulated the development of children into adults; this, he believed, needed to be carried out by the “introspection” of those endowed with superior understanding, i.e., mature white Europeans like himself. He quoted Wilhelm Wundt to support this notion of “evolutionary” development:

Since in the investigation of children and of savages, only objective symptoms are in general available, any psychological interpretation of these symptoms is possible only on the basis of mature adult introspection which has been carried out under experimental conditions. For the same reasons, it is only the results of observations of children and savages which have been subjected to a similar psychological analysis, which furnish any proper basis for conclusions in regard to the nature of mental development in

general (Torrey Harris, 1909, pp. viii–ix; Fallace, 2012, p. 524).

In this regard, Harris's views were attuned to an elitist state sponsored solution to the problem of degeneracy, where individuals (and individual social groups) were subordinated to the survival of the fittest for the good of Western civilization; “the individual exists not for himself”, he argued, but for the use of “the state” (Torrey Harris, 1902, pp. 50–51; Quirion, 2018, p. 8). Thus, despite his attempts to distance himself from eugenics, Harris embraced many of its key tenets.

The Sordid G of Charles Spearman

While Charles Spearman did not take up the study of the Lexical Hypothesis, he helped develop the statistical tools through which Allport and Odburt's work could be carried forward. Spearman conducted his graduate work under the supervision of Wilhelm Wundt, founder of the Institut für Experimentelle Psychologie in Leipzig and regarded by many to be the “father” of experimental psychology. Spearman joined his laboratory in 1897, receiving his doctorate in psychology in 1906. While in Leipzig, he worked less with Wundt than with his student, Oswald Külpe, who had rebelled against his Doctorvater's notions of mental causality to root psychology in corporeal experience instead, that is, in physiology and biology (Kusch, 1995, pp. 143–145). This had the effect of opening-up higher mental processes, such as intelligence, to experimental analysis, something that Wundt had resisted, but which was to orient Spearman's research for the rest of his life. From his years in Leipzig, Spearman worked tirelessly to localize intelligence as a differentiable heritable trait that could be experimentally investigated, statistically analyzed, and eugenically harvested.

One of the most significant relationships that Spearman cultivated in Leipzig was with Felix Krueger, who was to succeed Wundt as chair at the Institute in 1917. Today, Krueger is well-known for his role in founding a “holistic” psychology (*Ganzheitspsychologie*), which aimed to transform Wundt's wide-ranging research on *Völkerpsychologie* into a nationalist *Völkisch* ideology of “blood and soil” (Klautke, 2013, p. 88). Krueger's holism followed in the same current of anti-rationalist vitalism as Klages' philosophy (Geuter, 2003, p. 202; Harrington, 1995). Many of his theories, especially on the psychology of the community and the concept of the supra-personal whole (*Ganzheit*) of the *Völk*, were to become key components of National Socialist ideology (Varshizky, 2017, p. 248; Mandler, 2006, p. 129). It is thus not surprising that Krueger shared Klages' deep-seated animosity toward the corrupting presence of Jews in Germany, or that he was among the first to join the nationalistic anti-Semitic society associated with the Nazi ideologue Alfred Rosenberg, the *Kampfbund für deutsche Kultur* (the Militant League for German Culture).

The early collaboration of Krueger and Spearman resulted in their 1907 paper on the positive correlation of different mental abilities, which Spearman called generalized intelligence, or *g*: the measurable mental energy governing all cognitive activity (Krueger and Spearman, 1907; Spearman, 1904; Gould, 1996, p. 281ff). There were clear affinities between his notions of *g* as mental energy and the work of Klages and Krueger, who similarly stressed that psychology should turn from “sensations and epistemology” to an appreciation of the “mind or soul” (Gould, 1996, p. 77).⁵ Krueger's holistic approach, which focused on the ability to gather the diverse elements of perception into a structured whole, seems closely entangled with Spearman's notion of *g* as the expression of a general intelligence correlated across the evidence of multiple trials of the intellect. The synthetic power of unification postulated by *Ganzheitspsychologie* under National

Socialism, like Spearman's eugenically inspired *g*, found expression not only in the different cognitive abilities of individuals, but in the intellectual hierarchies found among different races. This view was to take its most extreme form with another of Wundt's students, and follower of Krueger, Friedrich Sander, who argued for the elimination of the impurities that infected the racial whole, and such eugenic solutions as forced sterilization of “inferior hereditary stock”, and the “eradication of the Jewish parasitic growth” (Quoted in Ash, 1998, p. 343).

Just as important as the fatuous—and eugenic-fueled—understanding of the heritability of mental energy of *g* in Spearman's work, were the mathematical methods of multivariate factor analysis he pioneered (Norton, 1979, pp. 142–143; Spearman, 1904). Factor analysis aims to describe underlying correlations between unobserved conjectural variables as causes contributing to correlations among those that can be observed. Like the gravitational effect of an invisible star on the orbit of distant sun, factor analysis makes the invisible visible as a statistical object of analysis.⁶ Thus, Spearman argued that underlying the positive correlation of ranked variables found in the results of students on different cognitive tests was evidence to support an inferred common latent variable or source trait, which he called general intelligence (Spearman, 1904). *G*, as Spearman conceived it, was a causal entity, responsible for variations of intelligence. Not only was it heritable, it was found in its most energetic and vital form among men like himself—intellectual elites comprising Britain's professional middle classes. The human consequences of this notion of *g* were enormous, providing the tools and justifications to rank people, and peoples, numerically on a unilinear scale of intellectual and moral worth (Gould, 1996, p. 269).⁷ This was at the heart of Spearman's ambition to restructure society on a rational—eugenic—basis.

Thus, for example, in the Introduction to his Magnum Opus, *The Abilities of Man* (1927), Spearman quotes a “writer of well deserved authority” who wrote the forward to Carl Brigham's influential book, *A Study of American Intelligence* (1923):

“Two extraordinarily important tasks confront our nation”, this writer argues, “the protection and improvement of the moral, mental, and physical quality of its people and the reshaping of its industrial system so that it shall promote justice and encourage creative and productive workmanship” (Spearman, 1927, p. 7).

