

Excerpt from draft of *Toy Theory: technology and imagination in play*, MIT Press: 2024.

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### Unbox: Cheating at Chess

The Chess Player was a wooden cabinet with chessboard and a life-sized android with carved wooden head and hands. Designed and constructed by the Hungarian inventor Wolfgang von Kempelen in 1769, the figure was dressed in Turkish style, and both it and the cabinet had doors that could be opened to display the inner workings. Its left arm and hand picked up and moved the chess pieces, its head and eyes moving to follow play. Its first heyday was in the 1780s, as Kempelen travelled with the device around Europe. It played, and beat, Napoleon and lost to Catherine the Great (though she may have cheated).<sup>i</sup> On Kempelen's death the automaton was dismantled, reassembled and sold on a number of times, its fortunes revived when renovated by another inventor of automata, Johann Nepomuk Maelzel,<sup>ii</sup> and again toured widely in early nineteenth century, including the United States.<sup>iii</sup>

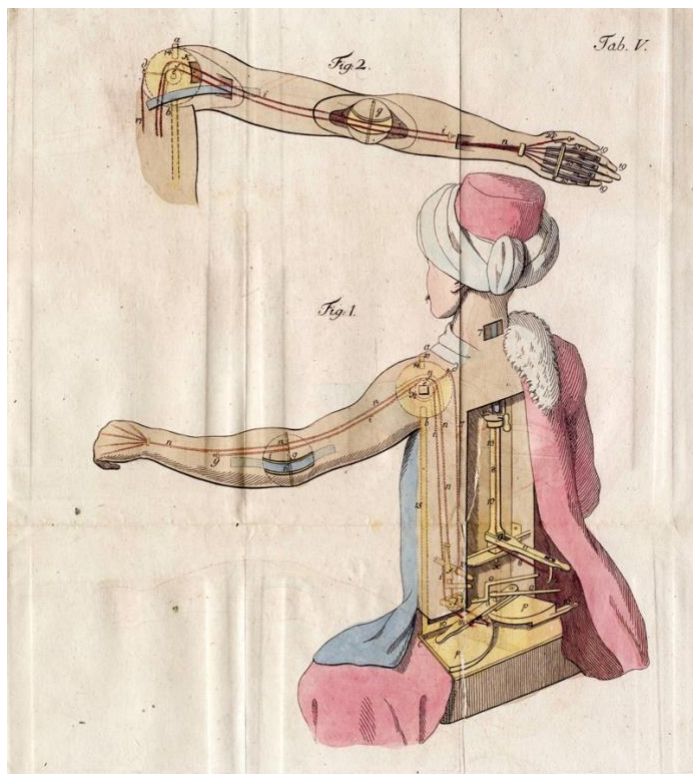


Fig.59. Kempelen's Chess Player. 1769 – early nineteenth century.

If The Writer hinted at the possibility of machine-consciousness, the Chess Player seemed to fully realise and demonstrate it. As the figure clicked and whirred, it consistently beat its opponents, including accomplished players as well as ordinary members of the audience. It appeared to take the rule-based mathematical achievements of Leibniz's calculating machines of a century earlier, and the contemporary breakthroughs of Charles Babbage, and add the complex and instinctual modes of human thought and reason of which chess-playing was seen to demand. As such it is now often regarded as continuous with the genealogy of artificial intelligence,<sup>iv</sup> its evident trickery somewhat skated over: for while it certainly fed into an imaginary of synthetic minds that continues today, it added nothing to the actual technical development of AI, as the play itself was directed by a human player hidden inside.<sup>v</sup> It was an ingenious and cyborgian mechanism in its own right however, the human 'director' disguised by mirrors and playing by candlelight, moving the chessmen through an innovative pantographic armature and magnets.<sup>vi</sup>

