
Orientalism and Informatics: Alterity from the Chess-Playing Turk to Amazon’s Mechanical Turk

Bernard Dionysius Geoghegan

ABSTRACT

Ethnicity and other forms of difference (e.g., gender, class, disability, species) feature prominently in the design of automata, AI, HCI, and informatics more broadly. Frequently, cultural or bodily alterity theatricalizes the quality of a supposedly unmarked or universal form of reason associated with computing machines. However, the valences of this theatricalization and its implications for scientific and popular understandings of “thinking machines” vary tremendously. While some eighteenth- and nineteenth-century automata project exaggerated cultural difference onto the surface of machines, other more recent interfaces seem to suppress the visual representation of cultural difference. This essay argues that these figurations form part of a common representational strategy, an “alterity script,” that has structured presentations of reason, alterity, and automatic machines. I examine that script’s history through the case of an ostensibly Orientalized chess-playing Turk exhibited in the Habsburg Court and a family of related artifacts across linguistics, philosophy, popular exhibitions, cinema, and early AI. This history illuminates the enduring role ideas about cultural and physical difference play in informing present-day practices of AI, mechanization, crowdsourcing, and racialized labor in digital networks.

KEYWORDS Orientalism, AI, Amazon, digital media, theatricality, racialized labor, chess

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türken (verb): Literally “to turk,” a German-language colloquialism designating to counterfeit or falsify an appearance (often considered ethnically pejorative). Etymology uncertain but believed to be derived from an eighteenth-century fraudulent chess-playing automaton whose extravagant Turkish garb led to the name “the chess-playing Turk.”

But the real question is not whether machines think but whether men do. The mystery which surrounds a thinking machine already surrounds a thinking man.

--B. F. Skinner

In November 2005, Amazon unveiled the Mechanical Turk, a crowdsourced digital labor market offering workers as little as a penny to complete so-called “human intelligence tasks” such as transcribing texts and completing surveys (Figure 1). MTurk, as it is colloquially known, provides its customers, so-called “requesters,” with what Amazon terms “artificial artificial intelligence.” That is, it provides an interface for breaking down tasks too complicated for existing artificial intelligence into small discrete operations simple enough to permit solutions by non-specialized laborers around the globe (Irani, “Difference and Dependence” 225). Although its initial workforce was largely male and American in composition, in the intervening years it has grown increasingly international, female, and non-white, with recent workers hailing from 190 different countries and serving clients

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in forty-three.¹ MTurk embodies a much wider and growing trend toward user-friendly technical interfaces that sustain the illusion of the limitless potential of intelligent machines by obscuring the human—often racialized and gendered—workforces sustaining them.²

In *Surrogate Humanity*, authors Neda Atanasoki and Kalindi Vora argue that projects such as MTurk comprise elements in a project of technoliberalism that, for decades, has turned to fantasies of automation and artificial intelligence to elide mask the integral role of racialized labor in industrial and postindustrial economies (Atanasoki and Vora 28). They suggest that MTurk, and contemporary informatics more generally, depend on a “racial imaginary” that makes “the disappearance of native bodies” necessary to sustain illusions of a “technoliberalism” freed from racial and ethnic difference. Studies of MTurk by Lily Irani broadly corroborate this analysis, albeit with a more cautious account of the technological production of “difference and dependence,” whether between innovators and laborers or Oriental- and Occidental-identified subjects (Irani, “Difference and Dependence”). In one illustration of the delicate two-step that courts and erases difference, she notes that requesters often rely on region-, nation-, and ethnic-specific domains of knowledge to properly answer questions, citing the example of engineers joking “that they would block any workers who correctly answered a question about the sport cricket” (Irani, “Cultural Work” 6) to exclude Indian workers—the “joke” being that it was easier to screen out difference than test for (US-American) identity. Such accounts bring to life a peculiar process of double-obfuscation, whereby the illusion of completely automated machines often relies on the deliberate obfuscation of the racialized and gendered aspects of labor that figure into globally networked capitalism.

¹ On demographics of MTurk, see Difallah et al. The claim of 190 countries comes from the audio adaptation produced by Curio of Alexandra Samuel’s article (audio file linked on the webpage). See also “MTurk Is Now Available.”

² The masking of human labor “behind the screen” goes hand-in-hand with a particularly concerted effort to conceal the diversity of bodies and ethnicities that sustain global communications networks. See Casilli; Doorn; Phan and Roberts. For a prehistory, see Green.

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The screenshot shows the Amazon Mechanical Turk website interface. At the top, there is a navigation bar with 'Your Account', 'HITS', and 'Qualifications' tabs. Below this, a yellow banner reads: 'Mechanical Turk is a marketplace for work. We give businesses and developers access to an on-demand, scalable workforce. Workers select from thousands of tasks and work whenever it's convenient. 264,053 HITS available. View them now.' The main content is split into two columns. The left column is titled 'Make Money by working on HITS' and describes HITS as Human Intelligence Tasks. It lists benefits for workers: 'Can work from home', 'Choose your own work hours', and 'Get paid for doing good work'. It includes a flow diagram: 'Find an interesting task' (with a magnifying glass icon) -> 'Work' (with a gear icon) -> 'Earn money' (with a dollar sign icon). Below this is a 'Find HITS Now' button and a link to 'learn more about being a Worker'. The right column is titled 'Get Results from Mechanical Turk Workers' and describes the process for requesters. It lists benefits: 'Have access to a global, on-demand, 24 x 7 workforce', 'Get thousands of HITS completed in minutes', and 'Pay only when you're satisfied with the results'. It includes a flow diagram: 'Fund your account' (with a plus sign icon) -> 'Load your tasks' (with a document icon) -> 'Get results' (with a star icon). Below this is a 'Get Started' button. At the bottom, there is a footer with 'FAQ | Contact Us | Careers at Amazon | Developers | Press | Policies | Blog' and '©2005-2012 Amazon.com, Inc. or its Affiliates'. The Amazon logo and 'An amazon.com company' are also present.

Figure 1. Interface for workers to secure or “requesters” to contract piecemeal labor on Amazon’s Mechanical Turk. Source: drupal.org/project/mturk

If we take the name Mechanical Turk as any indicator, however, the relationship of information infrastructures to ethnic alterity is hardly one of mere suppression or obfuscation. MTurk draws its name from the so-called chess-playing Turk, an exoticized seventeenth-century counterfeit automaton that draped its supposed thinking machine in ostentatiously orientalist garbs (Figures 2-4). First shown by Wolfgang von Kempelen to the Court of Maria Theresa in 1770, it was subsequently exhibited to popular acclaim in cities across Europe and North America (Standage; Wood 60-109). Its Orientalist façade and cabinet of clanking, whirring gears concealed a master, human chess player who directed the play of the Turk. Kempelen presented the device as an illusion or “happy deception” aimed at engaging observers’ curiosity, astonishment, and sense of wonder. As with MTurk, the interface provided a perfect distraction from the real mechanisms of human labor powering the machine. During the game, the head pivoted from the neck, the eyes rolled, and the left hand delicately manipulated the pieces. A sophisticated system of mechanics and magnets enabled the human secreted in its interior to observe the game and manipulate pieces with the mechanical arm, undetected. After a brief initial exhibition in Vienna in the early 1770s, in the 1780s the chess-playing Turk travelled across Europe, and later the Eastern Seaboard of North America in the nineteenth-century, inspiring breathless press coverage, novels,

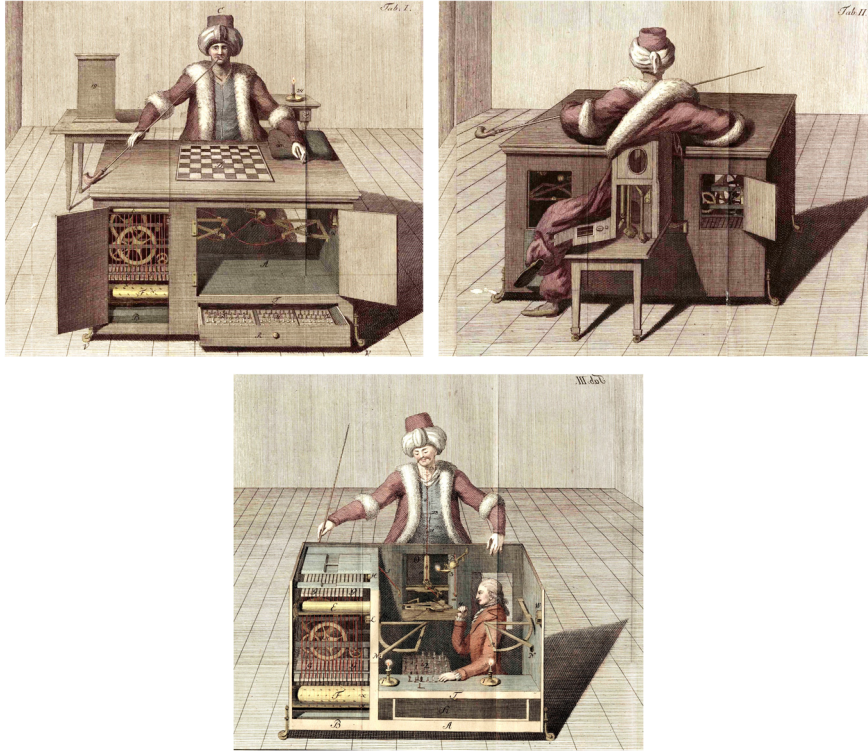
plays, mathematical analyses, knockoffs, and how-to-build-it guides everywhere it went. On account of its global fame, travel across borders, and circulation and reproduction across media, it could with some justice be dubbed the first viral media content.

