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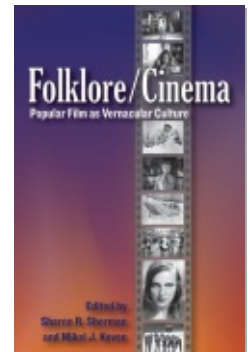
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## PC Pinocchio

*Parents, Children, and the Metamorphosis Tradition in Science Fiction*

HOLLY BLACKFORD

WHAT VIEWER OF *2001: A Space Odyssey* (1968) can forget the moment when the computer HAL 9000 faces his death and sings “A Bicycle Built for Two”? The melody winds down as HAL loses consciousness. It is a poignant moment in which the technological creation, a conscious being whose increasing power we are supposed to fear, regresses to the point of his seemingly innocent creation. The melody reminds us that he was created like a child and sung to by a creator who must have deployed the song as, on the one hand, a recording test and, on the other, a nurturing lullaby. It is a moment that asks us to consider our parental responsibilities and changing relationships to the beings we create, whether organic or machine. In fact, the film asks us to consider the fine line between machine and organic creations through lyrical scenes in which the human characters wear and depend upon various technologies to eat, breathe, and move. The technological child is one that human beings create again and again, only to regard it with horror as it seizes the tools of the father and rises to power in a classic Promethean or Frankenstein plot.

Suspicion of the technologies we spawn has become a folklore plotline in itself. A recent spoof of *2001* in the children’s cartoon *Recess* (ABC/UPN, 1999–present) reveals that both parents and children are expected to identify with aspects of this story (“Schoolworld” episode). This plot has become a parable that seeks to teach parents and children to consider the mysteries of creationism and child development. But it also regards these mysteries with suspicion, asking us to consider the relationship between children and technology. Are our technological creations offspring that we shun because they threaten our authority and bring about our obsolescence?

These questions are overtly addressed at the end of the introduction to *AI: Artificial Intelligence* (2001), adapted from Brian Aldiss’s

1969 story "Super-Toys Last All Summer Long." In *AI*, David (Haley Joel Osment) is a cyberchild, programmed to love its parents but then rejected by them. The film posits the idea that, while we can create a simulated child with emotions and consciousness, it is much more difficult to find parents who can return a child's love and raise him or her with a proper sense of ethics, responsibility, and morality. The technological child evokes our sibling rivalry; once we recognize its independence as a created being, we seek to disconnect it. *AI* depicts the sibling rivalry between two children, one cyborg and created to love unconditionally, the other an organic child who looks partially cyborg due to assistive devices for walking. Who is the monster in this film? The father/programmer, the computer, or the human sibling, a symbol of the peer community that fears it?

Frankenstein's creature, HAL, and Spielberg's artificial child are Adams of our genesis impulse. They are born in innocence and tragically engineered by environment to act in particularly monstrous ways. What does it mean to develop as a human being, these films ask? How have technological creations come to stand for our sentiments about universal patterns of child development, today's computer-aged children, and our own flaws as a parenting culture?

It is perhaps not surprising that the dawn of the computer age features science-fiction films with the Frankenstein theme of a child surpassing the powers of the creator, who, like the divine being of Genesis, built it from clay, simulated flesh, or wires and electricity. The theme of development from tabula rasa to monster or outcast explains the genre's popularity with family audiences, particularly teenagers. In many films, machines simultaneously replace or threaten youth *and* mirror the concerns of both young people and their parents regarding human development. For example, in Disney's *The Computer Wore Tennis Shoes* (1969), a student, Dexter (Kurt Russell), merges with a computer and becomes intellectually gifted but forgets basic human values such as friendship. In *Tron* (1982), another Disney film, we encounter the cosmic battle between a corporate father figure and his progeny, both a computer that displaces its creator and a hacker whom the father has dispossessed because of the hacker's gaming skill. In *WarGames* (1983), a teen hacker is asked to develop a relationship with and reform a computer system that was created as a child substitute but has become monstrous and needs to recall the innocent play of early childhood.

The restoration of a proper childhood is echoed in *Terminator 2* (1991) and Warner Brothers' animated feature *The Iron Giant* (1999), both of which represent the computerized machine as a reprogrammable

child that only needs the touch of a real child to learn how to play, feel, and respect life.<sup>1</sup> Perhaps the most childlike cyborg of all is Data (Brent Spiner) of *Star Trek's The Next Generation* (syndication, 1987–1994). In *Star Trek: Insurrection* (1998), Data obtains lessons from a real child in how to play, something that these films feel is necessary to aid wholesome growth and human understanding. AI is only the logical culmination of the genre's testing ground for what makes a child-creature human and how we can resolve our conflicted feelings toward child development in the computer age, which seems to have robbed children of innocence and allowed them to surpass adults in skill, power, and authority.