For Spearman, these tasks could be successfully accomplished by intelligence testing. As he put it, “an accurate measurement of everyone's intelligence would seem to herald the feasibility of selecting the better endowed persons for admission into citizenship—and even for the right of having offspring” (Spearman, 1927, p. 8; see also Spearman and Hart, 1912, p. 78).

It is worth noting that the unnamed (though authoritative) author Spearman quotes was Robert Yerkes, the psychologist responsible for developing and conducting the Alpha and Beta Intelligence Tests given to soldiers in the US army during WWI. Brigham was one of Yerkes's assistants during the Army tests. In his book, Brigham revisited the data of their study with the explicit aim of determining whether intelligence could be correlated with race. He concluded in the affirmative, arguing that the “Nordic” races were of superior intelligence, while the “Alpine” (Eastern European), “Mediterranean” and “Negro” races were manifestly inferior. His book concluded that “American intelligence is declining, and will proceed with an accelerating rate as the racial admixture becomes more and more extensive. The decline of American intelligence will be more rapid than the decline of the intelligence of European national groups, owing to the presence here of the negro. These are the plain, if somewhat ugly, facts that our study shows. The deterioration of American

intelligence is not inevitable, however, if public action can be aroused to prevent it” (Brigham, 1923, p. 210). This “public action” followed almost immediately. Brigham’s arguments were quickly taken up by Harry Laughlin of the Eugenics Records Office in lobbying Congress for the Johnson-Reed Immigration Act of 1924, the passage of which was lauded by Adolph Hitler as indicative of America’s obeisance “at least in tentative first steps, to the characteristic *Völkisch* conception of the state” (Whitman, 2017, p. 63).

Although he only quoted from the beginning of Yerkes’s Forward to *A Study of American Intelligence*, Spearman surely would have also agreed with its conclusion:

The volume which is the outcome of Mr. Brigham’s inquiry, and which I now have the responsibility and satisfaction of recommending, is substantial as to fact and important in its practical implications. [...] *The author presents not theories or opinions but facts. It behooves us to consider their reliability and their meaning, for no one of us as a citizen can afford to ignore the menace of race deterioration or the evident relations of immigration to national progress and welfare* (Brigham, 1923, p. vii, my emphasis).⁸

Factoring words

The early work of Cyril Burt reinforced Spearman’s understanding of *g* as an innate inherited energy, pushing Spearman to elucidate more clearly the mathematical methods that made the discovery and exploitation of *g* possible (Lovie and Lovie, 1993). Burt was a generation younger than Spearman, who he eventually succeeded as Chair of Psychology at the University of London. He first became aware of Spearman’s work shortly after graduating from Oxford when he was recruited by William McDougall to help carry out the nationwide survey proposed by Galton on the physical and mental characteristics of the British people in 1907. Burt’s 1909 work on “intelligence” testing of students from two schools in Oxfordshire (thirty working-class boys from an elementary school and thirteen upper-class boys from a public school) provided, or so he thought, definitive proof of the correlation of intelligence with social class. As he said:

Wherever a process is correlated with intelligence, these children of superior parentage resemble their parents in being themselves superior.... Proficiency at such tests does not depend upon opportunity or training, but upon some quality innate. The resemblance in degree of intelligence between the boys and their parents must, therefore, be due to inheritance. We thus have an experimental demonstration that intelligence is hereditary (Quoted in Gould, 1996, p. 307).

Thus, Burt concluded with a classic eugenic question, might “humanitarianism and philanthropy... be suspending the natural elimination of the unfit stock”? This, he continued, “makes the question whether ability is inherited one of fundamental moment” (Quoted in Gould, 1996, p. 305).

After Spearman’s death, Burt attempted to claim credit for the “invention” of factor analysis (Lovie and Lovie, 1993). Attribution here, however, is less important than the durability of the connections between the eugenics of Galton, Pearson, Spearman, and Burt (and later, Fisher and Cattell), and the statistical methods they developed and exploited. All these men shared a lifelong commitment to the study and implementation of positive and negative eugenics. They were all members of the Eugenics Society, and they all published in the *Eugenics Review*. Moreover, though they were far from friends, they all strived to further their common goal of transforming eugenics into a practical tool in the fight against degeneracy.

The statistical methods they developed to further their eugenic ideology were also crucial to carrying forward the work of trait psychology by making the mathematization of the lexical hypothesis possible. Indeed, to be of any use to personality psychologists, the number of character traits identified by Allport and Odburt needed to be reduced further; thanks to the work of Spearman and Burt, the tools to do so were in place. It fell to their acolyte, Raymond Cattell, to take up the task of refining these tools and applying them to the work of uncovering the relatively small number of fundamental traits underlying personality.

Cattell’s reduction: a periodic table of personality

Raymond B. Cattell began his studies with chemistry and physics, but was prompted by hearing Cyril Burt lecture on Francis Galton to pursue psychology instead. This shift was motivated by Cattell’s “progressive” outlook—his desire to implement scientifically informed social change to combat “the irrationalities of politics and to arrest what [he believed] to be degenerative, e.g., dysgenic, trends in social life” (Cattell, 1974, p. 6; Tucker, 2009, p. 8). He studied with, among others, Charles Spearman, Cyril Burt and Ronald Fisher, learning and excelling in the study of statistics that they pioneered, while also enthusiastically embracing their eugenic beliefs. In the early 1930s he taught at the University of Exeter and received a Darwin Fellowship to conduct research on the “decline of intelligence” in England. In his studies, Cattell found what he believed was sure empirical evidence of societal decline in the strong negative correlation between intelligence and family size. The working classes and poor had large (and less intelligent) families, the wealthy and professional classes had relatively small families, though they were, of course, more intelligent. He published his results in his 1937 monograph *The Fight for Our National Intelligence*; in it, he argued passionately for drastic action to prevent the population from being overwhelmed by the progeny of the lower orders—by “dull and defective” “sub-men” who he likened to the atavistic Morlocks of Earth’s future as described by H.G. Wells’ in *The Time Machine* (Cattell, 1937, p. 124ff).