Yet the persistence of the figure of the exoticized Turk in informatics also complicates the idea that digital media and its interfaces repress cultural difference. Where MTurk hides bodily difference, the chess-playing Turk seemingly showcased it. This complicates any generalizations about the relation of cultural alterity to networked capitalism. For one thing, the chess-playing Turk belonged to a large family of early modern devices that used elaborate surfaces to obscure the true mechanisms of machines, thereby encouraging—rather than suppressing—critical speculation about its operations.³ Rather than minimizing ethnicity as a factor in histories of reason, such a device problematized it, made it a factor with which to be grappled. One might even think of the Turk as a provocation to practices of decolonial computing and HCI, an initial if rather puzzling and obscure volley in efforts to deneutralize the interface.⁴ In this respect, it runs counter to the late modern fashion for rendering interfaces neutral, transparent, intuitive, i.e., as mere reflections of the cognitive and cultural norms of their users. None of that, of course, precludes the chess-playing Turk from also participating in processes of real obfuscation of bodily difference, for it also seems to inaugurate a tradition of presenting bodily, ethnic, and gendered difference as mere “simulations” without proper substance. The most famous work in this tradition is Alan Turing’s celebrated “imitation game” which tested the intelligence by comparing how well machines and men could facsimile the discursive performances of women (Turing). At stake in such charades is not the substantive difference between bodies but the ability to perform difference.

³ Roger Moseley notes that the Turk fits within a wider family of “black-box” eighteenth- and nineteenth-century devices whose concealment of their inner workings “both invited and foreclosed speculation into the inventor’s methods.”

⁴ See Ali; Irani et al. More generally on digital obfuscation, see Chun.

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Figures 2-4.

The chess-playing Turk as seen from the front and behind, during its theatrical display by Kempelen, and then in a cutaway a contemporaneous illustrator speculated its possible functioning (Racknitz). Courtesy of the University Library of the Humboldt-Universität zu Berlin.

The Altery Script

It is almost impossible to carry on discussions of AI without running into this kind of thought experiment pairing alterity and informatics. Information theorist Claude Shannon's maze-running mechanical mouse, whose relay-interior he presented to scientists and TV hosts with a magician's ostentation, was one of many 1950s cybernetic machines that used animals as a proxy for thinking about thinking. There is, famously, MIT computer scientist Joseph Weizenbaum's account of his naïve secretary duped into sharing her private emotional life with the computing machine Eliza (Weizenbaum, "ELIZA"; Weizenbaum, "Contextual Understanding"). His

story offers a gendered spin of a larger body of popular accounts running through histories of electricity and engineering, of non-Christians, foreigners, and working-class persons, as well as women, who foolishly mistake the automatism of machines for sentience.⁵ So, too, there is John Searle's AI thought experiment known as the Chinese Room Argument, contrasting orderly information processing with unintelligible Southeast Asian script (Searle, "Minds"). These kinds of theatricalized juxtapositions of cultural or bodily difference with logical machinery are a mainstay of thinking about thinking-machines. Their purpose seems to be to bring the supposedly disembodied logical reasoning of the machine into relief through juxtaposition with figures of grotesquely embodied cultural or bodily difference.⁶ In these figurations of informatics, alterity seems to be the source of a tension—a contradiction, even—that drives the theorization, development, and implementation of computing. What Edward Said termed Orientalism figures prominently, but disability, gender, or even species-difference can stand in as a kind of generative alterity in these depictions of thinking machines and their others. In other words, alterity does not simply define a context, reference or illustration for research into AI, but instead is a constructive factor in making sense of human reason in an age of thinking machines.⁷

Taking inspiration from the peculiarly theatrical (Weber) character of this pairing, and its tendency to impose itself in theater as in computation, I propose to call it an *alterity script*. In very general terms a "script," in computing as in theater, or even in penmanship, refers to a symbolic representation given a stable, formal expression that can be realized in diverse embodiments. Its performance is not tied to a particular person, machine, or speaker, and can be interpreted with a certain mixture of freedom and stability across actors. As in a play or even typography, in programming a script permits formalization and communication from one (machinic) body to the next, while preserving core operational procedures. It is not hard to imagine why script-running machines would raise questions about the alienability of labor, bodies, genders. Marshall McLuhan put this fear into media theory when he warned that mechanical automation, by cleaving productivity from the laboring human body,

⁵ See, for example, Mindell 72-73. This theme was particularly pronounced in the humorous stories and cartoons in the popular press of the 1950s and 1960s as well. Set into this context, the popularity of Weizenbaum's tale stems as much from its formulaic qualities as from his particular interpretation of it.

⁶ Probably this model could be adapted to varied technologies of the war on terror, but to do justice to such an analysis would require more space than this article permits. Provocative hints of what the alterity script looks like in that context may be found in Suchman.

⁷ Following Roopika Risam, this interrogation of human reason fits within a larger history of digital and other technologies prompting a re-assessment of what counts as human, a topic which has all the more resonance for the not-uncommon use of M-Turk by academics, and which invariably intersects with questions of race, gender, and labor (Risam).

“makes inevitable both the divorce between physical pleasure and reproduction and also the case for homosexuality” (McLuhan 99). It is as if the rise of information processing scripts simulates and thereby suspends the material ordering of bodies, and with it the stable distributions of material production and sexual reproduction—a fear given theatrical expression in Turing’s imitation game.

The troubling of bodies and reason brings out the theatricality of the script, be it in machines or in lyric. As structured statements communicable across contexts, platforms, and machines, enlisting bodies but not belonging to any particular body, the alterity script elicits a certain feature common to theatrical, scriptural, and computational scripts.⁸ More than just words or discourse, the script is also a strategy for arraying bodies, gazes, architectures, instruments, illusions, and representations into a single coherent performance. The alterity script circulates at the place where scientific and dramaturgical, informatic and theatrical, calculable and performative modes intersect and overlap: the philosopher’s thought experiment, the World’s Fairs and exhibitions that made early computers “public” (Latour and Weibel), certain works of science fiction or speculative science, and, of course, the elaborate “demos” celebrated by industrial labs from Apple to MIT’s Media Lab. Typically, the alterity script surface in these places, where the difference can be instrumentalized (i.e., made useful by embodiment in an instrument) to grease machines’ travel through speculative networks of venture capital, the popular press, and academic seminars.

Characteristic features of the alterity script include:

1. the interrogation of human reason through the counter-posing of human bodies and (supposed) machines, such that it involves a trial of rank with the human opponent;
2. the breaking down of human activities into discrete, serial tasks that imbue them with a machinic quality;
3. the presence of an interface or other obfuscation that elicits speculative thinking about the mechanisms of the performance;
4. the theatrical contrast or counterpoising of bodily marked difference—ethnicity, gender, class, age, species, disabilities—with supposedly unmarked logical machinery; and
5. the figuration of difference as inessential or supplementary to some more canonical expressions in science, machinery, or mathematics.

⁸ While aimed at bringing out a particularly theatrical aspect of media-technical performances, with this concept I also have in mind something quite similar to what other scholars termed a “protocol” (Gitelman 5-6) and a “format” (Sterne 1-31).

From the eighteenth-century to the present, these five features recur in puzzles, interfaces, and philosophical games exploring the idea of thinking machines. They may not always all appear together, but they form a loose constellation of elements that define a conceptual problematic for thinking about reason and difference. The Turk inaugurates this juxtaposition, forming a kind of primal screen (Casetti) for interfacing with technical media, whereby the surface of the machine becomes a prism for analyzing an entire disposition of mechanism, reason, and difference within a given cultural scene (though typically European or “Western”).

Taken together, these elements replace an earlier generation of philosophical questions surrounding automata such as “Can machines think?” with a thornier question: “Can humans think?”⁹ This problematic reorders the significance of chess within histories of AI. As historian of computing Nathan Ensmenger observes, chess has been the subject of hundreds of academic papers, noting that it “is a rare discussion of AI, whether historical, philosophical, or technical, that does not eventually come around to chess-playing computers” (Ensmenger, “Chess” 6). For AI proponents, chess models an understanding of reason as a universal intellectual activity free from historical and contextual specifics, defined by rule-bound cogitation. When Kempelen first presented Maria Theresa’s court with a thinking machine playing chess, he surely had in mind this idealist notion of intelligence, favored by rationalist philosophers. Yet the chess-playing Turk and its spinoffs resist any such identification. They showcase a countervailing concept of intelligence which tested intellectual mettle in viewers’ ability to tease reality from illusion (Gunning; Riskin). The staging of such devices demanded that audiences navigate a host of frames to determine where the conceit lay. Exhibitors of the Turk and its mechanical kin unveiled their devices with great ado. They lavishly disclosed the machine’s interiors, and then presented performances of the showpiece itself (which in the case of the Turk included game play, simple gestural dialogue, and performances of the Knight’s Tour chess puzzle).

Within this pageant, the exoticism of the Turk acted as a diversion, an initial ruse, quickly bypassed to reveal a machinic interior connoting the rational mechanisms of Enlightenment thought. Historian of science Simon Schaffer explains: “By the apparent mechanization of rational analysis, the show of the Turkish automaton then broached the issues of determinism and free will, obsessions of Enlightenment philosophy” (Schaffer 128). We are presented, in effect, with dueling parodies of ethnicity, that of the hookah-smoking turban- and robe-clad

⁹ The re-assessment of species’ as well as groups of persons’ ability to think is a longstanding feature in the development of media technologies and technologies of automation. See for example Mara Mills’s discussion of Helen Keller, Turing, and “Can deaf people think?” (Mills, “On Disability” 101).

Turk representing the Orient, and its counterpart, the fleshless rationalist mechanism within, connoting Western Enlightenment. It fell to the spectator to navigate these competing frames, alongside that of the chessboard, the exhibition, and the performances of the device, determining which among these—if any—provided the clue to a reasoned analysis of this fantastic spectacle. This shifting of frames destabilized efforts to assign a context-free place for reason and made a mockery of rationalism.