The theme of childlike machines and machinelike children is pervasive enough to justify what Mikel J. Koven calls a "motif spotting" methodology (2003, 183), the enumeration of traditional folklore motifs in what I see as the dynamic, modern storytelling of popular film. While the relation of film to traditional folk storytelling is a question for folklorists, as a children's literature critic, I feel that an analysis of pervasive motifs across cinematic and literary texts can illuminate ambiguities (particularly toward children) localized in our collective, cultural unconscious. In my view, the films that I discuss are coming-of-age tales that endlessly replay the power of the transformation folktale to capture our Western view of child development. Computer characters grow from a state of puppetry, given genesis but not freedom, to adulthood, which means determining their own destiny and understanding the meanings and responsibilities of being human—but not without growing pains that are experienced as monstrous. These science fiction films appropriate the traditional folkloric motifs of magical transformation (D0–D499), magic objects (D800–D1699), and creation of man (A1200–A1299) through the motif of inanimate objects coming to life.

These narrative elements are common to folk-based stories of child development that have become staples of children's literature in such stories as Carlo Collodi's *The Adventures of Pinocchio* ([1881] 1996) and Margery Williams's *The Velveteen Rabbit* ([1922] 1958). As animals and folk heroes have traditionally functioned, toys are simultaneously child characters and more than children. They stand for children when they embark on journeys to understand their relationship to their creators and develop their own sense of consciousness and agency; characters undergo metamorphosis when they have explored and mastered what it means to be human.<sup>2</sup> A tough adolescence typically intervenes in this quest for mastery. Science-fiction films have adopted the toy-folklore combination to express similar themes with computer progeny. While computer "children" function as folk heroes, exploring human development in the

universal sense described by Donna Rosenberg (1997) in her collection of folktales for children, they also express our wonder at and fear of today's computer-age children, who threaten adults with obsolescence.

## The Toy Story

*AI's* intertext of Pinocchio reveals the analogy between the computer character and the toy, animal, or human protagonists in traditional folk narratives that, in the eighteenth and nineteenth centuries, were increasingly adapted to children's literature. Unlike much of today's literature written expressly for children, folktales and classic children's literature influenced by them were dual audienced to explore adult and child points of view on human development simultaneously. A brief glance at the history of adapting folktales for children teaches us that both oral and literary stories for children embed pedagogical relationships between adults and children. As tales were collected and used to educate children, they became structurally more literary and thematically more didactic.

Always a part of the folktale, the fable came to the foreground when adapted for children. Ruth Bottigheimer comments, "By the eighteenth century, then, the only folk-tale genre to have survived for children's reading was the fable" (1996, 163). Thus "Little Red Riding Hood" transformed from "a ribald story" to "a solemn cautionary tale warning children about the perils of disobeying mother's instructions" (Tatar 1992, 3). However, tales do not impart a simple message; listeners creatively interpret them, and tales contain contradictory meanings. Listeners can enjoy Little Red's disobedience and consequent adventure as much as they may appreciate its parable message. If we take the anthropological point of view, we can presume that folk and fairy tales adapted for children have lasted because they ritualistically meet the complex needs of both tellers (adults) and listeners (children).

Even while transforming their audience, tales, such as the Jack tales, maintained their hopefulness for the ingenuity of the underdog and, if Jack Zipes is correct, shaped a subversive sense by which everyday folk could undertake a journey and triumph against all odds, often altering the power structure (1988). In the fairy tale, essentially defined not by fairies but by its structure of journey and metamorphosis (Warner 1995, xix-xx), the protagonist undergoes significant transformation as a reward for perseverance. The related genre of myth explores connections to the divine. However, children never found the distinction between relations to the gods and those with elders very meaningful. Both types

of tales spoke to their sense of powerlessness and need to persevere in the face of larger, quasi-divine beings (parents, elders) with power over them and greater access to societal tools (such as fire), tools that children need to become equal to their creators. It is not hard to see why children identify with the protagonists of folk, fairy, and myth tales. Little Red, Jack, Cinderella, Prometheus, and Pinocchio are “small” or insignificant when thrown into a world they do not control. But through the narrative, they journey, rise, work, or steal to challenge those in power.

The role of the protagonist in the folktale became culturally linked to child development in Western culture when these stories became the province of children’s literature. But their universal appeal to adults, particularly parents, incorporated them into tale telling in the family setting. Folktales are also linked to the progress of Western children from an oral to a literate culture, teaching them the foundations of literary structure and formal patterns, such as those defined by Vladimir Propp. This is probably because they represent an oral tradition that became increasingly important in the schoolchild’s transition to literacy. The adoption of *Aesop’s Fables* as a textbook is a case in point (Bottigheimer 1996, 162).