That same year Cattell left for America, first to Columbia and Clark universities and then to Harvard, where he joined the faculty of psychology at the invitation of Gordon Allport. A few years later, in 1945, he moved again, this time to the University of Illinois, Urbana Champaign.

Cattell was a firm believer in the Lexical Hypothesis; as he put it, “all aspects of human personality which are or have been of importance, interest, or utility have already become recorded in the substance of language” (Cattell, 1943, p. 483). He thus devoted himself to refining the list of 4504 primary traits identified by Allport and Odburt to a more manageable number through the development and use of multivariate factor analysis. The first thing he tried to do was “rationalize” their list, refining, adding to and/or weeding out terms and synonyms.⁹ This “semantic sorting” was done by Cattell and a “student of literature”. Cattell claimed—reminiscent of the Septuagint—that his list was then independently replicated by a “practically identical” inventory of synonyms compiled by two unnamed judges. However, it was still too large to allow for the viable use of factor analysis given the limitations of the technologies available to him in the 1940s, so Cattell proceeded by using a cluster approach (using unspecified mathematical techniques) to reduce further the traits he had identified to 171 clusters of highly correlated terms. He then gathered empirical data from the ratings of 100 adults, where an “intimate” but not “emotionally” attached acquaintance, assessed subjects on one of each of the 171 clusters. The result was resolved into a matrix of 14,535 tetrachoric correlations, which, when transferred to paper, covered an area of 14 square

feet. Cattell used this matrix to identify a smaller set of representative variables that would contain as many of the initial 171 clusters as possible. This resulted in 35 variables, which he claimed were the underlying and objective traits defining personality. However, his work of reduction was not done. Using 13 groups composed of 16 adult males each, he applied the mean of the rank order on every variable, as determined by two judges, to form a new matrix of correlation. From this he discerned 12 fundamental latent factors, which formed the foundations for further empirical studies using L-data (observer ratings), Q-data (questionnaires) and T-data (laboratory testing), all of which contributed to further specification and refinement. He subsequently added four more traits, which could only be determined by Q-data, to come up with a final solution of 16 lexically based building blocks of personality, e.g., abstractedness, warmth, apprehension, emotional stability, liveliness, openness to change, perfectionism, etc. These, he claimed, “constituted natural elements, logically equivalent to elements in the physical world” (Murphy Paul, 2004, p. 178). After 1952, Cattell’s research was given further precision using the Illiac I (Illinois Automatic Computer), which Cattell referred to as the “sacred” Illiac, the world’s first computer built and owned by a private educational institution (see Fig. 2). The computer allowed him to crunch numbers and do analysis that would have otherwise been impossible. This ability was instrumental in the genesis of the widely used and influential 16 factor personality test, Cattell’s theories regarding fluid and (hereditary) crystallized intelligence, his work on extending and refining the techniques of multivariate factor analysis, and in creating his new, secular, eugenic religion of Beyondism.

Beyond the pale

Cattell, of course, was not only an esteemed and respected Professor of Psychology, he was also an ardent eugenicist who (from the 1930s until his death in 1998) promoted top down eugenic solutions to the world’s social and political problems. These were not simply his “private” views, they were intimately entangled

with his scientific research (Tucker, 2009; Winston, 1998a; Mehler, 1997a).

The computer was to become central to this work, as were the “teams of helpers”, the “laboratory facilities”, and the financial wherewithal to support them all. Writing in *Beyondism: Religion from Science*, he argued that it was through this infrastructure of technical and institutional support that individual genius would be able to provide a “rational” foundation for “social thought” (Cattell, 1987, p. 440). In his case, large-scale factor analysis, carried out on the University of Illinois Illiac computer, would supply him with quantitative measures of personality that would be the psychological equivalent of Mendeleev’s periodic table (Revelle, 2009). This would be just the first step; one day, he wrote in his Mankind Quarterly Monograph, *How Good is Your Country* (published by Pearson’s Institute for the Study of Man, 1994),¹⁰ that science would be able to assess “individual worth, not just someone’s cognitive abilities, physical capacities, or temperament traits, but their basic value as human beings” (Cattell, 1994, p. 43, as cited by Tucker, 2011). For Cattell, the Illiac would weaponize factor analysis as a tool of “progress” that would lead to the realization of his dreams of a eugenically organized society.

Beyondism clearly points to the formative influence of Galton on Cattell’s thought; indeed, it is entirely consonant with the “scientific religion” of eugenics that Galton had imagined. Like his mentors, Cattell was an ambitious man; he was not interested in parochial eugenic interventions, he believed that factor analysis, teams of helpers, and computers, could scale-up the possibilities of his new periodic table of personality traits to the supranational level, and thus to questions of the “worth” of national cultures or, as he sometimes referred to them, “tribes”. As William Tucker has observed, for Cattell, “the entire project of defining and measuring the human personality... found its ultimate *raison d’etre* as the source of data to be used in the scientific determination of nations’ futures” (Tucker, 2009, p. 60; Cattell, 1950; Cattell et al., 1952). Anne Murphy Paul well-describes Cattell’s vision for the future:



Fig. 2 The Illinois Automatic Computer, the Illiac I, c. 1952. Courtesy of the University of Illinois Archives.

Cattell imagined that the entire globe would serve as a huge laboratory in which “the variation and natural selection which now take place in our world haphazardly” would be consciously monitored and managed. Human beings would be divided into discrete ethnic and cultural groups; these groups, kept separate from one another, would be encouraged to engage in unfettered competition. Each group’s success or failure—its ability to prosper economically, remain physically healthy, reproduce abundantly, generate great works of culture—would provide the ultimate judgment on its fitness (Murphy Paul, 2004, p. 181).