Early Modern Wonder and the Habsburg Court

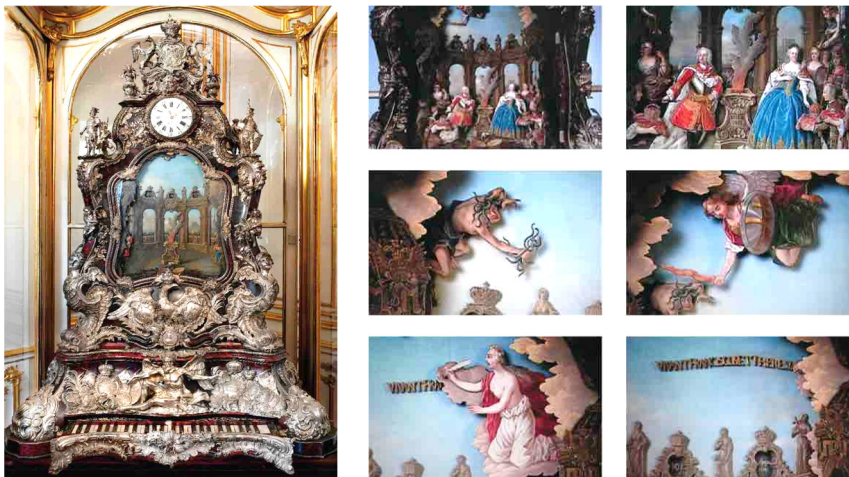
The alterity script emerged from the collision between of a waning culture of Medieval wonder with the waxing culture of Enlightenment rationalism in the Habsburg Court of Empress Maria Theresa. As historian Robin Okey observed, Maria Theresa shepherded a transition from “the court-oriented society of the Austrian Baroque, with its union of throne, altar and aristocracy” to a “post-feudal vision” of an enlightened modern state (38). For example, her rule from 1740 to 1780, followed by that of her son Joseph II, set in motion a far-reaching rationalization of the military; mandatory education for the peasants; administrative reforms streamlining the administration of the Empire; an end to torture; the bringing of Catholic religious practice under the control of the state while offering greater freedom to other confessions; mandatory schooling; and the cultivation of networks of trade, travel, and communication within and across the Empire’s boundaries (Okey 35-39; Judson 28-29). In areas as diverse as public infrastructure, social services, and legal codes, Maria Theresa and her son curtailed a Baroque spirit, replacing it with sober protocols favoring efficiency, regularity, and simplicity (Wangerman 116-17, 129).

This cultural change set the stage for a historical transformation in the meaning and practices of exhibition in the court. Automata had a well-established place within the Habsburg Court.¹⁰ Well into the eighteenth-century, automata persisted as marvelous, often Baroque embodiments of natural artifice. As Lorraine Daston and Katherine Park observed in their landmark study of wonder, in the High Medieval Era the display of such curiosities had provided a mechanism for nobility “to reassure allies, impress subjects and rivals, and enhance their prestige

¹⁰ See Bertele-Grenadenberg. Its citation of Weizenbaum on the first page for interpreting the significance of automata is also interesting, as if to stage funhouse reflections of the court, its automata, scientific interpretations of automata descended from the court, and finally explanations of the court in terms of said scientific reflections.

at home and abroad” (Daston and Park 101).¹¹ At least since the fifteenth-century, the Princes of Hesse, Saxony, and Austria produced and exchanged marvelous automata, calculators, clocks, and related mechanical wonders. These devices affirmed the social status of nobles and provided a model for nature and society.

To the extent that Medieval and early modern automata bore directly on cultural difference, they tended to affirm existing hierarchies, as in the case of the automaton clock that memorialized the coronation of Maria Theresa (Figures 5-6). In its majestic display of angels descending from heaven to bless the Empress’s coronation, it figured mechanism, wonder, and earthly hierarchy as existing in a relation of mutual affirmation. This idea that mechanism might affirm natural hierarchies appeared in Gottfried Wilhelm Leibniz’s championing of mechanical computers on the grounds that “it is unworthy of excellent men to lose hours like slaves in the labor of calculation which could safely be relegated to anyone else if machines were used” (qtd. in Goldstine 340). This affirmation of differences in rank continued in these devices’ secularization of ethnic difference. Oriental and



Figures 5-6. The Imperial Performing Mechanical Clock [Vorstellungsuhr], including closeup of animated scenes. Ludwig and Friedrich Knauss (Knauss), Darmstadt, 1750 (Mader and Weinberger 58-59).

¹¹ For more on the automaton as an object of wonder in the Medieval period, see Kang 55-102.

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African automata testified to a certain idea of wondrous variety in “nature’s customs,” acknowledging a Medieval notion of the rich variety of scientific and technical traditions (Figures 7-8). As Daston and Park explain, “Medieval and early modern naturalists invoked an order of nature’s customs rather than natural laws, defined by marvels as well as by miracles. Although highly ordered, this nature was neither unexceptionably uniform nor homogeneous over space and time,” with exceptional works clustering at the margins and peripheries of the known world. They contrast this to the “uniform, inviolable laws” of the Enlightenment, according to which “nature is everywhere and always the same, and its regularities are ironclad” (Daston and Park 14). Early modern automata incorporated these two modes. They appealed to wondrous difference and ironclad mechanism, acknowledging a non-Christian other, but arguably reducing it to a gold-tinged surface without depth. Nonetheless, for the most part, the ethnic other might be exotized by wonder, even spectacularized, but ethnic alterity was neither inhuman or aberrant. “Modern” ethnic and racial hierarchies were not yet a dominant feature in elite thought, particularly in Eastern and Central Europe, where non-European colonies played no major role in imperial power. Absent the rigid racial hierarchies sustained by state violence and colonial science, early modern automata emphasized natural harmony in a world marked by extraordinary difference.



Figure 7.
Figure clock automaton featuring Turkish bark (or barge) [Figurenuhr mit türkischer Barke], Augsburg, ca. 1580/1590. Collection Kunsthistorisches Museum Wien, Kunstammer.



Figure 8.
Clock-automaton with an African [Automatenuhr mit Afrikaner], South German, early seventeenth-century, Collection Kunsthistorisches Museum Wien, Kunstammer.

Under the rule of Maria Theresa, a number of these features in automata were ripe for reconsideration. The widespread reforms of the state, the re-assessment of aristocracy and religion, the growing influence of Enlightenment thought, and reliance on science and technology to rationalize the state, in concert with movements to consolidate imperial identity, figured in the cultural meaning of the chess-playing Turk. Its exterior drab and interior clockwork connoted a dawning European interior that suspended local differences under a common umbrella of Enlightened science and technique, and the coeval birth of a non-European exterior defined by its grotesque deviation from these norms. Kempelen, an ethnic Hungarian who served as engineer to the state and counselor of the empress, was well-positioned to give expression to these contrasts.

Of particular importance for the larger analysis at hand, however, is the liminal place of the Habsburg Empire relative to “the Orient” and Europe. As Said himself was at pains to note, his canonical account of Orientalism concentrated on French and British contexts, which primarily constructed the Orient in terms of colonization. Constructions of the Orient in the early modern Habsburg Empire were somewhat different, based in part on centuries of cultural and military exchange with the Ottoman Empire, including admiration for its scientific and mechanical traditions.

Yet military and economic rivalry between the Ottoman and Hapsburg Empires insinuated a differently-charged sense of rivalry with “the Turks.” The prospect of cultural and military domination by the Turks had been a very real prospect for the Viennese, and was consistently given ambivalent expression in its popular and aristocratic cultures. This tension was marked from the 1520s through the 1790s, coming to a head in 1683 when the Turkish siege of Vienna nearly toppled the Hapsburgs. This rivalry paired antagonism with wonder and even ludic fascination. Take, for example, Mozart and Lorenzo da Ponte’s opera *Così fan tutte* (*Women Are Like That*), which premiered in 1790 in Vienna and lavished great fanfare on the spectacle of two officers donning Orientalist Albanian costumes so that in disguise they might test the fidelity of their fiancées. Such pageantry reflected a much wider fascination with the East and the Ottoman Empire (Bridges), but also an anxious sexualization, perhaps even an early modern corollary to the fear of miscegenation. In a discussion of Mozart and *commedia dell’arte*, musicologist Roger Moseley goes so far as to describe “menacing Turks” as “the abiding bogeymen of the Viennese cultural imagination” (149). This ambivalent fascination marked diverse aristocratic pursuits, including a fashion for “turquerie” in art, dress, court ritual, gaming, food, and drink (Fülemile; Fichtner 73-115; Meyer; Parlak; Bevilacqua and Pfeifer 75) (Figure 9). As varied as these instances are—Orientalist dances, playing cards,

operas, masquerade dress by the Empress, a Turkish-themed automaton—they generally shared an ambivalent positioning toward Ottoman culture, imbued with admiration but also with elements of gross ornamental or sexual exaggeration. Perhaps more to the point, they complicated Habsburg identity and clear-cut hierarchies with an Ottoman-other.

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Figure 9. Martin van Meytens, Maria Theresa in Turkish costume (sometimes labelled that of a Turkish “harlot”) with a mask, oil painting, 1733/1744, Schloss Schönbrunn.

Orientalism, Language, and Automata

Another link of the chess-playing Turk to classical accounts of Orientalism lay in Germanic philology and linguistics.¹² Unlike the literary and colonial Orientalisms of France and England, in Germanic spheres the linguistic “Orientalists,” such as Franz Bopp, helped draw distinctions between East and West. Their scholarship, in turn, oriented the colonial imperialism of Western European states.¹³ The linguistic foundations of Germanic Orientalism provide clues to the intellectual endeavors of Kempelen, who viewed his 1791 book *Mechanisms of Human Speech (featuring the description of a speaking machine)* (Figure 10) as his great life’s work (Kempelen).¹⁴ A founding text in experimental phonetics, in it Kempelen offered an empirical and mechanist account of language, largely stripped of the overtly philosophical commentary and ornamental writing characteristics of linguists of his period (Brackhane CV-CVI). Centuries later AT&T Bell Labs engineer Homer Dudley, the inventor of the celebrated “Voder”—a digitally encoded speaking machine of the 1930s and 1940s that provided a crucial basis for World War II cryptography, information theory, and cybernetics—saw his device in a lineage descended from Kempelen’s (Mills, “Media and Prosthesis”; Dudley and Tarnoczy). The Voder, like Kempelen’s linguistics, treated language in terms of interrelated mechanical elements. His great insight, to which innumerable successors are indebted, was the principle of coarticulation, according to which the distinct perception of one sound depends on its differential placement within a series of adjacent elements (Pompino-Marshall). Understood not only as a principle of linguistics but also as an anthropological principle, the concept of coarticulation marks Kempelen as spearheading a far-reaching epistemic reorientation, rooted in linguistics, that defined cultural identity differentially. This principle laid the groundwork for establishing European identity on the basis of Oriental difference.