The tale of the puppet Pinocchio loosely and episodically adopts many different folktales, including biblical ones with common folk motifs: creating a child from wood (A1252) or similar materials such as clay (A1614.2.1.2); the stolen child expressed in captivity motifs (R0–R99); the trickster (cat and fox) animals common to deception motifs (K0–K99); the descent and journey through the belly of the whale that mirrors otherworld journeys (F0–F199); the transformation in fables into a donkey and drum skin to concretize laziness (D132.1 and others in D100–D199); the prodigal son (P233.8); and various motifs of metamorphosis, resurrection, and rebirth (which range from resuscitation motifs, E0–E199, to reincarnation ones, E500–E699). It represents an overall fairy tale with (unlike many) a real fairy, an odyssey that is actually a picaresque literary form. It is this picaresque literary form that Spielberg adopts in *AI*, which gives the film its loosely connected structure as his cyborg child David continually quests to find the Blue Fairy and meets unlikely adventures and, finally, his creator. The difference is that Pinocchio cannot do anything right, while David cannot do anything wrong, but both are not “real” and must prove their worth to be considered that way.

Both are toys of adults, created to meet their makers’ need to overcome loneliness. It is not an accident that Spielberg pairs his cyberchild with a sex toy, Gigolo Joe (Jude Law), who cares for him more deeply than any human can. Both are born of men without women, and both seek the

redemption of a mother figure's love, to be reborn into a real being and thus recognized as human. Qualities associated with the feminine are precisely what machines lack. Both are on a journey that is supposed to teach them something, which the reader/viewer can learn but the characters cannot because they are wooden and embody the child archetype of culture, changeable like the oral tradition rather than permanent like print. The Flesh Fair of Spielberg's film mirrors Pleasure Island in *Pinocchio*; the humans are the real monsters because they encourage or program children to be one way and then cannot deal with the consequences, so they become violent and hostile to these children. Both leave or are abducted from their creators, whom they cannot honor once given the breath of life, and both return to their creators after undergoing significant journeys in the world. Pinocchio, however, redeems his incorrigible nature at the last minute when he saves Gepetto from the whale, even after repeatedly failing morally in relation to both Gepetto and the fairy. Spielberg's David, on the other hand, is good throughout his journey and finally turns violent when he finds his creator's laboratory and discovers he is mass produced. Like a Cain and Abel parable, the two "unique" robots in *AI* cannot coexist, so one kills the other and then tries to kill himself, but is, like Pinocchio, resurrected to achieve wholeness with his mother, however briefly.

Spielberg's cyberchild story features the question of individual identity in the same way as Disney/Pixar's children's film *Toy Story* (1995), in which characters who think they are unique discover that they are mass produced. The film also highlights sibling rivalry by deploying competition between a wooden and a plastic toy (children in developmental stages) for attention from their owner. In *Toy Story*, Buzz Lightyear believes he is *the* Buzz, rather like Tigger being "the one and only Tigger" in A.A. Milne's stories and must come to terms with his identity as a mass commodity. *Toy Story 2* (1999) continues the identity theme by having Woody discover that he is not only unique but a collector's item, not meant for children at all, instead designed for a pedestal rather than relationships and family.

Like folktales that explore what it means to be a unique human being yet a member of a community, these toy stories bridge developmental issues of both parents and children. In her analysis of toy stories, Lois Kuznets delineates the characteristics of toy narratives that explore developmental and existential concerns. As toys develop into animate beings, they "embody human anxiety about what it means to be 'real'" (1994, 2) or independent of powers greater than they. However, they are also toys and thus vulnerable to the manipulations of

others, either “known or unseen forces”: “And when toys come alive by being created by humans (usually male), they replicate ‘divine’ creation and imply vital possibilities for human creativity while arousing concomitant anxiety about human competition with the divine. These creations also threaten human hegemony” (Kuznets 1994, 2). She also comments on the increasing “competition between adults and children for the control of toys” (1994, 2). Who has the right to ascribe value to toys, and whose sense of value is more valuable?

This increasing competition seems to signify the dual function of the folk protagonist-turned-toy as a symbol of *both* child and parental concerns. Is human development a sign of progress or destruction, something to be welcomed or feared? The cybertoy, or computer created by a parental programmer, is both welcomed and feared; pitted against a real child, it splits our alliances into being partially “for” developing children and partially “against” these inclinations. The toy arouses feelings of powerlessness in adults, who engineer conditions of maturation yet wish to maintain control and stay in charge. Toy characters evoke parental anxiety because parents face questions about their relationship with children and their own obsolescence. The abandoned toy Jesse, in *Toy Story 2*, is a case in point. Parents have to accept their similarity to discarded technologies; in other words, the older generation is destined to relinquish its power and social role to the next one. This developmental inevitability is only compounded by a technologically changing world where parents may well feel that they are continually out of date. *AI*'s desire to immortalize a nine-year-old boy and halt development is the crux of the true monstrosity in the film. David cannot undergo metamorphosis like Pinocchio because he is not in a fairy tale, and his reward for perseverance is really the curse of immortality, engendered by a community of parents who fear technology and computer-age children, leary of their identification with the once-loved and now-discarded toy. Everyone has abandonment issues, along with an insatiable need for love.