Cattell lamented that eugenics had become something of a bad and opprobrious word, and that “necessary reductions” of population had become associated with the word “genocide”, which he considered a term of propaganda. He argued, for “clarity” sake, that the word “genocide” should be reserved for “a literal killing off of all living members of a people, as in several instances in the Old Testament, and *genthanasia* for... ‘phasing out’, in which a moribund culture is ended, by educational and birth control measures” (Cattell, 1972, p. 221).¹¹ Terminological gymnastics aside, Cattell’s science was an expression of his eugenic beliefs, and vice versa. It should come as no surprise that his circle of associates in the last decades of his life extended far beyond statistically minded psychologists, to like-minded intelligence researchers, such as Hans Eysenck, Arthur Jensen, Charles Murray, Richard Herrnstein, Richard Lynn and Robert Gordon, and such virulent anti-Semites, white nationalists, neo-Nazis, and professional right-wing racists as Revilo Oliver, Wilmot Robertson, Roger Pearson, and Robert Graham (Winston, 1998b; Mehler, 1997b; Tucker, 2009, pp. 130–138). However, these kinds of associations were not new for him; indeed, the fringe was not always so fringe; thus, he counted among his early influences not only Galton, Spearman, Burt and Fisher, but such noted fellow travelers in left-leaning “progressive” eugenics as Huxley, Wells and Shaw, and such (infamous) race “scientists” as Arthur de Gobineau, Hans Günther, and Mathilde Ludendorff (Tucker, 2009, pp. 128–129 and Poewe, 2006, p. 74). Cattell was, by his own account, and those of many of his supporters, neither a racist nor an anti-Semite, despite his ecumenism regarding his choice of colleagues, or indeed his intellectual role models! There is, however, no escaping the fact that Cattell’s scientific religion of Beyondism, like its earlier Galtonian incarnation, was profoundly racist. As Mehler (1997a, p. 54) aptly states: “While Cattell’s Beyondist ideology is hardly original, it is striking for its extremism, racism, and virulent bias against the poor”.

The spectre of others and the truths of personality

The Big Five Personality inventory used by Cambridge Analytica is the descendent of Cattell’s pioneering work (Francic et al., 2014, pp. 591–592). Cattell’s early research identified five “second order” factors (independence, self-control, extraversion, tough-mindedness, anxiety), which roughly correspond to those of the Big Five; he argued, however, against their growing popularity, warning that “greater accuracy of prediction” would be attained by using his more precise list of 16 primary traits, where less information would be “thrown away” (Cattell et al., 1970, p. 127; see also Boyle, et al., 1995, p. 431). Despite Cattell’s admonitions, the Big Five had begun to supplant his Sixteen Factor model by the time of his retirement from University of Illinois in the early 1970s. Nevertheless, as William Tucker has pointed out, “Cattell is acknowledged by everyone in this field as its pioneer, the scientist whose work brought the study of traits into the modern era and made it possible even to raise the question. Researchers who disagree with Cattell’s conclusion have nevertheless regarded his

research as the standard to which all subsequent work had to be compared and invariably begin their own studies by acknowledging his role as the field’s founder and expressing homage for his achievements” (Tucker, 2009, p. 44).

The Five-Factor model, like its Sixteen Factor forefather, claims to have uncovered “biologically based psychological tendencies”—personality traits—causally related to observed and self-reported test responses (McCrae et al., 2000, p. 173). However, rather than digging-down into the fundament of human personality, these traits—like Cattell’s 16—can better be understood as artifacts of the methods used to identify them (Francic et al., 2014, p. 592), beginning with the lexical hypothesis’s naive assumptions regarding the relationship of language to reality. Indeed, there is no such thing as an atheoretical or unbiased taxonomy of personality traits—an objective “periodic table” of qualities (derived from common language) definitive of human behavior; nor are there neutral, unloaded, apparatus or methods that can neutrally probe for them. Human personality traits are far too complex, too wild, too capricious, and intractable to live within the confines of the names psychologists use to define them. Moreover, there are many biases entangled in decisions about which words to choose and which to exclude, how to test for them, and how to crunch the resulting data. Thus, for example, Principal Components Analyses (PCA)—the primary statistical method used to excavate the Big Five’s foundational traits—is a formative rather than a reflexive model; which is to say, as Borsboom puts it, that it “conceptualizes constructs as causally determined by the observations, rather than the other way around” (2006, p. 426). If such constructs were “real”, Borsboom continues, then causative latent factors identified by PCA should, in theory, be reproducible through Confirmatory Factor Analysis (CFA). However, as he points out (2006, pp. 426–427, my emphasis),

with respect to the Big Five, CFA gives Big Problems. For instance, McCrae et al. (1996) found that a five-factor model is not supported by the data, even though the tests involved in the analysis were specifically designed on the basis of the PCA solution. What does one conclude from this? Well, obviously, because the Big Five exist, but CFA cannot find them, CFA is wrong. “In actual analyses of personality data [...] structures that are known to be reliable [from principal components analyses] showed poor fits when evaluated by CFA techniques. We believe this points to serious problems with CFA itself when used to examine personality structure” (McCrae et al., 1996, p. 563).

It would be difficult to find a better example of what Harry Collins has described as the experimenter’s regress: we know that experiments are accurate and true if they produce the “right” outcomes; if they do not, the fault lies with the experiment—with its design, its methodology, its apparatus, or its performance (Collins, 2016, p. 66). The Big Five, in seeking to escape this circularity, falls prey to what Alfred North Whitehead has called “the fallacy of misplaced concreteness”, confusing categories of thought with the obdurate character of the empirical world” (Duster, 2005, p. 1050, see also Gould, 1996, p. 281).

While not claiming that the progeny of Cattell’s multivariate analysis of lexically based traits was uniformly motivated by the same eugenic views that inspired Spearman, Burt, Fisher, and Cattell (indeed, there is no reason to believe that Costa and McCrae, or Norman, Goldberg, or Kogan and Kosinski—or any of the many others who have worked on, or with—the Big Five, were in any sense eugenicists), a plausible argument can still be made that there was, and indeed is, a close affinity between the ideas put forward by adherents of eugenics, and the development and uses to which the statistical theories associated with the

Lexical Hypothesis, factor analysis and trait psychology have been put. If, as McCrae suggests, “the chief task of psychology is to understand, predict, and control behaviors (McCrae and Sutin, 2018, p. 158), then psychology would need tools, methods, skills and knowledge appropriate to this task. For trait psychologists, naming, testing, counting, and sorting are anything but arbitrary; rather, they are axiomatic of real qualities mineable by sophisticated experimental methods and statistical techniques strongly bound to institutionally sanctioned notions of proof, knowledge, status and authority. The socio-professional identity that grew within the matrix of these methods and their fields of application has much in common with eugenics, substituting psychological distinctions for social ones in mapping out hierarchies of power and authority. Cattell, for example, makes the case for establishing clear gradations of human worth and intelligence; thus, he contends, “the time has surely come when those rationalists, thinking liberals, sociobiologists [sic], and scientifically progressive, educated persons of all origins, begin to gather the strength for social and spiritual leadership” (Cattell, 1987, p. ix). This, by contrast, was why the procreative power of the unfit was considered so dangerous, as Cattell’s mentor, Ronald Fisher notes, “the elimination of professional stocks constitutes the elimination from the race of just those qualities which we recognize as most valuable in the working of a civilized society” (quoted in MacKenzie, 1981, p. 196).