¹² For a wonderfully expansive account of the possible relations among philology, chess, and Orientalism, see Larson.

¹³ See Said 19-20, 98-100; Jenkins; Woköck; Williamson.

¹⁴ For more on the relation of Kempelen’s research to linguistic and phonetic study of the period, including Johannes Faber’s speaking “Turkish” automaton, see Sterne, “Audible Past.”

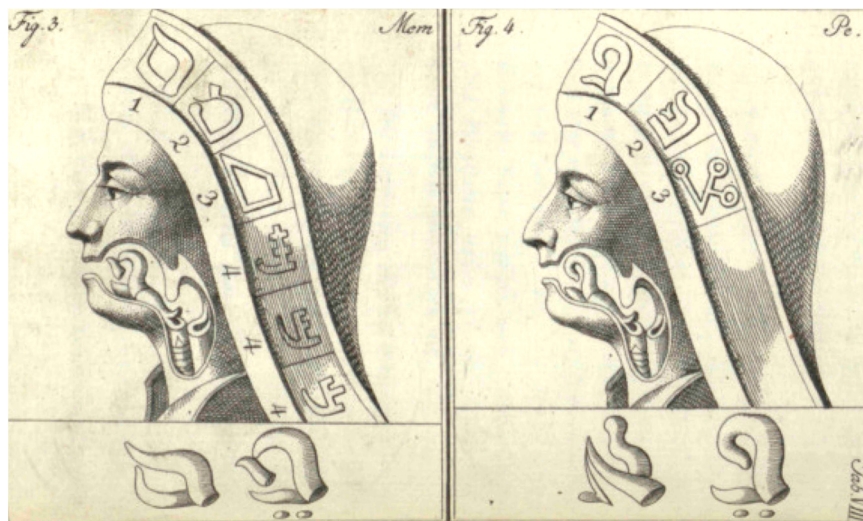


Figure 10. Kempelen depicting the articulation of “mem” and “pe” by the vocal apparatus (Kempelen). Courtesy of OHSU Digital Collections.

Features of Kempelen’s counterfeit automaton recalled his work in comparative linguistics, including the construction of a second, speaking automaton. His magnum opus draws notably from the 1769 tome *Orientalisch- und occidentalisches A-B-C-Buch* and its accounts of Formosan (a dialect spoken on the island of present-day Taiwan). Although supposedly based on the account of a native Formosan, it was in fact a hoax perpetrated by an Englishman who never left England (Brackhane CXVII). Kempelen’s accounts of other languages such as Turkish, Korean, Hottentotish, and Guinean also invite skepticism (Table 1). In conception, however, this work suggests Kempelen as a forerunner of Bopp, who laid foundations for European linguistics (and the structuralism of Saussure). For example, Bopp accounted for Chinese in terms of rote mechanical elements, not unlike Kempelen’s perfectly shaped mechanical sounds. He describes Chinese languages as consisting of “monosyllables, perfect in themselves, and independent of the root,” likening their conjugation to a “merely mechanical process of annexing words or particles” (qtd. in Foucault 309). Such accounts suggest a matrix of shared techniques for phonetics and differential combination which circulated across the projects of Kempelen and his successors in philology.¹⁵

¹⁵ Particularly notable in this regard is the link between Kempelen and the vocal theory of Helmholtz, noted in Campe 73.

Table 1.

Kempelen's comparison of the supposed pronunciation of numbers 1 to 10 across eight languages. Aligned with his works in empirical phonetics and the mechanical simulation of speech, the effort to develop a systemic tabular comparison of language systems suggests mechanical conception of language. That the account of Formosan was entirely fabricated suggests that, like the chess-playing Turk, this artifact of scientific thought reproduced a nascent European imagination of cultural identity and difference (Kempelen).

	Ungarisch	Türkisch	Lamutisch	Coreisch
1.	Egy	Pir	Omum	Janger
2.	Kettö	Iki	Dzur	Tourgy
3.	Harom	Ursch	Jean	Socsom
4.	Négy	Tord	Dagan	Docso
5.	Öt	Pesch	Dongan	Caseto
6.	Hat	Alti	Nigun	Joseljone
7.	Hét	Jedi	Nadan	Jeroptehil
8.	Nyolcz	Sokis	Dziebkan	Jaderpal
9.	Kilentz	Tokus	Jigin	Ahopcon
10.	Tiz	Un	Dzian	Jorchip
	Formosaisch	Fetuisch	Guinesisch	Hottentotisch
1.	Taufh	Wanni	Dè	Q'kui
2.	Bogio	Abièn	Aoüe	K'kan
3.	Charhe	Abiëssan	Otton	K'ouna
4.	Kiorh	Anan	Cnè	Kaka
5.	Nokin	Anum	Atton	Koro
6.	Dekie	Essia	Troupo	Nanni
7.	Memi	Essam	Keoüe	Honko
8.	Thieno	Aoqui	Quiaton	K'hyssi
9.	Senio	Acon	Kené	K'hessi
10.	Kon	Edu	Ao	Gysso

If mechanist conceptions of Chinese recall Kempelen's parallel endeavors, they also evoke larger themes in nineteenth-century philology that turned toward the East to make Western language legible. W. H. Barlow, an Englishman who designed an 1870s device for the visualization of speech, claimed to have dreamt up

the device upon witnessing “an old Turk smoking his pipe. The Turks, as you know, inhale the smoke into the lungs, and, as they speak, you can see all the action of the air coming from the mouth” (Barlow 65).¹⁶ Aware that devices already existed for diagramming the exhaust of the steam engine, Barlow imagined a device joining these two operations, so as to furnish “indicator diagrams showing the relative powers of the different syllables uttered by the human voice.” As if breathing spirit into Oriental mechanism, Barlow offered a visual transcription of Alexander Pope’s exhortation to turn spirit toward empirical investigation: “Know then thyself, presume not God to scan; The proper study of mankind is man” (Figure 11). Another nineteenth-century philologist, Friedrich Nietzsche, would describe the Hegelian historian as enthralled by “the religion of the power of history,” claiming that he met its demands with a “Chinese-mechanical ‘yes’” while letting its religion of history “pull his strings.”¹⁷ This Orientalist-mechanical façade directed by Western ontotheology neatly reproduces the Turk, with its juxtaposition of Turkish exterior and internal Enlightenment mechanism. These instances also model Walter Benjamin’s later comparison of historical materialism to a Turkish automaton covertly directed by European theology (Nietzsche, “On the Uses” 105; Benjamin 389). These juxtapositions attest to the emergence of the alterity script as a philosophical questioning of the mechanisms underpinning Western reason, wherein grotesque Oriental mechanism renders the unfreedom of European reason shocking. If not quite as sophisticated as Kempelen in presenting Orientalism as a projection of the European imagination, such examples also speak to the ambivalence of the alterity script and its persistent entrapment of “Western” reason within the stereotypes it would impose on Oriental distractions.

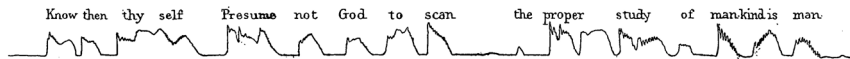


Figure 11.

Spoken passage from Alexander Pope’s “An Essay on Man: Epistle II” as rendered by Barlow’s Logograph (Barlow 66).

¹⁶ For more on this device, its context, and remarks on its relationship to speech recognition and the chess-playing Turk, see Li and Mills. I thank Professor Li for calling my attention to it.

¹⁷ Nietzsche, “Von Nutzen und Nachteil” 168. The translation is my own but adapted from Nietzsche, “On the Uses” 100.

Exhibition of the Turk

This brings us back to the chess-playing Turk (Figures 12-13). After intermittent exhibitions in the early 1770s, in September 1781 Kempelen mounted exhibitions in Paris, London, Karlsruhe, Frankfurt, Gotha, and Leipzig, at the behest of Joseph II. This tour coincides with some historians' claims that at the end of the eighteenth-century automata, having long served as noble objects of philosophical reflection, were reduced to mere distractions for popular amusement. Such accounts overlook how automata participated in politically charged debates over the proper role of reason, democratic publics, and entertainment in nineteenth-century cultures. In this respect, Kempelen's Turk is more accurately grasped as transposing the alterity script to a new public, thereby evoking new practices of reasoning. Where early modern automata often seemed crystallized social difference, the Turk and contemporaneous popular exhibitions participated in producing new forms of social difference.¹⁸ Formerly a platform for making aristocratic bodies paying tribute to the court, increasingly they became a site for the concentration and animation of democratic publics that intermingled class, ethnicity, gender, and educational attainment.

This transposition of the Turk and similar devices to fee-paying public exhibitions gave rise to two kinds of observers, *the critic* and *the analyst*. Their differences sketch in miniature the positions governing later debates over AI. In them, the alterity script underwent a mutation: aberrancy formerly associated simply with the device now came to center on bodies, classes, and identities of the public. Popular audiences emerged as the bogeymen in the theatricalized interrogation of reason. More specifically, while the critic condemned exhibitors and accused them of defrauding the public, the analyst celebrated the exhibition as an occasion for the audiences' democratic exercise of reason. What was at stake, fundamentally, was the place to be assigned to reason. The critic and the analyst agreed that the chess-board was not what was of key interest—but there, their accounts diverged.

Consider two reports generated by the scientific, aristocratic, and lay audiences that flocked to exhibitions of Kempelen's Turk on its first European tour. The first, an early pamphlet by Karl Gottlieb Windisch promoting its public exhibitions, rendered the analytical interest of the device explicit:

¹⁸ On the socially constructive role of Enlightenment automata, particularly in terms of modelling new social practices and bodies, and how this work continued into the nineteenth-century, see Voskuhl.