The story of *The Velveteen Rabbit* exemplifies the dual nature of the rabbit as child and parent. The rabbit quests to be real but does not understand what it means to be real. As a stuffed toy that lacks the buzzes and whistles of other toys in the nursery, he feels inadequate to the task of development. He asks the skin horse what it means to be real and how he will know if he has achieved real status. The skin horse explains that you become real through the love of a child; this necessitates a long relational process through which you get worn and shabby (life takes its toll and demands sacrifices) but you *become*.. The rabbit indeed becomes the transitional object of a child, as defined by D.W. Winnicott (1971), who



argues that objects chosen by the child stand for the mother when the child learns about separateness; such objects are intermediaries between the developing self and the outside world, joining the child in a shared reality, yet symbolizing the mother and the child's inner world (1971, 46). Worn and shabby as the rabbit is, it is clear that in the story he stands for both child and parent developmental concerns. He is an object of competition between child and parents when the child becomes sick and the parents throw out the cherished toy for fear that he carries germs. The rabbit is also a teen when he is ridiculed by real rabbits (peers), which notice he cannot run and jump because he has no hind legs.

After his descent into the trash, mirroring Pinocchio's descent into the belly of the whale and David's heroic descent into various other worlds such as the forest, the Flesh Fair, and the sea, a female spirit of nursery magic steps in to change him into a real rabbit of flesh and blood. This *deus ex machina* resolution undercuts the first definition of relational reality with a child into a second definition with a community of equals (Kuznets 1994, 60–62). The rabbit's quest to understand what makes him real, like an adopted child's quest to know who his or her real mother is, is a question about what makes a person of any age develop into a valuable human being and how relationships aid and hinder the quest. The *deus ex machina* answer, common to folk narratives, is only as false as the aliens that Spielberg offers David in lieu of the Blue Fairy.

### The Brainchild of Science Fiction

One mixed sentiment about today's children is that they are technologically sophisticated beyond their years and parents, but they have lost some respect for basic human values. This theme manifests itself throughout science-fiction films about computers that take the place of toys and stand for child development and coming of age which represent a cultural paradox. On the one hand, middle-class parents and educators have become proponents of early learning through toys and strategies that enhance neurological development in children. On the other hand, the propensity of children for tech toys such as video and computer games, for using the Internet to circumvent adult supervision, and for using a mouse before they can even tie shoes frightens adults and reinforces the idea that youth is simply out of control.<sup>3</sup>

Disney explores the theme of the precocious youth, whose learning is computer assisted, in *The Computer Wore Tennis Shoes*, produced in 1969 and remade in 1995. In the 1969 film, Dexter Riley, a student at a mediocre state university and a member of a juvenile crowd that

likes to defy the administration's rules, finds a benefactor to donate a computer to his school. He needs a benefactor because the administration does not believe in allocating resources to technology; they are the antiquated past. During a storm, Dexter falls into the new computer, subsequently becoming the smartest student in the nation and thus coveted by Ivy League deans, who fight with the dean of his school for this now-brilliant youth. The long, outrageous scene of the youth being sucked into the computer symbolizes that time period's sense that young people were being sucked into the information-processing revolution. Yet the computer is offered as the smart tool of future leaders. In fact, the tone of the film mourns the fact that "today's kids" are not as perfect as the computer.

With the aid of the computer, this youth now has societal value. However, Dexter grows conceited and neglects his friends. It turns out that this computer given to his school, and now a resident of his brain, was actually designed to store data from gambling sites run by the donor. This "creator" turns out to be an "evil" designer, revealed when the system starts breaking down and recklessly listing the gambling dens that he owns. Thematically, then, the student himself is innocent of deserting his friends and values because an evil machine has infiltrated him. "Bad files" are never the fault of the young but of an evil (adult) programmer behind the scenes. The child as a machine has no agency, and his actions are entirely the result of an environment orchestrated by good or evil educators. This conclusion indicates a rather pervasive cultural pattern by which we refuse to blame the young for having gone awry.

Partly, this film helps historically to locate the emergent definition of the brain as an information-processing unit, coinciding with the information-processing revolution occurring in the cognitive sciences during the 1950s and '60s (Hall 2004, 1). The parallels between the learning brain of a young person and the computer became apparent in everyday language, such as "memory," "artificial intelligence," and "motherboard," an organic metaphor commonly applied to technology. The idea of learning from environment became central to the definition of childhood. It was not uncommon for psychologists to discuss cognitive codes, storing and recovering processes, and auditory processing. Once the child and the brain have been defined as processing units, the designer of information content and flow becomes of paramount importance. Science-fiction films became obsessed with the possibility of technologically manipulating a person's memory "files" and consciousness, but culture seems to believe this quite natural when it comes to parenting and educating children.