Donald MacKenzie, in his important book on the history of statistics in Britain, has persuasively argued that the social interests of the rising professional classes in Britain were integral to the co-development of statistics and eugenics (MacKenzie, 1981, pp. 25–31), both in drawing boundaries around the status of their practitioners, while also establishing how others—the urban poor, and the racially and ethnically “unfit”—were to be identified, understood, studied and controlled. It is important to note in this regard that the professional middle classes in Britain, especially those associated with the sciences, were forged in the making and maintaining of empire (Thompson, 2005, pp. 26–29). This close connection was brought home, literally, by the debacle of the Boer War, which was articulated through a eugenic lens to explain defeat in terms of urban degeneration; indeed, the lack of fitness among the working-classes posed a profound problem for which “experts” armed with statistics and eugenics offered possible solutions. In this sense, the imperial project defined the habitus of the professional middle classes not only in relation to the working classes, but also to colonial subjects more generally, with the “imperial” territories of Britain’s major urban centers becoming, like its overseas possessions, laboratories for the collection of bio and psychometric data and for thinking about the “dysgenic” consequences of racial mixing, immigration, social welfare policy and the effects of charity and medical improvement for the evolution of the species (for example, MacKenzie, 1976, pp. 516–517; MacKenzie, 1981, p. 39; Sengoopta, 2003). While the “respectability” of men like Pearson, Spearman, Fisher and Cattell, might have masked the profoundly discriminatory and xenophobic contours of their milieu (Stone, 2001), their writings and their prescriptive aspirations point not only to attempts to solidify their social status vis à vis the lower classes and the dead weight of unmerited aristocratic pretensions, but to a pervasive fear that the destruction of Western Civilization by a process of reverse colonization was imminent. Such a view is entirely consistent with Cattell’s Beyondism, where the “unfit” were clearly synonymous with immigrants, the non-white and the poor.

Cattell posed the problem of fitness, power and social success in the starkest terms possible: “Let us come”, he says

to an illustration of basic facts in the form of two personal acquaintances. “A” is a classics professor—famous for his

researches, with a deep grasp of the political and social wisdom of the ages. “B” is an ordinary person who does some gardening for me. He has been in jail for petty theft; he can barely read the newspaper. Yet in democracy as now practiced, the wishes of B in public affairs can completely cancel A’s long-sighted contribution to the community (Cattell, 1987, p. 223).

One can say, with some certainty, that the classics professor referred to above was Cattell’s colleague at the University of Illinois, Revilo Oliver. Oliver was a neo-Nazi well-known for his extremist views. Cattell had a close relationship with Oliver, corresponding with him regularly throughout the 1980s. In one of his letters, Cattell recommended Jean Raspail’s book, *The Camp of the Saints* (June 10, 1980). *The Camp of the Saints* is a “stunningly racist French novel” frequently cited by Steve Bannon and other high-ranking officials of the Trump administration when advocating draconian restrictions on immigration (Blumenthal and Rieger, 2017). The novel tells the tale of the West’s apocalyptic demise (its degeneration) as black and brown immigrants flood across Europe’s borders. Oliver responded, thanking Cattell for the recommendation, and commenting that *The Camp of the Saints* was “a vivid illustration of the paralysis of mind and will induced in our race by fifteen centuries of Christian superstitions” (23 July, 1980).¹² No doubt, among the most egregious of these superstitions, from Oliver’s point of view, were notions of empathy and charity promulgated by what he called the “liberal voodoo cult” (Oliver, 1973, np).¹³

Oliver greatly admired Cattell’s work, seeing him as a sympathetic interlocutor in his quest to establish a right-wing populist movement in America. Democracy, he believed, was only possible in the United States because it had been colonized by a relatively homogenous “tribe” of Europeans who were of pure Aryan stock. However, because of unbridled immigration, and the prolific procreation of the unfit, any pretense to democracy, he argued, would “have to begin by deporting, vaporizing, or otherwise disposing of the swarms of Jews, Congoids, Mongoloids, and mongrels that now infest our territory and are becoming ever more numerous and audacious in their unappeasable hatred of us. I cannot suggest offhand a convenient way of effecting that indispensable epuration of the population, but I am willing to believe that it could still be carried out” (Oliver, 1982, np). While Cattell, unlike his Classics professor colleague was more circumspect in publishing his opinions, his Sixteen Factor Model, like its Big Five descendant, developed within the same socio-cultural status/class concerns associated with statistically fueled eugenics. While it’s clear that Cattell’s was an elitist who, like his intellectual peers and forefathers, saw knowledge, power and authority as flowing from social success of the new professional classes, his views also fused professional and class/status characteristics with ethno-nationalism, white identity politics and anti-Semitism (despite avowals to the contrary). Indeed statistical models of personality and intelligence, once reified into causal entities, could easily be transferred and affixed to individuals and groups to identify them as carriers and embodied targets: those who were eugenically “fit” and those who were not. In this sense, eugenics has stowed away in lexically based models of personality and the statistical methods used to operationalize them. This does not mean that those who work within the domain of the Big Five are all eugenicists, but rather, that the Big Five “evolved” out of work done with an expressly eugenic purpose. Though it might be difficult to find all these associations at play in the work of Costa and McCrae, or Norman, or Goldberg, we can, I believe, see elements of this inheritance at work among the psychometricians at Cambridge Analytica.¹⁴