[I]t can only be a *deception*, in this the inventor, and every other reasonable being will readily agree . . . but such a one as does honor to human nature; a deception more beautiful, more surprising, more astonishing than any to be met with, in the different accounts of mathematical recreations. (Windisch 12-13)

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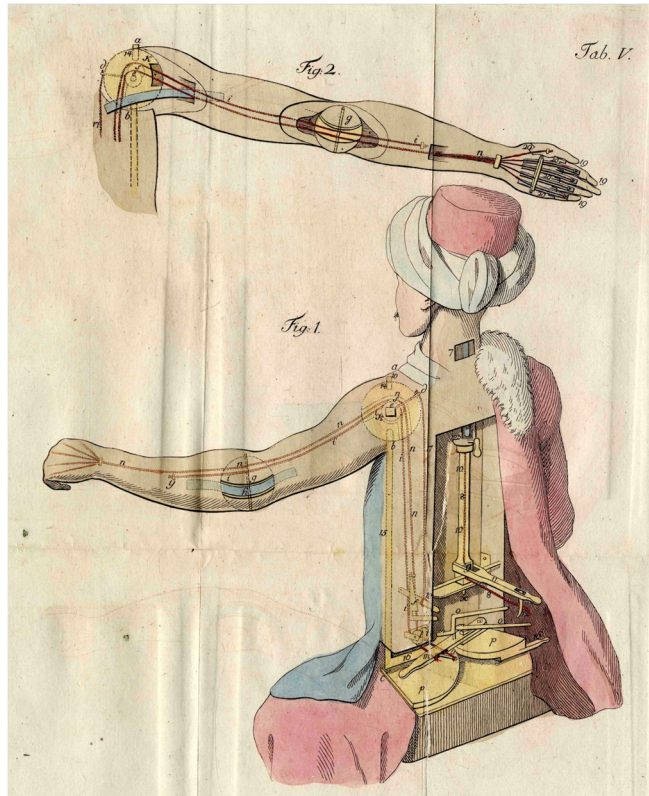
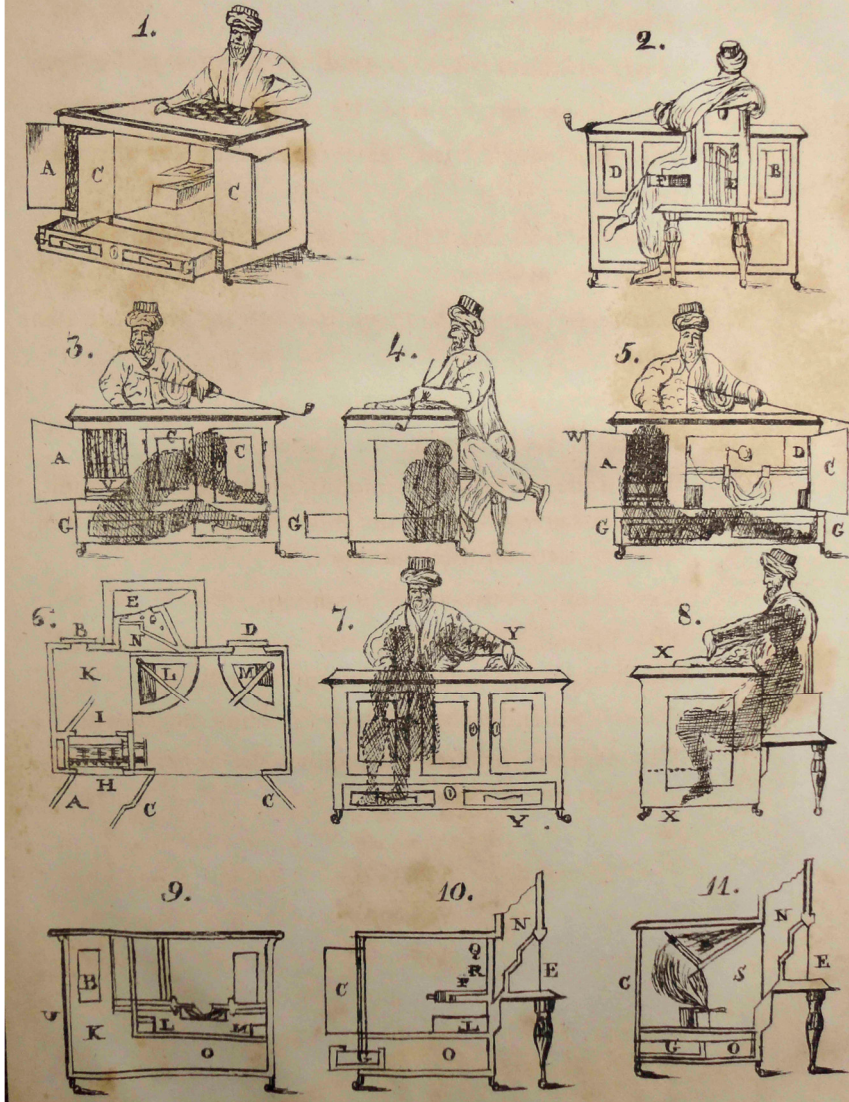


Figure 12. Illustration of the supposed mechanism of the arm of the chess-playing Turk (Racknitz). Courtesy of the University Library of the Humboldt-Universität zu Berlin.

The Chess Player.



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Figure 13. Supposed movements of man secreted inside the Turk (Gamaliel). Courtesy of the Huntington Library.

The second, Englishman Philip Thicknesse's tract "The Speaking Figure and the Automaton-Chess Player Exposed and Detected," published in 1784, offers the very model of miserly critique (Thicknesse). Its Latin epigraph, which translates into English as "We know this to be nothing," summarizes his disgust at the entire affair. Thicknesse cast aspersions on the foreign showman imposing extravagant spectacles upon an unsuspecting public. Thicknesse inventoried how lavish dress and misdirection prevented a distracted public from critically investigating the machine. He railed against the fee of fifteen shillings, the consequence of a deceitful presentation that preyed on gullible Britons. The tone of his condemnation makes it clear that he does not believe the general public is equal to the task of analysis, meaning that he must instruct them.

The figure of the analyst makes a more generous appearance in Edgar Allan Poe's 1826 analysis of the chess-playing Turk, entitled "Maezel's Chess Player," referring to the exhibitor who bought the Turk after Kempelen's death and brought it to the United States for exhibition (Poe). Poe's account was one of dozens, if not hundreds, of commentaries published for mass stimulation and diversion in the popular press. What makes Poe's account exemplary is the delight, joy, and rigor he brought to the analysis. Poe lavished attention on the exhibition processes by which "every spectator . . . completely scrutinized . . . every individual portion of the Automaton" (Poe 426). Drawing on sources related to magic, natural philosophy, mathematical analysis, discussions of Babbage's calculating engines, and eyewitness testimonies, Poe offers his analysis of why the Turk could not be a "pure machine"—by which he meant a genuine automaton acting without human intervention. This analysis did not debunk the device but rather confronted the reality of the chess player as what Poe termed "an object of intense curiosity to all persons who think" (Poe 421).

What was at stake in these exhibitions, then, was not the authenticity of a machine but the definition and location of reason. The question of whether this machine could think was never seriously at stake; clearly, it could not. The question was, rather, what kind of thinking (or unthinking) these devices elicited from the public. Within this question, the pair of critic and analyst define structural positions in the emerging alterity script; that is, they stand in for different accounts of how a diversely embodied public measured up to the machine. For critics such as Thicknesse, the very fact that audiences could entertain such an outrageous pageant was evidence enough that they could not think. Poe saw in the same sight evidence that humans must think—how else could they build such a machine,

much less enjoy it?—and that artifice, conceit, and fabrication would play an expanded role in the modern reasoning. More than that, for Poe, thinking potentially included “all persons.” Where the critic (following gentlemanly scientific conventions of the time) saw education, class, gender, and national background as crucial markers of the ability to reason (Shapin), Poe welcomed “all persons” who took this new public occasion to engage in reasoning. Under Poe’s pen, curiosity became an impetus for skeptical yet democratic inquiry. The mingling of financial interest with spectacle that brought such consternation to the critic filled Poe with delight. It boded a training in skepticism for the democratic age.¹⁹

Bodily Integrity and Industrial Obfuscation

Bound together with the investigation of whether men could think was a further question about what kinds of bodies suited an emerging machine age. Indeed, the fundamental transformation of the alterity script in the nineteenth century was the transposition of bodily aberrancy from the automaton that entertained the court to the lower-class bodies that worked—and were worked over by—machines. Themes of maimed bodies and subordinated laborers embedded public debates about machines. It was as if a new, threatening violence took up residence in the mechanism. The machine was not only exotic: often it was alien. One sign of this trend was the growing racism that seemed to inform knock-offs of the Turk in Western Europe and the United States. The ambivalence of Habsburg turquerie gave way to an increasingly grotesque inscrutability. The quasi-racialized oppositions of French, British, and US-American Orientalism displaced Central European figurations, gradually incorporating supplementary elements of the cold indifference of the industrial machine (Figures 14-17).²⁰ Nineteenth-century exoticized automata staged ethnic difference literally as an “affront,” an assault to the face. To adapt Germanist Leslie Adelson’s account of Turkish representation in recent German literature, here Turkishness was presented as a “self-evident thingliness ascribed to Turkish figures—rather than the substantive ascription of cultural difference” (Adelson 16). If nineteenth-century automata equipped audiences with diverse skills of reasoning, as the analyst supposed, it also appeared bound up with more physical prospects of confrontation.

¹⁹ In a different context, film scholar Tom Gunning uses the term “aesthetic of astonishment” to describe popular cultures’ evocation of skepticism, disbelief, and delight (Gunning).

²⁰ “Quasi-” for the reason that the concept of race and racial difference was unstable in this moment and across these contexts, variously intermingling with concepts of religious, ethnic, and regional differences.