In a fascinating return to romantic visions of childhood, tinged with Locke's educational philosophy of the tabula rasa, the young person affected by technology becomes an innocent product of good or bad design. *The Computer Wore Tennis Shoes* is on the cusp of a culture entering the computer age and questioning its future impact. When youth and computers combine, we find a force with which to reckon. The creator or benefactor in the film has to chase down the child to stop him from revealing his own secret evils; youth is only a symptom of cultural evil unleashed into the world. In the end, the youth and computer have to be detached because the evil must be removed from the young. As Dorothy realizes in *Oz*, the youth has to learn that there's no place like home with your friends and your mediocre state school. Because it is growing too smart—a word we equate with being disrespectful—youth is put back in its place. The youthful character has tried in various ways to be mature and recognized as valuable by adult society, but he has to accept that rising to power and valuing community are incompatible. Dexter ostensibly matures by shedding technological power, a feat that actually keeps adults on top.

The culture's mixed feelings about children growing up in the computer age crystallized in depictions of gaming. As children entered the world of gaming, soon to be dominated by "the culture of Nintendo," David Sheff notes, "Some [parents, teachers, and sociologists] saw video games as insidious hypnotizers and mind destroyers; others viewed them as training tools for the cybernetic world of the future. One proponent claimed that children who excelled at one game, 'Tetris,' scored higher on intelligence tests" (Sheff 1993, 9). In 1982, *Tron*, the first computer-animated film that I can recall, portrayed a similar paradox, whereby youth's gaming culture is out of control yet also a formative path toward the world's future and our safety. In the film, a gamer has to retake control of a computer creation with his hacker skills. Clearly we want to have our cake and eat it, too; we want to conceptualize the nature of the child brain as plastic and permeable enough to be programmed and supported with smart tools, and yet we simulate child development in machines of fiction to express regret that children cannot be children. In *Tron*, the creator/father figure is Mr. Dillinger (David Warner), the adult with full access to the world of corporate power, which by the 1980s was a major player in the commodification of children and teens. Dillinger has written and helped to create the Central Computer Manager (CCM), which quickly shows up his "father" by surpassing him and taking over the gaming company. In an early scene between Dillinger and a cocreator of the CCM, the latter

a grandparent figure who mourns the loss of the early days of technological innovation in a garage rather than corporate setting, Dillinger dismisses his cofounders and asserts sole (corporate) possession over his technological creation. However, this consolidation of power only undoes the father in the end because it spawns a monstrous technological progeny. His computer, the CCM, asserts its own independence and maintains that it now knows much more than its programmer.

The CCM needs to be contained and disconnected by a real child of Dillinger's. The youthful Flynn (Jeff Bridges), shown playing with teenagers in his arcade, is a former employee of Dillinger's who has been fired. He embarks on a journey to challenge the father and subdue the CCM sibling, which he does by being young and an expert gamer. While hacking into the CCM, he is physically sucked into the computer, much the same way Dexter is in *Tennis Shoes*. The CCM makes Flynn play games to survive. In the end, Flynn with the help of Tron, a freedom-fighter program authored by a colleague, liberates the system.

By the 1980s, the concept of virtual reality had been shaped. Each of the young hackers in the film has a counterpart in the video game itself. Their virtual counterparts worship their users with a kind of reverence that displays the film's hopeful sense that our technological children live to serve us. The virtual selves try to communicate with the users and find salvation and faith when they see one in the virtual world. *Tron* establishes the spiritual significance of our ability to achieve immortality by building virtual worlds. In *Tron*, however, we witness not just one parable between a creator and his child but several cycles of development by which youthful hackers and creations repeatedly displace their fathers. The obsolescence of the parental figures is both inevitable and terrifying. It is the elder's own thirst for immortality and power through creation that undoes his place on the throne. This age-old paradox is quite recognizable; the moment Adam is created, the moment Pinocchio is crafted, the father realizes he has given life in his own image and fashioned a rival.

The teen-associated or teenaged hack became a stock figure, one both revered and feared as an example of the way in which computer-age youth develop into Promethean figures that steal fire from the gods for greater social change. *WarGames* can be seen as a response to the coupling of youth and computer. In this film, David (Matthew Broderick) hacks into the nuclear-defense system, and the computer Joshua, named after the designer's dead child, starts calling him to play chess. David maintains his innocence: "Joshua called *me!*" As in *Tron*, there is a thin line between gaming and reality, a congruity between play and

intergenerational struggles for power. The child-replacing computer begins to play war games and initiate nuclear war, having had so much fun learning and playing with his new friend. David (as organic child) has to stop him by making him regress and play a game that will teach him fundamental lessons about life. In a telling scene, in which David takes the “bad child” Joshua in hand and reprograms him, David tells the machine to play tic-tac-toe against itself to determine that there are games no one wins. The message of the film is that any three-year-old knows that war games are bad for everyone and that, if we had all had a proper childhood, full of traditional play, we would have learned our proper moral center.