Trumping the science of race

Robert Mercer bought a 90% stake in Cambridge Analytica 2015 and charged Steve Bannon with realizing his goal of “engineering” US elections. Before becoming a billionaire Trump donor Mercer was a computer scientist working on machine translation, designing statistical algorithms that could utilize data found in bilingual texts to detect patterns that could be used to predict probable translations without recourse to semantic analysis. In the early 1990s, he turned his statistical and computing talents to developing investment strategies at the hedge fund, Renaissance Technologies, where he and his colleagues developed algorithms to calculate statistical probabilities of price change and computational investment schemes that exploited Big Data to make predictions without reference to underlying economic or financial theories. He made billions of dollars doing this. It is perhaps worth noting that Mercer received his doctorate in computer science at the University of Illinois Urbana-Champaign in 1971. Raymond Cattell, Distinguished Research Professor of Psychology retired from University of Illinois Urbana-Champaign a year later; he spent much of his career working in the same computer lab where Mercer worked as a doctoral student. Did Mercer know Cattell? This cannot be said with any degree of certainty, despite both having expressed a common love for the Illiac. As Mercer said:

I learned a lot of fascinating things at the [Kirtland Air Force Base] weapons lab weapons lab], but perhaps the most important thing that I learned was that I really loved everything about computers. I loved the solitude of the computer lab late at night. I loved the air-conditioned smell of the place. I loved the sound of the disks whirring and the printers clacking. I loved thumbing through listings. I even loved Hollerith cards. So when I left UNM and the weapons lab I forsook the graduate study of mathematical logic that I'd been planning and headed off to the U of I to study computer science and to help with the ILLIAC IV (Post, 2013).

The fact that there are so many coincidences at play here should not diminish the reality of clear correlations between eugenicist ideology and the statistical methods employed by the computational worker bees at Mercer's electoral laboratory, Cambridge Analytica (just as they did for Galton, Pearson, Spearman, Burt and Cattell). Recall that the computer algorithms that Cambridge Analytica claimed to be using sought to harness psychometrics based on the Big Five model to stolen Facebook data to manipulate voters. The Chief Technology Officer at Cambridge Analytica responsible for designing these algorithms was Christopher Wylie. In his recent memoir, *MindF*ck*, Wylie (now a whistle-blower) writes that he first became interested in the power of machine learning for electoral modeling when he saw how effectively the Obama campaign had put such algorithms to work in their get-out-the-vote and messaging strategies. Curious, he began to explore how to construct them on his own. He did this, he recounts, by “playing with the Iris data set.... Once I understood the basics”, Wylie says, “I switched from petals to people” (Wylie, 2019; Fisher, 1936).

The Iris Flower Data Set was a statistical tool developed by Karl Pearson's successor as Galton Chair of Eugenics at the University of London and one of Cattell's illustrious mentors, Ronald Fisher, to solve problems associated with the “use of multiple taxonomic measurements to differentiate biological species”, in this case, three species of iris flowers (Yates, 1966, p. 238). Previously, Pearson had devised his “coefficient of racial likeness” as an attempt to classify correlations among the races using biometric data collected from different human skulls. Fisher, took the opposite tack; charting difference rather than similarities, he came

up with the more versatile statistical solution of linear discriminate analysis, which he applied to the Iris Data Set. This technique proved capable of solving taxonomical problems of classification in biology and physical anthropology (and eugenics), while also having subsequent applications in such diverse fields as pattern recognition, machine learning, and voting behavior, etc. While Wylie and his team were working on machine algorithms channeling Big Five psychometric data, Mercer's man at Cambridge Analytica, Steve Bannon, was inflecting their work toward his own ideological ends.

Prior to investing in Cambridge Analytica, Mercer was the principal backer of Breitbart News, which under Bannon's editorial leadership had become, in the words of the Southern Poverty Law Center, a “white ethno-nationalist propaganda mill” (SPLC, 2016). As a clearing house for alt-right ideas, we can see in Breitbart not only the entanglement of Bannon and Mercer with the fringe right-wing and anti-Semitic figures with whom Cattell associated, but how these affiliations reached out—through Breitbart's staff and readers—to new generations of the alt-right, embracing men such as the influential white nationalists, Jared Taylor.

Jared Taylor is among today's most vociferous advocates of what has come to be known as “race realism”; he is also one of the brightest lights in the alt-right firmament, first given a mainstream platform—along with the likes of Steven Sailer, Peter Brimelow, and Richard Spencer—by Bannon, Breitbart, and their financial supporter, Robert Mercer. “What we believe”, Taylor explains on the homepage of *American Renaissance* is that

the problems of race cannot be solved without adequate understanding. Attempts to gloss over the significance of race or even to deny its reality only make problems worse. Progress requires the study of all aspects of race, whether historical, cultural, or biological. This approach is known as race realism (*American Renaissance*, 2020).

Such ideas are not a *sui generis* invention of the alt-right, rather they are a repackaging of well-worn eugenicist ideas by psychologists such as Henry Garrett, Philippe Rushton and Richard Lynn. Taylor happily acknowledges Cattell's contribution to the “cause” in his gushing interview with the 90-year-old in 1995.

Taylor begins by crediting Cattell with paving the way for works such as “Wilmot Robertson's *The Ethnostate* and Richard McCullough's *The Racial Compact*”. He then proceeds to recount how Cattell explained to him that “Blacks tend to be more emotional and more self-assertive than whites”, with the qualification that certain “subgroups of whites also have different average profiles. Germans, for example have more demanding consciences than Americans, who show greater tendency to hysteria than the English. As for his eugenics work”, Taylor continues, “Dr. Cattell sees the promotion of genetic awareness as one of the crucial struggles of our time. [...] Although Dr. Cattell is encouraged by trends in the United States where, he says, “the public is beginning to follow the scientists”, he sees more rapid progress in Europe. “I think the French are more conscious of the eugenic problem and so, I think, are upper-class Germans. Certainly, among upper-class English there is an awareness of eugenics”. Unfortunately, as Dr. Cattell concedes, “the Labor Party stifled the eugenic movement in the lower-classes” (Taylor, 1995, pp. 6–7).