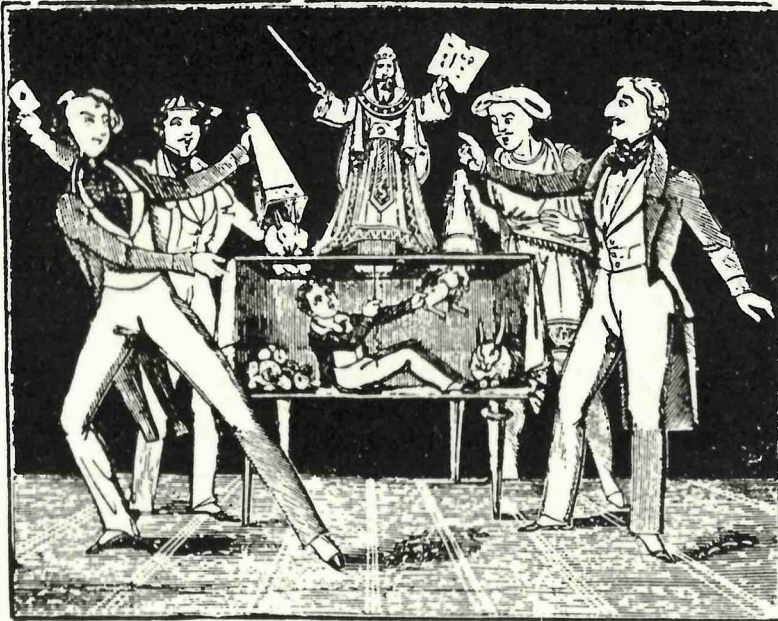
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Figure 14. An 1886 card depicting a knockoff of the chess-playing Turk, "Ajeeb the wonderful" (Kidwell), a fraudulent checkers-playing automaton that attracted great attention in North America, appearing at Coney Island well into the 1930s. Source: Harvard Theatre Collection

SHAKSPEARE ROOMS, NEW-STREET, BIRMINGHAM.

The SYSTEM of the IMPOSTERS.



BARNEY and Co.

BEHOLD THE GREAT BERNADO'S SYSTEM OF IMPOSITION

Figure 15.

Depiction of a late nineteenth-century popular exhibition or “false conjurer” in Birmingham, England featuring an exoticized figure animated by a human out of sight. At least one source suggests this bill was distributed by a competitor showman seeking to debunk the exhibition (Chapuis and Droz).

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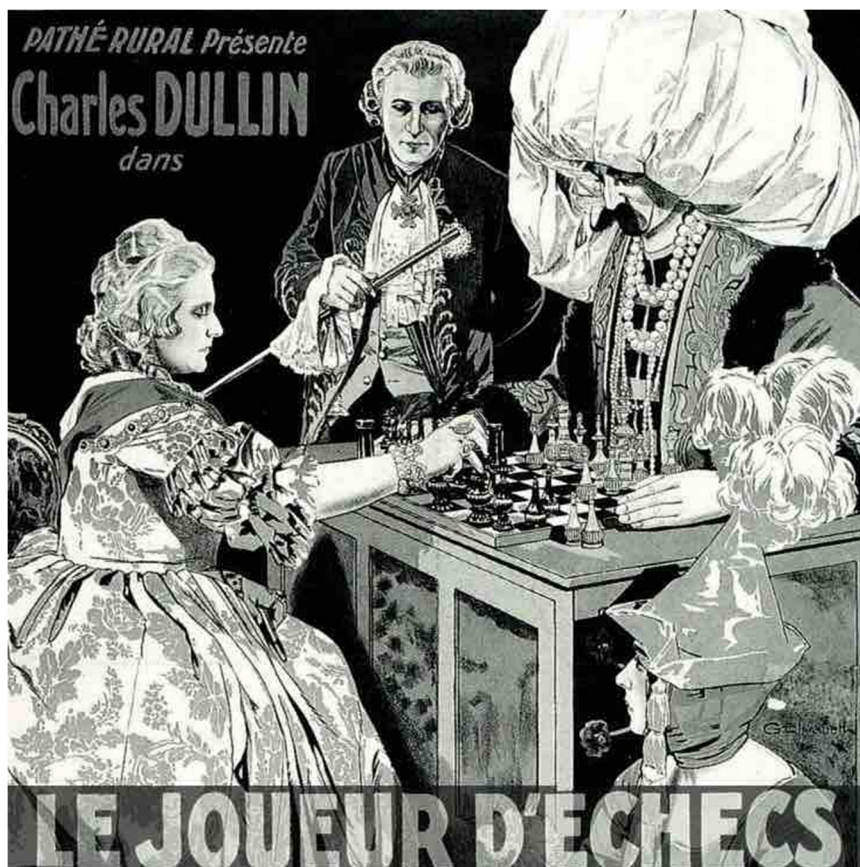


Figure 16. Promotional material featuring Charles Dullin as Wolfgang von Kempelen with a mockup of the chess-playing Turk engaged in a game with Catherine the Great. From the 1927 French film *Le joueur d'échecs*, directed by Raymond Bernard and based on a novel by Henry Dupuy-Mazuel. Source: acinemahistory.com



Figure 17. “Zoltar speaks,” a wish-granting, exoticized automaton featured in the 1988 *Big*, directed by Penny Marshall.

Marking the difference between elegant enlightened mechanism and alien mechanism, stories proliferated of dwarves, midgets, a legless man, children, and even a monkey said to be hidden within the Turk’s recesses. It is from this tradition

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that Walter Benjamin's much-noted reference to a hunchback within a Turkish automaton emerged. While such accounts surfaced in late eighteenth-century accounts, their proliferation in the industrializing nineteenth century had a different signification. Bodily difference is no longer wondrous, much less an object of curiosity, but is a patent object of exploitation. The machine as a device in the mangling of human bodies, the distortion of their labor and its social relations, emerged. Famed automata designers such as Jacques de Vaucanson tried their hand at building industrial-grade automata to replace or control skilled workers (Riskin; Schaffer). The prospect of a self-moving machine capable of independently solving problems is now both an amusement and a source of grievous threat (Riskin). So, too, the act of hiding a human body behind a machine takes on different meaning—it is no longer just an innocent ruse, but also metonymically evokes a larger chain relating to the often racialized devaluing of labor (Jones-Imhotep). Besides, the urban working-class audiences that flocked to automata exhibitions testified to a new industrial order. These crowds were largely comprised of workers migrated to urban centers to work at industrial factories. After a day's labor at one kind of automatic machine, they spent their wages gazing at another kind of automatic machine for distraction.

Within the emerging industrial frame for the Turk, we also see clues as to the industrial and post-industrial meaning ethnicity will assume in informatics in projects such as MTurk. The myth of pure logical and automatic machinery gives rise to new “hidden figures,” in the words of Margot Lee Shetterly.²¹ Her work dovetails a larger body of scholarship exploring how and why the computing industry marginalized the work of women and minorities in computing. In this labor history, the alterity script evolving around the Turk figures prominently. Ethnic difference figured on the surface of the machine now moves to the interior, out of sight, through the occlusion of women, people of color, and the working class. In this setup, the alterity script, far from problematizing disembodied Enlightenment reason, seems rather to offer it a safe harbor. Particularly in proto-IT industries such as telephony and telegraphy, the bodies of women and minorities become crucial to producing the illusion of frictionless, always-functioning, automatic machines. Indeed, women workers' threats to go on strike—that is, to make their invisible work apparent in its absence—emerged as a driving force in the push for machine automation (Green). Here a fantastic inversion takes shape that later comes to the fore in MTurk, wherein ethnic difference is no longer the object of fabulous if deceptive exhibition, but instead recedes into the interior machine,

²¹ See Shetterly. See also Light; Chun; Ensmenger, *Computer Boys*; and Hicks.

subordinate and unacknowledged.

Within this emerging alterity script, the problem of different kinds of bodily markers comes to the fore. Increasingly, reason denotes that which cannot be achieved by a machine. Physical labor, in turn, is measured according to its compatibility with industrially rationalized factory floors. These tandem re-evaluations operate in close alliance with a new industrial science of “ergonomics” which, as historian Mara Mills has shown, draws directly on telephony and wartime cybernetics studies to produce machinic distribution of sight, sound, and vision.²² Not only Kempelen and famed French automaton-maker Jacques de Vaucanson but also Norbert Wiener, Shannon, and Turing often conducted their most far-reaching studies in decomposing human skills while working on computation. Wiener, Shannon, and Turing’s thought grew out of World War II research, which used machinery to reassess the integrity of the body and the relative definition of its abilities. Shannon’s cryptanalytical decompositions of speech into mechanical series readable only by machines realized a mechanical formalization of language only dreamt of by Kempelen and Bopp (Shannon, *Mathematical Theory*). While this recalls the violence of industrial machinery directed against the body, it also recalls Kempelen’s construction of a mobile bed for the infirm Maria Theresa in 1771 and his mechanical typing device for the blind artist Maria Theresia von Paradis, realized in 1779 (Brackhane XCVIII). Even as the configurations of bodily difference changed, it would seem that certain hallmark configurations of alterity persisted.

Difference and Play in Early AI

Organized capital redirected the attention solicited by popular attractions back toward spectacles of large-scale industrial production, shifting the alterity script from small-scale exhibitions to mass forums, such as trade shows, “demos,” World’s Fairs, the press release, and press conferences. An early occasion of this reorientation was the rise of the calculating machine as a standard piece in nineteenth- and twentieth-century World Fairs. Its dazzling surfaces and automated problem-solving became a platform for commercial and popular speculation. Industrial research laborato-

²² Mills touches on this theme in a number of works. The most thorough statement of her work on this topic is, to my knowledge, unpublished (Mills, “‘Impairment’ across Bodies and Signals”). See also Ronell for a remarkable discussion of Alexander Graham Bell’s interest in automata, including the Turkish-figured “Euphonia” (Ronell 309-19). Ronell elaborates brilliantly on the broader problem of automatism, speech, and communication, as well as related issues of disability and technology in manner that bears directly on the present text even if they strongly resist summarization and simple quotation.