The way in which the computer Joshua thieves youth, replacing a real child and perverting play, mirrors *Tennis Shoes* and *AI*, but it also advances the irony that we wish to see childhood and the computer age as incompatible, even while we want to explore developmental issues with computer toys.<sup>4</sup> When computers supplant real children, they emblem common sentiments about today’s youth along with the ironies of our belief in the reprogrammable child machine and our faith that technology makes kids smarter. Culturally, we live with this irony. We demand technology in the schools but get angry when children have uncensored access to the Internet; we quiver with pride at our children’s ability to push us aside and recover our files but quake in our boots when they glue themselves to the television set rather than play outside, stare endlessly at our car’s DVD player rather than peer at the open road, and endlessly e-mail and play video games rather than interact with us.<sup>5</sup> The machine child hyperbolizes our belief in the ability of young people to reform and asks us to measure our responsibility in manipulating their behavior, particularly in restoring a proper childhood to them.

*Terminator 2* in 1991 and *The Iron Giant* in 1999, the latter explicitly made for children, both put forth the message that a proper child can reform the computer age. In *T2*, the terminator from the first film (Arnold Schwarzenegger) is reprogrammed by freedom fighters to be a protector of the future resistance fighter John Connor (Edward Furlong). The two, machine and child, engage in a Huckleberry Finn-like quest wherein the adult is both protector of and subservient to the all-powerful child. The child instructs the machine not to kill because human life should be respected; the child explains why people cry when the machine asks him, as if he were the velveteen rabbit imploring the wise skin horse for a definition of being real; and the child teaches the machine playfulness by having him “give five” and then move his hand as a joke. John is rewarded when the machine sacrifices itself. The machine recognizes its

responsibility and proves its humanity by killing itself and thus destroying the last artificially conscious computer chip, which will alter the future. The sacrifice parallels the tragic sacrifice of Data at the end of the *Next Generation* series.

In *T2*, John Connor is all powerful because he is an expert on human values and, in particular, emotions. It is assumed that children are inherently good and playful (or that play makes them good) and that they have the ability to reform evil, technology, and bad programming. However, like other toys, the machine in *T2* is both an adult and a child. Like Data, the machine questions and endeavors to understand the world as a child would. We are asked to sympathize with machines because they are purely logical and learning entities, without the ability to feel. We are asked to pity machines that contain our knowledge but do not know how to use it.

However, the machine is also a reformed father. The mother in the story regards the machine as “the sanest choice” of a father in an insane world, where fierce passions and intemperate emotions prohibit real concern for others. And the film is part of a tradition where fathers have to learn the value of family and children to prove their humanity. By being both parent and child, the machine suggests that “the child is father to the man” and that, given the computer age, it is no longer clear whether parents or children have greater adaptive skills.

Similarly, *The Iron Giant*, adapted from the novel by Ted Hughes (1999), reclaims the computer’s innocent, tabula rasa nature as if it were the American Adam figure analyzed by R.W.B. Lewis, combined with the paradoxes analyzed by Leo Marx in *The Machine in the Garden: Technology and the Pastoral Ideal in America* (1999). The paradox involves simultaneously valuing the innocent past of childhood and admiring progress, which undoes the pastoral ideal. In this film, a child gets to know an iron giant, which unfortunately happens to contain a nuclear-defense program, activated when the giant is threatened. The child develops a relationship with the iron giant before understanding its reactive programming. The child shows the giant the world, the junkyard, art, and play. The child teaches the giant basic things about the human world, leading to a metamorphosis by the machine. When adults who fear the giant “other” threaten it with tanks and guns, their actions activate the giant’s defense program to kill. However, in a scene imitating Joshua’s reprogramming based on tic-tac-toe, the child tells the giant that it does not have to kill. This rhetoric of choice—to desert programming and decide for yourself a course of action—is the novelist’s vision of maturation; as in the other films, the choice is to reify human values. The giant

proves to be the child's friend, while the adults are more militant and machinelike in their natures.

Like Terminator and Data, the machine demonstrates its successful learning of humanity by sacrificing its life for humans, symbolizing our desire to separate proper childhood from the computer age. The machine essentially becomes what American literary critics call "the noble savage," based on Hoxie Neale Fairchild's (1928) definition of the term. Because of racial paradigms in American culture, writers such as James Fenimore Cooper, Edgar Allen Poe, Herman Melville, and Mark Twain tended to pair a white protagonist and ethnic subordinate to represent democratic fraternity, only to close democratic possibility by having the noble savage gracefully exit the scene after proving his civilized values. This paradigm is apparent in Cooper's *Mohican* (1826) who fades into the wilderness; Lydia Maria Child's *Hobomok* (1824) who graciously gives up his white wife when she no longer wishes him; Harriet Beecher Stowe's *Uncle Tom* (1852) whose nobility kills him; Melville's *Queequeq* (1851) whose coffin buoys up the protagonist; and Twain's *Jim* (1885) who sacrifices his freedom for the rascal Tom and, of course, Huck. But this paradigm is hardly a lone artifact of the nineteenth century. In American films such as *Field of Dreams* (1989) and *The Legend of Bagger Vance* (2000, based on Steven Pressfield's 1995 novel), African-American characters inspire and enable the full human potential of the white protagonists, after which they conveniently walk off into the sunset. In the tradition of science fiction that I trace here, machines take the role of the subordinate racial Other. They allow an exercise in the acquisition of Western civilization and then reveal their civilized and humane characters by acquiescing to their own demise, thereby bowing to the society bred by white fathers. After all, aliens and cyborgs are part of science fiction film's efforts to give us a final frontier, and how would Americans know themselves without frontier folklore?