Clearly, Cattell and his “Beyondist” ideas were closely allied to the “race realism” advocated by Taylor, the alt-right, and the Trump administration, whose immigration policies were cooked-up by Stephen Miller, whose close connection to Bannon, and admiration for Taylor's *American Renaissance*, and Raspail's *The Camp of the Saints*, have been well documented (SPLC, 2019). We can see the evolution (or rather, the consistency) of these ideas

across time by briefly juxtaposing eugenic ideas having to do with immigration with policy positions expressed by the current occupants of the White House.

The whole problem of immigration is fundamental for the rational teaching of national eugenics. What purpose would there be in endeavoring to legislate for a superior breed of men, if at any moment it could be swamped by the influx of immigrants of an inferior race.

—Karl Pearson, 1925

The general conclusion emphasized by near every investigator is that as regards “intelligence”, the Germanic stock has on the average a marked advantage over the South European. And this result would seem to have had vitally important practical consequences in shaping the recent very stringent American laws as to admission of immigrants.

—Charles Spearman, 1927

I think that there’s a happy medium on this matter of diversity, and it has probably been overshot in the U.S. at the present. Alienation is now quite severe, and it’s partly due to wholesale, unchecked immigration. Few politicians seem willing to confront the issue. I think it might not be a bad idea to remove the inscription from the Statue of Liberty which calls for the “wretched refuse” of the other countries to migrate here. This is not what you want to build a nation of. If we have immigration, we ought to have it from the best sources.

—Raymond Cattell, 1984

The whole thing in Europe is all about immigration, It’s a global issue today — this kind of global *Camp of the Saints*.

—Steve Bannon, 2016

Why do we want these people from all these shithole countries here? We should have more people from places like Norway.

—Donald Trump, 2018 (See Wilkie, 2018)

Give me your tired and your poor - who can stand on their own two feet and who will not become a public charge.

— Ken Cuccinelli, 2019

There is, of course, nothing either factual or objective about race realism; rather, like Beyondism, it is an attempt to mainstream eugenics by providing it with a pseudo-scientific aura of legitimacy by arguing that race can be “objectively” defined in terms of “hereditary biological traits”, such as skin color, temperament and intelligence, with black and brown races typically correlating as less intelligent and more impulsive than northern whites. As such, race realism extends from biocentric notions of group (ethnic) worth (or lack thereof), to realpolitik (ethno-nationalist) justifications for the social and political subordination/exclusion of so-called racially inferior peoples by more advanced white Europeans (Main, 2018, pp. 176–181). According to Wylie: “The alt-right, led by Bannon and Breitbart, adopted race realism as a cornerstone philosophy” (Wylie, 2019).

Bannon’s work at Cambridge Analytica aimed to leverage longstanding and deep-seated class and racial resentments

festering in the psychological profiles they interpolated from the data that they acquired and stole against a race realist agenda. As Wylie put it, “Bannon transformed CA into a tool for automated bullying and scaled psychological abuse. The firm started this journey by identifying a series of cognitive biases that it hypothesized would interact with latent racial bias. Over the course of many experiments, we concocted an arsenal of psychological tools that could be deployed systematically via social media, blogs, groups, and forums” (Wylie, 2019). The idea, he explained, was to utilize the personality profiles CA constructed for the American electorate as a means of building models that could be manipulated abstractly “in silica”, which could then be scaled-up to micro-target particularly susceptible voters (those with high neuroticism and low openness and agreeableness scores). This was done through social media, “real life” interactions, candidate appearances and messaging that would be echoed—and reinforced—by Fox News amplified Trump slogans, such as “drain the swamp” and “build the wall”, that had been carefully vetted and focus-group tested by teams of Cambridge Analytica researchers. This says Wylie was to “serve as one of the foundations for Cambridge Analytica’s work catalyzing an alt-right insurgency in America” (Wylie, 2019).

Fitting the model and democracy

Fidelity among the Septuagint was demonstrated by agreement, that is, by consensus: all the independently performed translations were the same. However, translation can still be maintained without the overarching agreement of such divinely inspired monks. Indeed, an alternative to consensus can be achieved by eschewing the touchstone of meaning and sowing dissent by disrupting, confusing and infusing the signal of translation with so much noise that small minorities who agree and who repeat themselves often and loudly can be heard above the din. Trump, of course, won by harvesting small electoral minorities of committed acolytes. Targeted appeals to class and racial resentment convinced many to vote for him; conversely, many, particularly minority voters in swing states, were dissuaded from voting at all.

The extent of Trump’s reliance on Cambridge Analytica’s psychometric algorithms is a matter of some dispute, many have argued, for example, that Cambridge Analytica and the Trump campaign relied on tried and true marketing strategies based on regression analysis and simply used the Big Five psychological profiles and their associated Big Data fueled algorithms as scientific window dressing (Benkler et al., 2018; Sumpter, 2018; Confessore and Hakim, 2017). This, however, misses the point. Indeed, eugenics, like race realism, has always been about the purveyance of pseudoscience and the selling of snake oil as an accompaniment to expanded forms of governmentality.

Cambridge Analytica claims were no different. Indeed, the translation of personality into reified measurable traits that can be statistically measured, counted, and scaled, is problematic on many levels, not least of which is the assumption that there are entities called traits that can be derived from an “objective” bedrock of lexical conventions that can describe and explain human behavior. From a slightly different perspective, we might question the translation from actions in social media to these personality traits—that there are, or ever could be, reliable algorithms for deducing such traits from the evidence of on-line behavior; or that mathematical manipulations can be performed on these traits once they have been (arbitrarily) translated into numbers. As with eugenics, truth has no bearing on the saliency of the idea being consumed if there is a will to eat. Part of the work of translation, in this sense, is the exploitation of taste and hunger. This is one of the most interesting aspects of eugenics appeal and longevity—that is, how, racism, xenophobia,

nationalism and resentment can be dressed-up and made palatable by taking on the appearance of being “scientific” and, therefore, “not racist”. Indeed, reliance on measurement, sophisticated statistical techniques, complex and arcane methodologies are, in this case, little more than smoke and mirrors obfuscating the fragility of the divide separating evidence from hokum, proof from falsehood, credulity from psy-ops manipulation, statistical theory from racism. The “performance” of science here is its own tautological end-result, creating imagined causal links between beliefs, the actors who hold them, and the techniques used to measure and manipulate them. In statistics, this is known as “fitting the model”, where predictions are based on prior knowledge of what one is trying to predict. How hard was it, after all, for the Trump campaign, through CA, to target probable unemployed, or under-employed, white working-class voters in swing states, or to assume—and exploit—underlying racist and class resentments against minorities and politically correct coastal liberals, experts and elites.