There are two key toyetic dimensions to the Chess Playing Automaton that I want to pick up on. First, it is significant that this ostensible approximation of human intelligence was achieved through a board game. As we will see later, the game is a paradigmatic cultural form for the development of AI and robotics, for reasons that are as much material as they are imaginary and evocative. Second, the Chess Player's construction and career are characterised by many layers of deceit, secrets, and trickery. It is important to bear in mind that the Automaton was not a fake or a fraud in absolute terms. Kempelen himself never directly claimed the machine really played chess without human intervention, he referred to it in the toy-like terms 'trifle,' or '*bagatelle*,' and as an 'illusion,' so it always had something of the stage magic trick about it (as its later life in Barnum shows would attest).<sup>vii</sup> Demonstrations of the automaton were characterised by elaborate, ritual-like performativity: the exhibitor opening its doors and drawers, passing a candle through its interior to 'prove' its purely mechanical workings, before winding it up with a key.<sup>viii</sup> Even in the Age of Reason, it appears, a taste for magic persisted. However, we should not assume that the reactions and desires of the Automaton's audience can be divided into a straightforward binary between credulous belief in enchantment in some observers and scientific and technical interest in others. Numerous pamphlets were written with theories of how the illusion was realised, and some audience members returned again and again to performances, trying to work out how it was achieved. Kempelen toyed

with his audience, standing close to the figure as it played and fiddling in his pocket, suggesting he was controlling the figure's movements with a concealed powerful magnet and thereby feeding into one of the prevalent theories of the machine's actual operation.<sup>ix</sup> Edgar Allen Poe, himself fascinated and unsettled by the Automaton, theorised in a pamphlet that the relatively crude carving of the figure's face and hands - in an era when waxworks for instance would easily and cheaply provide a much more convincing simulacrum - was in itself a decoy, suggesting that if the device looked more machine-like, the audience would be more likely to believe it was fully a machine.<sup>x</sup> As with stage magic, and the cinematic special effects it - and automata - would inspire, audiences were at once entranced by the illusion and its implications (*what if* a machine really could play chess, and think?) and hungry for the revelation of how the trick was pulled. Gaby Woods suggests then that the technical legerdemain itself was an important dimension to the automata of the eighteenth and early nineteenth centuries: the performative revelation of inner apparatus by Jacquet-Droz and Vaucanson was intended to demonstrate authenticity and lack of illusion, but "it only gave trickery a new idiom," as with 'false' automata such as the Turk, "pretending to unveil the inside of the machine was all part of the act."<sup>xi</sup> On the one hand this did not detract from the natural-philosophical thought experiment dimension of earlier automata: neither the Writer nor the Chess Player could think, but both invited contemplation on that possibility. As Jessica Riskin muses, "[p]eople no doubt knew it was a hoax, but they were fascinated anyway, because it dramatized the question of the age: whether a machine could reason, and relatedly, whether the human mind might itself be a kind of machine."<sup>xii</sup>

On the other hand, we see the intriguing suggestion that perhaps audiences *did not want* to see the actual fully realised moving and thinking machines. The pamphleteers expressed an anxiety about the essence and boundaries of the human, and the general public appeared to have been "titillated by the possibility of automation," toying with the idea that "machines could be like humans, without ever having to deal with the reality. It was like playing with machinery, or playing with what was human."<sup>xiii</sup> I would note a marked similarity with the children's response to the suggestion of a fully autonomous robot toy in *Unbox: Robot imaginaries*.

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<sup>i</sup> Wood 2002, 58

<sup>ii</sup> Maelzel was friends with Beethoven and persuaded him to compose a piece for his Panharmonium - a invention consisting of 41 automated musicians. The piece became the basis of Beethoven's 'Battle' Symphony Opus 91.

<sup>iii</sup> The tour included other automata built by Maelzel, including musicians and a panorama. Maelzel also gave the Turk the ability to say check - *échec* - via bellows. Maelzel met P.T. Barnum in the US and the two collaborated (Wood 2002, 71)

<sup>iv</sup> e.g. Lister et al 2009, 351

<sup>v</sup> von Boehn 2010 [1932]: 263

<sup>vi</sup> The mechanism was subsequently influential in its own right, for example in the development of prosthetic limbs. As Wood puts it, 'the automaton helped to design the human' (Wood 2002, 68)

<sup>vii</sup> Wood 2002, 64

<sup>viii</sup> Wood 2002, 61

<sup>ix</sup> Wood 2002, 65

<sup>x</sup> Wood 2002, 73

<sup>xi</sup> Wood 2002, 77

<sup>xii</sup> Riskin 2016 n.p

<sup>xiii</sup> Wood 2002, 77