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ries, among them Bell Labs, General Electric, and Westinghouse, carried this tradition into the twentieth century, where researchers such as Shannon, Turing, Wiener, and Marvin Minsky found common cause in the construction of automata for popular amazement.²³

Mid-twentieth-century scientists did not simply wield the alterity script, whether as a model for research or a well-controlled instrument for attracting popular interest. Rather, they found themselves carried up by it, rehearsing its arguments, staging its positions within their analyses. They became critics, analysts, or some combination of the two, at once compelled to indulge theatrical concessions toward wonder and to pull back in a defense of sober logical thought. The generative tensions between human and machine, the arraying of thought and bodies in discrete series, the spectacle of rank and embodied difference mediated by a machine—all these themes returned, packaged in new scientific formats. Wiener opened a lecture at the celebrated Macy Conferences on Cybernetics by declaring: “The idea of a ‘thinking machine’ has always intrigued—on a different level—unthinking and thinking people alike” (Wiener, “Chess-Playing Automata”). He cited exhibitions of Kempelen’s chess-playing Turk as sorry evidence that “then, as today, the public preferred being mystified to being instructed.” For Wiener, as for some of his eighteenth- and nineteenth-century predecessors, the spectacular display and its seductive appeal of automata to a general public is evidence that, far from simulating thought, they are instead testimony to its absence. Needless to say, that did not stop Wiener and his contemporaries from constructing fabulous automata—but in doing so, they found themselves caught between the imperative to act as scientist and showman, researcher and carnival barker. Consider a TV exhibition of Wiener’s well-known light-chasing automaton, which he sometimes described as a moth named Felix. Upon viewing this scene, a TV reviewer for *The New Yorker* remarked on Wiener’s apparent embarrassment at the vulgarity of dressing up a machine to please popular attention. Indeed, Wiener often seemed split between the drive to condemn the “gadget worshipper” (Wiener, *God and Golem* 53) devising instruments for popular delight and his own compulsion to construct fantastic artifacts and scenarios to win interest for his scientific cause. Even as he cultivated a stable of friendly journalists who promoted his more fabulous ideas for the public, Wiener condemned scientists who courted popular amusements. This put his status as a sober gentleman of science under constant threat, as when the popular *Saturday Evening Post* ran the satirical cartoon shown

²³ For more on their automata work and its place within a longer history of automata, see Geoghegan, “Visionäre Informatik.”

here and later reproduced by Shannon in his popular essay “A Chess-Playing Machine” (Figure 18). Depicting Wiener playing chess with a one-armed computing machine, the caption read: “Inevitable advantage of the man over the machine is illustrated in this drawing. At top human player loses to machine. In center nettled human player revised machine’s instructions. At bottom human player wins.” In this account, scientists such as Wiener assumed the role of modern-day Kempelens and their fee-paying dupes, alternating between one role and the other, depending on the relevant frame.

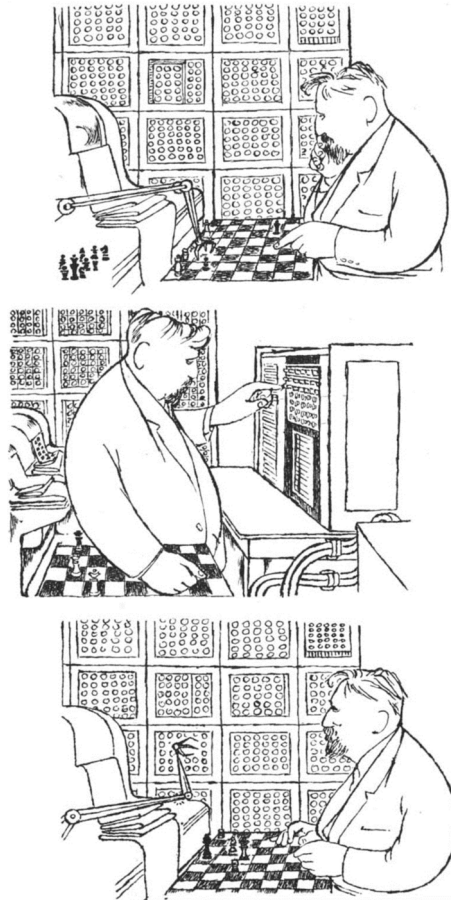


Figure 18. “Inevitable advantage of the man over the machine,” a cartoon of Wiener playing chess that first appeared in the *Saturday Evening Post* (Shannon, “A Chess-Playing Machine”).



Figure 19.
The chess-playing Turk as illustrated in Shannon, “A Chess-Playing Machine.”

Such trickster exploitations of automata were a hallmark of Shannon, who cited the Turk as the first effort at building a chess-playing machine (Figure 19). At the time game theory was, along with information theory and cybernetics, among the new mathematical sciences rapidly gaining a following in the human sciences. Applied to programming a computer to play chess, though, it led to surprising results. Consider Shannon’s 1949 remarks in “Programming a Machine to Play Chess” on the game theory of John von Neumann and Oskar Morgenstern. Shannon remarked that the “unlimited intellects” they theorized, characterized by tireless players with unlimited foresight, if existing in real life could only play chess in a single manner:

A game between two such mental giants, Mr. A and Mr. B, would proceed as follows. They sit down at the chessboard, draw for colors, and then survey the pieces for a moment. Then either

- (1) Mr. A says, “I resign” or
- (2) Mr. B says, “I resign” or
- (3) Mr. A says, “I offer a draw,” and Mr. B replies, “I accept.” (Shannon, “Programming a Computer” 643)

The players imagined by von Neumann and Morgenstern, the joke was, need not play chess at all; once confronting the basic circumstances they would extrapolate final results, based on the rational and best plays both they and their opponent would necessarily execute, obviating the need for actual play. Such players perfectly fit mathematical modelling. Brought into a real game, Shannon found in them evidence that human reason was something altogether different than the formal rational models of extrapolation that took place on the board proper. Shannon's thoughts on the implications of the chess machine he described how to program were very much the same. He summarized them by citing his predecessor, Leonardo Torres y Quevedo, who built the first genuine chess-playing machine in the early twentieth-century: "[t]he limits within which thought is really necessary need to be better defined[;] . . . the automaton can do many things that are popularly classed as thought" (Shannon, "Programming a Computer" 666). Designing a machine to play chess did not reproduce reason in metal and wire, but rather showed the radical unrealism of how we thought about thinking.

More emblematic than Shannon of the figural dilemmas facing modern-day metaphysics are AI theorists Allen Newell, J. C. Shaw, and H. A. Simon, who in their 1958 study of chess-playing computers wrote: "If one could devise a successful chess machine, one would seem to have penetrated to the core of human intellectual endeavor" (Newell et al. 320). Their proposal encapsulated the position once mocked by Kempelen, based on the rationalist proposal to strip away the world of fabulous appearances and penetrate to a rational core where mind and mechanism were equivalent. For them, as for other early AI theorists, the chess-playing machine embodies a logical and conceptual problem, corresponding to a human intelligence that—at its core, which is to say, beyond the surface and mere appearances—is independent of the material happenstances of embodiment. For AI theorists of this persuasion, theatricality, with its ornamental garb and affected displays, is the exact opposite of machine intelligence, a ruse only there to take in human dupes.

In this setting of 1950s and 1960s AI, the alterity script had less to do with grotesque caricatures of foreigners than to do with nagging unease about the place of bodies, genders, and disability relative to machine intelligence. The old fear about disability and mangled humans surfaced in novel, often ingenious configurations. In Turing's 1950 paper, from which the "Imitation Game" is drawn, its bodily implications were twofold. On one hand, the truth of computational intelligence was ensured by hiding the machine from view, and asking it to merely perform, by answering questions in a manner that persuaded the interrogator it was a woman. In this sense, script replaced body, operational signs superseded visual

bias. In the kind of ingenious inversion characteristic of Turing, he turned the alterity script on its head by suggesting that his imitation game protected the machine, which otherwise would bear the brunt of discrimination for bodily alterity. “We do not wish to penalise the machine for its inability to shine in beauty competitions, nor to penalise a man for losing in a race against an aeroplane. The conditions of our game make these disabilities irrelevant” (Turing 435). Disability no longer referred to the human impairment, but rather the unequal distribution of potentials in the broadest class of animated things. Indeed, by this definition, the distinction between difference and disability disappeared. In his analysis, “The imperatives that can be obeyed by a machine that has no limbs are bound to be of a rather intellectual character,” and any test of its abilities must make allowance for such disabilities (Turing 458). Turing’s machines needed protection of their dignities against the discriminatory practices of humans, and their penchant to privilege particular definitions of intelligence linked to arts and the body. The hiding of the machine, the restricting of performance to scripts, became in Turing’s work a grounds for protecting the machine against social prejudices. Once put into words by Turing, however, the sentiment can be detected widely among the AI theorists: the human world is rife with prejudices that link the privileges of thought to particular bodies, and our thought experiments will counteract this bias by identifying thought with disembodied reason. The turn toward rationalism did not dispel the problem of bodily difference, but simply established it as a back-drop for the formulation of a just theory of reason.

The case of Turing reveals that enduring power of the “Turkish inversion” in the alterity script, that is, the invocation of difference in order to turn analysis (as in the superficial staging of Turkishness) back upon an unmarked opponent. In the scripts of Kempelen, Shannon, and Turing, among others, the game-playing machine was less a model of reason than a marking out of structural positions to be ruthlessly played against one another, denaturing the appeal to any stable and canonical account of reason. This does not, however, mean the alterity script was somehow neutral, or made an equal opponent of all comers. For example, if Turing offered a measure of sympathy for the disability of the machine, i.e., a physical non-conformity of the machine, it served to valorize reasoning divorced from the bodies. Intelligence emerged in this play between difference, the byproduct of theatrically arranged alterities. Von Neumann’s celebrated theoretical description of the computer, which focused on the architecture of the machine and its problem-solving skills, is an example of this cognitive bias. His presentation famously neglected to account for programming the machine, which played into the task of programming machines to fall to women, in some instances women of color, whose work

was considered lowly, unworthy of recognition. Planning and problem-solving fell to the male designers of machines while coding—a form of physical labor—fell to women without the privileged institutional status of male counterparts (Light; Ensmenger, *Computer Boys*). A very narrow definition of reason seemed complicit, not with overcoming prejudice, but with re-enforcing it, in an echo of Leibniz’s aforementioned remark that gentlemen should not lose precious time calculating when machines (and, in this case, their human support) could assume this laborious task.