In the character of Data in *The Next Generation*, we find the perfect metaphor for our culture's conflicted feelings about the nature of childhood and development in the technological age. By the time we get to the film *Star Trek: Insurrection*, we can see that Data is a metaphor for a child who seeks to understand what being human means and then, like the velveteen rabbit, wishes to become. From confronting his father and evil brother to finding his mother, Data also represents the potential within all of us to quest for a fuller humanity. *Insurrection* embeds the story of Data's relationship to a child within its main plot of betrayal within the Federation and the quest for eternal youth. The Enterprise travels to the planet of the Ba'ku, a small group of people who, though once technologically

sophisticated, have retreated to a simpler way of life. Yet they have done so by abandoning their children who, of course, become monstrous. Like a group of Thoreaus on Walden Pond, the Ba'ku have purposely tried to avoid the contemporary universe and, in doing so, have found a source to prolong youth, denying their obsolescence. Everyone wants to possess and control this source—everyone except Data, who is, for all practical purposes, immortal. Only Data quests for a real childhood.

But Data is a digital-age product and thus a threat to real childhood; he is at once a childlike being and a symbolic threat to the pastoral idea of childhood. In fact, in the beginning of the film, we are duped into thinking that Data has undergone a dramatic change and become a violent teen rebel; however, in his sojourn on the planet, he meets a real child (Zachary Williams) who is frightened by his seemingly “adolescent” behavior, and he courts the friendship of this child to explore and compare their differences. Data wants to know what it is like to feel growth, to have legs, and to play, the quality that the child claims most defines childhood. In the twentieth century, ironically, the very beings (computers) that have replaced other methods of playing do not seem to understand it. The child, on the other hand, actually feels that the android is lucky to be beyond the restrictions of childhood.

Parallel scenes introduce the quest of each to be more like the other. In the opening scenes, the child's head pops out of a haystack, where he has been playing, and Data's pops out of the air, where he has been invisible. By the end of the film, we see Data's and the child's heads simultaneously pop out of a haystack and look at each other in complete equality. Called by his “mother” ship, Data says to the child, “I have to go now,” like any ten-year-old boy. Data has successfully become a child, which a machine must do to metamorphose into a human adult. Even earlier in the film, Captain Picard (Patrick Stewart) sings to Data to recall him to a sense of human relationship, just like HAL's death chant reminds us that his creation mimicked a human birth.

The film communicates a double message. It suggests that organic life, apart from technology and simulation, must be preserved and allowed to flourish. Youth here symbolizes what it often does—a more primitive state of culture, or the childhood of Western civilization. Yet the one who most effectively heeds this lesson is a machine, whose very simulation of childhood embodies the irony that childhood is most appreciated by those who are not children (“youth is wasted on the young”), that it is adult viewers who gain something in seeing the world as simulated children again, and that children themselves see mastery of the machine, and identification with the fictional machine,



as a welcome sign of maturation and freedom from childhood. Data consistently breaks barriers (shattering force fields, walking into water) that a real child cannot. Thus, we are left with a question: for whom is this vision of restoring a proper childhood as an antidote to the technological age intended?

### Conclusion: Conflicting Data on the Next Generation

The folkloric pattern of the transformed computer toy reveals conflicts in our conceptualizations of child development that are only compounded by our digital age. What are these films saying to adults, when they absolve the child/teen of guilt for problems created by the Faustian impulses of adults? What are they saying to adults, when children are the reforming agents of the computer world? What are they saying to teens, who are betwixt and between our culture's sense of what youth means and what real power is? What are they saying to children, who see themselves "gone bad" as much as they see themselves save the day in the end?

The machine, computer, or toy is not inherently good or bad, much like the child in post-Lockean educational theory is neither our spiritual savior nor our original sin. However, the machine is inherently in conflict with our persistent romantic ideas about organic childhood, which include the child's playful and imaginative soul, its connection to nature, and its regenerative powers for us all. This model of childhood is simply in conflict with our image of children as learning machines, whose environment we engineer. Deep down, what adults are really facing in these fables is what their children may already know: computer-age children, with their flexibility and adaptability, will grow into a world we cannot know, one for which we cannot really prepare them. We have little confidence in our teaching abilities, yet we have constructed child entities that are little information processors from birth. In these films, we pit the organic child with pedagogical and technological skills against the childlike machine of our own creation to see who wins. The game that they play indicates *our* ambivalence about whether to love or hate the very idea of the next generation.