While Cambridge Analytica is defunct, the methods it championed are alive and well, for example, in new firms such as Data Propria (Latin for personal data) and Auspex (in ancient Rome, a reader of omens) founded by former Cambridge Analytica employees. Across an array of platforms, applications, data mining firms, and AI programs, the infrastructure of licit and illicit harvesting of behavioral data is growing more sophisticated and more widespread. Cambridge Analytica surely exaggerated the successes achieved by its psychometric methods, but there is every reason to believe (and fear) that the linkages it was marketing between personal online data and personality might one day be realized. Allport and Odburt, writing in the 1930s, well-understood that one of the attractions of “depicting personality as accurately and faithfully as possible”, is that when one is armed with such information “the ability to understand and to control one’s fellows is greatly enhanced” (Allport and Odburt, 1936, p. 1). While they viewed “terms” (viz. “traits”) as “corresponding to authentic psychological dispositions”, we should view these putative linkages more as forged statistical impositions than as “objective” touchstones. As Annie Murphy Paul puts this: “From the time the very first personality tests were developed, psychologists attributed stable, consistent personalities to their subjects—not because they had proof such personalities existed, but because the task of assessment (of manipulation, of control) would be much easier if they did” (Murphy Paul, 2004, p. 185). In the present context, however, this reference to “fitting the model”, is scaled-up to even more expansive levels of surveillance and control. Indeed, theories of personality, such as the Big Five, once weaponized and deployed using the Big Data provided by on-line behavior and the smoke and mirrors of statistical/computational techniques employed by firms such as Cambridge Analytica, might one day help persuade, confuse, cajole, coerce and ultimately translate people into the (types of) people that new data manipulation firms (and those who hire them) want them to be. Perhaps that day is already here.

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Notes

- 1 The thin line dividing the translation of *Mein Kampf* as a warning and as Nazi propaganda is discussed by Stone (2008).
- 2 An example of the MyPersonality test can be accessed via <https://my-personality-test.com>.
- 3 It should be noted that Kosinski and his team were scrupulous in their collection of data through their use of consent-based on-line apps.

- 4 Although cognizant of the varieties of eugenics, and their divergent methods and goals, I am here taking a bird’s eye view to present a more general topographical map of eugenics to focus on degeneration, dysgenics, and technocratic rationalism as persistent and consistent themes among the British statisticians discussed here. How scientific, civic and religious leaders embraced (and sometimes rejected) eugenics differently is important to note. Diverse exponents of eugenical views (propounded by, for example, Charles Davenport, Harry Loughlin, Madison Grant, H.G. Wells, W. B. Yates, Caleb Saleeby, John Maynard Keynes, Leonard Darwin, Henry Goddard, Paul Popenoe, Margaret Sanger, Eugen Fischer, Ernst Rüdin, and Julius Evola, etc) were articulated with very different concerns and very particular contexts in mind. The literature on these different eugenics is vast; a good starting point can be found in Bashford and Levine, 2010; for a small sample also see, Love, 1979; Paul, 1984; Weiss, 1987; Kühl, 1994; Tucker, 1994; Dikötter, 1998; Weizmann, 1998; Zenderland, 1998a, 1998b; Ladd-Taylor, 1997; Stone, 2001; Dowbiggin, 2003; Spiro, 2008; Hart, 2007; O’Loughlin and Cassata, 2011; Lombardo, 2011; Levine, 2017.
- 5 On algorithms of the soul and mathematical psycho-physiology, especially regarding C. Henry, cited by Spearman and Hart, see Brain, 2015.
- 6 In this sense, we can perhaps see factor analysis as a mathematical equivalent of Klages’ graphological method—both aimed to reveal underlying “racial” characteristics.
- 7 For critical views of Spearman’s notion of g, see for example, Wilson, 1928; Steiger and Schönemann, 1978; Gould, 1996; Schönemann, 1997.
- 8 Regarding Spearman’s view of American immigration policy, see Spearman, 1927, p. 379.
- 9 This account relies heavily on the work of Oliver et al., 1988.
- 10 On the Institute for the Study of Man see, for example, Tucker, 2002, pp. 170–171.
- 11 There have been a number of excellent studies on Cattell’s eugenic beliefs; in addition to Tucker’s authoritative account (Tucker, 2009), see for example, Mehler, 1997a; Winston, 1998b, and the entry for Cattell on the website of the Southern Poverty Law Center (SPLC): [https://www.splcenter.org/fighting-hate/extremist-files/individual/ raymond-cattell](https://www.splcenter.org/fighting-hate/extremist-files/individual/raymond-cattell).
- 12 Interestingly, Revilo Oliver is said to have given William Pierce the idea to write the white nationalist favorite, *The Turner Diaries* (Pharos, 2010).
- 13 It should perhaps come as no surprise that Cattell conveyed his admiration for Oliver’s *Christianity and the Survival of the West* (1973) in a letter to R. Oliver dated 15 June, 1983.
- 14 The affinity that I am trying to describe here in genealogical terms might be characterized by what Rodney Needham has called Polythetic Classification. According to Needham, a group K is defined in terms of a set G of properties f_1, f_2, \dots, f_n . In a given aggregate of individuals each will possess various properties of G; and though each of these properties will be shared by many, there is no one property in G that is common to all. Nevertheless, he says, “All the members of K will resemble one another, though they will not resemble one another in respect to a given f ”. In this sense, statistics carries with it a kind of *eugenic* predisposition, but this not will be manifested in all cases and under all circumstances. See Needham, 1983; also relevant are Wittgenstein’s comments on “family resemblance” (1968, p. 66).

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Additional information

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Correspondence and requests for materials should be addressed to M.W.

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