It would be a great misunderstanding to suspect that the alterity script was simply a trick played at the expense of rationalism. Its trickster character, its penchant for inversions, surfaced in those who sought to critique AI. Consider Weizenbaum’s celebrated critique of AI as instrumental reason, which pivoted around a just-so story of an emotional female secretary. The lady, presumably of lower educational status than the distinguished German scientist, found herself fooled by a computer simulation of a Rogerian therapist into forming an emotional bond with the computing machine (Weizenbaum, “ELIZA”; Weizenbaum, “Contextual Understanding”). Weizenbaum’s story repackages well-worn nineteenth- and twentieth-century accounts of uneducated workers, children, foreigners, and women mistaking automatic machines for reasoning living things. His defense of human reason, however, came at the expense of body, gender, and emotion that served as the object of reasonable men’s opprobrium (or comic relief, depending on how you read the account). To reject the machine as an unreasonable embodiment of intelligence entailed a theatrical redistribution of bodily excess around a familiar stock of characters.

The same collapse into theatrically-staged difference surfaces in Searle’s famous Chinese Room Argument. Aimed at refuting the notion that computers can think or have consciousness, the Chinese Room Argument is founded on the notion of a radical juxtaposition of the “incomprehensible” Chinese language and the orderly, informational program that renders it clear and intelligible, with the role of the human occupying a somewhat ambiguous alterity both to Oriental symbolism and symbol-processing machines (Searle, “Minds”). (Interestingly, he later claims that his “Chinese Room Argument” could be swapped out for a “Chess Room Argument,” to account for game-playing machines that solve chess but do not, he claims, understand what they are doing [Searle, “I Married a Computer”]). The thorny genius of this analysis is its sidestep of the opposition between radical cultural difference and rule-based sign systems, i.e., Oriental alterity and rational mechanisms, and its ability to lodge human reason off to the side in hopes that the two idols might destroy each other while the lawless, rule-breaking philosopher

observes from the sidelines. In effect, Searle carves out a new position for reasoning which, not entirely unlike Kempelen, seems to associate reason with a field of indeterminacy and performativity. In this respect, it does not so much solve the problem of reason, as defer into an open-ended field of difference that he selectively peppers with the monstrous specters of robot-loving women and hairless digital models.²⁴

The actualization of the alterity script by critics demonstrates its tendency to theatricalize Western definitions of reason rather than advance a case for or against AI. Even when the alterity script is evoked to challenge the presumption of a thinking machine, its peculiar reliance on figures of difference destabilizes the critics' appeal to a more sober, reasonable analysis. From elaborate exhibitions of chess-playing machine contests (Figure 20) to Searle's appearances at the Edge Conferences, the alterity script seems to cast theorists of reason as players in a farce, in which they themselves run the risk of becoming mere puppets. This trickster quality of the alterity script reflects its uneasy mediation of wondrous and skeptical traditions of thought. Kempelen grafted serial figures of reason together in a manner that made a mockery of them both. The script mocked players who figured their own elevation through an imagined idea of debasement, the actualization of which could vary according to the cultural context of its performance. It did not debunk these oppositions, but instead exaggerated and distributed them within an elaborate thought machinery. If latter-day thought experiments of this variety are not so manifestly preoccupied with figuring ethnic difference as the Turk, they nonetheless perpetuated a spectacle of cultural and bodily difference projected on the surface of the machine. These emerged as little more than ruses, whose affective excesses provided a contrast to the refinement of the logical machinery within. Together, these accounts staged an old mythology about the pure, unmarked character of logical procedures that stands in contrast to the crass commercialism, ornamentation, and distractions of visual pleasure.

²⁴ The question of the link between "Chinese-ness" in Searle's paper and broader cultural and gendered dynamics in a certain philosophical milieu has emerged as a topic of quiet debate in recent years. Instigators for this debate include reports found in Baker and Heffernan. Such examples suggest that while evading the strictures of the roles assigned to critic or analyst, Searle's script instead is taken over by other bodily alterities actualized in allusions to ostensibly extrinsic or inessential ethnic, linguistic, and sexual difference.



Figure 20. Shannon, left, attending the 1980 world computer chess championships. Source: chessprogramming.org

Other Scripts

One aspect of the foregoing analysis has been to suggest that the Orientalism displayed in the chess-playing Turk was of a peculiar kind, real but not easily assimilated to the racially reductive tropes that surfaced in more well-known British and French colonial variants. Kempelen did not even have at his disposal the repertoire of racial and ethnic categories (Black, white, European, Occidental, Oriental) employed in everyday discussions of racism and Orientalism today. Yet his chess-playing automaton not only staged some kind of Ottoman or Eastern difference in stark and exaggerated terms, its staging easily transmitted to subsequent generations of more standard Orientalist and racist tropes, possibly inaugurating the techno-Orientalism crucial to twentieth- and twenty-first-century science fiction (Roh et al.). In what genealogy of Orientalism, then, does the chess-playing Turk figure? Clearly, it had divergent faces, not all of them defined by racial or even binary cultural logics. Yet a common thread can be discerned. From Kempelen through M-Turk, ethnic difference exists figuratively but not substantially, except as disfiguring aberration (as in the case of the Indian workers commanding a

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disqualifying knowledge of cricket). Substantive difference becomes figural projection, at most an occasion for interrogating the Western reason whose majesty or debasement serves as its other. In this light, we can reconsider the strange ambivalence of what Long Bui in a brilliant work describes as the trope of “Asian roboticism.” According to Bui, Western and particularly US culture consistently figures Asians as a “robot-like population within late-capitalist public culture,” in scenes that run the gamut from “Chinese factory workers to well-choreographed Korean dancers” (Bui 111). This figuration is not merely popular xenophobia but also contemporary philosophical thought, as when Slovenian philosopher Slavoj Žižek infamously warned against the threat of a Chinese economic model that, through its joining together of “a strong authoritarian state and wild capitalist dynamics,” threatened to eclipse Western liberal democracy (Žižek). The threat is different in kind, but it remains the case that a kind of Eastern difference serves here as a method of highlighting the features of Western rationality.

In short, what binds these representations to a history of Orientalism is a view of “Oriental” alterity as meaningful only insofar as it provides a mirror for discerning (or producing) Western culture. This alterity serves as what Jacques Derrida termed a “theatrical effigy” for propping up “white mythology” (Derrida 214). Such an enduring figural tradition cannot simply be cast aside, i.e., revealed as the puppet of a deeper ideology, European, Western, or otherwise. Any such measure seems at risk of repeating the script, of revealing the impersonal mechanism of Western thought without fundamentally challenging its patterning of alterity. What is in fact necessary is an ability to develop conceptual models that account for the substantively heterogeneous agencies and hybrid productions in the history of informatics. One such compelling endeavor emerges from the work of Irani, who co-developed *Turkopticon*, an independent platform that permits workers on MTurk to share feedback on employers contracting work through the Amazon platform. In this approach, the worker becomes visible, their labor and their analysis given recognition as well as means of agency. In so doing, Irani and her colleagues assume a task whose need predates networked capitalism and arguably predates Orientalism itself. While Maria Theresa’s Court benefitted greatly from the science and culture of “the East,” the chess-playing Turk accorded to the Orient the status of a mirage for “Western” reason. Thus, an occasion for acknowledging robust networks of exchange and transformation became a mere binary opposition for self-definition of a “West” defining its ascendancy against its other.²⁵

²⁵ Another key element in overcoming histories of Orientalism and informatics would be histories of the entanglement of global traditions within so-called “Western” traditions, such as media theorist Paul Feigelfeld has already undertaken in a number of works, including his study of cryptanalysis and algebra between China

The cultural history of the chess-playing Turk casts light on this ambiguous place of ethnic difference and informatics. Its persistence as a recurrent trope, up to and including Amazon's MTurk, suggests its pertinence to understanding enduring configurations of embodiment, labor, ethnic difference, and automated machinery from the Enlightenment cultures of Western and Central Europe to the present. Brought to bear on the history of AI, it contributes to a growing literature on the role of ethnicity, class, and gender as they inform both the deep structures and surface logics of informatics (Krajewski; Phan). If, as N. Katherine Hayles argues, informatic logics depend "on erasing markers of bodily difference, including sex, race, and ethnicity," it is also the case that their continual surfacing is part of the logic.²⁶ Indeed, at stake in bodily difference is not merely a factor to be erased or suppressed but also a form of alterity necessary to valorize intelligence, be it of Turing's machine or Weizenbaum's and Searle's men. The interest of the Turk and its alterity script is less as an origin of racialized logics in informatics as such, than as the distinctly theatrical character of their staging whereby a certain excessiveness to the performance—a dissonance between the roles and their execution—denaturalizes the entire configuration of differences. This lends its staging of reason a trickster quality that threatens the authority of even its most practiced performers, questioning the humanity and reasonableness of those who would deploy it to simply affirm an existing hierarchy of knowledge or humanity. Much as translation is ironizing, in Paul de Man's words, because it "undoes the stability of the original by giving it a definitive, canonical form in the translation or in the theorization" (de Man 82), so too efforts to formalize reason in a thinking machine cannot help but destabilize conceptions of thought and reason alike.

It may well be, however, that today there are new scripts destabilizing thought and reason. If the alterity script depended on a certain representation of oppositions such as East and West, body and mind, mechanism and spirit, it also rested upon a core idea of the separation of form from meaning. Across theater, writing, and computing, "script" posits a nominal divorce between signification and figuration. Mobile information cultures would seem to scramble these binaries. In their global travels and mingling of word, image, and text, a new relationship to scriptural reason takes shape. Consider the term *emoji*, an anglicization of a Japanese term for digital "picture-characters." Anthropologist Miyako Inoue describes the emoji as neither picture nor text but instead picture-text, giving shape to networks of meaning and relationality that "language itself cannot completely capture and

and Europe (Feigelfeld).

²⁶ In case it is not clear from the quote above, I think this ambivalence was a major part of what Hayles sought to highlight, particularly in the opening of her book discussing the Turing Test (Hayles 4-5).

communicate” (Inoue 2). The emoji imposes a radical limit on the disembodying powers of scripts by showcasing figuration back into textual form. Perhaps this offers an alternative to the rationalist notion of non-sensuous intelligence that the alterity script called into question. Moreover, its passage from a local scriptural technique to a global protocol such as Unicode presents us with a global script not easily reduced to the dichotomies of Orientalism or Enlightenment thought.²⁷ Whether this translates into a new figure of reason remains to be seen.

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²⁷ For more on the Emoji and global communicative logics, see Dean.

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