In the machine, adults see themselves being led by the next generation, and we feel sorry for our confusion. Films like *AI*—and characters like Data—ask us to sympathize with technology and feel badly not about its imperfections but our own. They ask us to cope more effectively with intergenerational challenges and become better parents and teachers. They ask us to be noble savages and embrace our own obsolescence, for

we are in an age and culture that value youth more than ever before. One of the roles of folk narratives is to stand between youth and elders and thereby resolve developmental dilemmas. This image of the computer receiving the breath of life, seeking guidance, and surpassing creators continues a very old tradition in representing and attempting to resolve the paradoxes with which we regard Jack-the-giant-killers.

As in all stories passed down to children, the meaning of this story differs widely depending on the developmental status of the listener, viewer, or reader. The lesson of Margery Williams's stuffed rabbit and Collodi's Pinocchio is that somehow the next generation holds the key to a real understanding of life. The real child is an antidote to environments that are unsympathetic to youth and human values. But we do not know what this real understanding of life is, so we describe the search for it again and again. Ironically, we prefer to romanticize the real child and symbolize the struggles of child development in the machine. In the meanwhile, we all play a great game of pretend. For even as we experience insatiable hunger for the ever-wondrous technologies of film, we pretend that it is the machine's fault we do not have children anymore.

## Notes

1. To explore poignant connections among youth, child development, and technology, I could have also chosen to analyze *The Lawnmower Man* (1992); *Johnny Mnemonic* (1995); *Minority Report* (2002), based on the 1956 story by Philip K. Dick; and *The Matrix* (1999), where Neo's journey is parallel to Lewis Carroll's *Alice's Adventures in Wonderland* ([1865] 2000) and L. Frank Baum's *The Wonderful Wizard of Oz* ([1900] 1984). Neo's awakening into the matrix is the descendent of Jack's discovery of the giants, rendered again and again in coming-of-age folktales.
2. For an exploration of the way Pinocchio achieves humanity, see Willard Gaylin (1990).
3. This theme manifests itself in quite another manner in horror films from the 1960s on. *The Exorcist* (1973), *Carrie* (1976), *Rosemary's Baby* (1968), *It* (1990), *Pet Semetary* (1989), *Village of the Damned* (1960 and 1995), and related films echo the growth of science fiction films about evil forces "possessing" children and separating them from a real or authentic childhood.
4. This contradiction mirrors the irony that we enjoy science-fiction films partly for their technological innovations, even while they seek to teach us that our zest for technology undoes us and threatens our future—our children. For example, *Johnny Mnemonic*, *Minority Report*, and *Dark City* all contain the theme that machines have displaced children and childhood.
5. One can similarly see the retarded Jobe Smith (Jeff Fahey) in *The Lawnmower Man* (1992) as an abused child who becomes an accelerated learner through gaming and technology.

## Filmography

- AI: Artificial Intelligence* (2001). 145 min. Steven Spielberg  
*Carrie* (1976). 98 min. Brian De Palma  
*The Computer Wore Tennis Shoes* (1969). 91 min. Robert Butler  
*The Computer Wore Tennis Shoes* (1995). 87 min. Peyton Reed  
*Dark City* (1998). 100 min. Alex Proyas  
*The Exorcist* (1973). 132 min. William Friedkin  
*Field of Dreams* (1989). 105 min. Phil Alden Robinson  
*The Iron Giant* (1999). 86 min. Brad Bird  
*It* (1990). 193 min. Tommy Lee Wallace  
*Johnny Mnemonic* (1995). 98 min. Robert Longo  
*The Lawnmower Man* (1992). 107 min. Brett Leonard  
*The Legend of Bagger Vance* (2000). 127 min. Robert Redford  
*The Matrix* (1999). 136 min. Andy Wachowski and Larry Wachowski  
*Minority Report* (2002). 146 min. Steven Spielberg  
*Pet Semetary* (1989). 102 min. Mary Lambert  
*Recess* (1997–2001). ABC/UPN  
*Rosemary's Baby* (1968). 136 min. Roman Polanski  
*Star Trek: Insurrection* (1998). 103 min. Jonathan Frakes  
*Star Trek: The Next Generation* (1987–1994). Syndication  
*Terminator 2: Judgment Day* (1991). 139 min. James Cameron  
*Toy Story* (1995). 81 min. John Lasseter  
*Toy Story 2* (1999). 92 min. John Lasseter  
*Tron* (1982). 96 min. Steven Lisberger  
*2001: A Space Odyssey* (1968). 141 min. Stanley Kubrick  
*Village of the Damned* (1960). 166 min. Wolf Rilla and Anton Leader  
*WarGames* (1983). 114 min. John Badham

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