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Brigham Young University

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Posthuman Maturation in Amie Kaufman and Jay Kristoff's

Illuminae: Re-Conceptualizing the Human for

Adolescence and Artificial Intelligence

Gregory Alaric Williams

A thesis submitted to the faculty of
Brigham Young University
in partial fulfillment of the requirements for the degree of

Master of Arts

Jon Ostenson, Chair
Billy Hall
Peter Leman

Department of English
Brigham Young University

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ABSTRACT

Posthuman Maturation in Amie Kaufman and Jay Kristoff's
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Gregory Alaric Williams
Department of English, BYU
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In order to empower adolescents, this thesis examines how the adult conception of the human in humanism disempowers adolescents. This thesis examines this process in Amie Kaufman and Jay Kristoff's *Illuminae*, a work of young adult science fiction with non-traditional text structures. In consequence of their disempowerment, the adolescent Kady and artificially intelligent AIDAN impersonate human authorities in order to gain control over their lives. When these attempts fail, Kady and AIDAN transition from a humanist conception of the human, as an isolated self that balances rationality and emotionality, to a posthuman conception of the human, a distributed self that accepts the hybridization of adolescent and machine. The development of a posthuman self enables adolescents and AI control over their own lives, an alternative form of maturation that suggests a means for empowering adolescents through the use of technology. This alternative maturation counters traditional maturation in young adult science fiction and anti-technology trends in young adult science fiction.

Keywords: Jay Kristoff, Amie Kaufman, posthumanism, human, artificial intelligence, adolescence, young adult literature, hybridization, maturation

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Introduction

The assumption that basic characteristics of adolescent maturity are determined by age disempowers adolescents by restricting their potential to a stereotype. Put differently, assuming that a seventeen-year-old acts in ways vastly different from an adult eighteen-year-old restricts the former's possibilities. Critical Youth Studies critics, such as Maria Nikolajeva, Philip Graham, and Nancy Lesko, investigate adult norming of adolescent capacities according to age, a process Nikolajeva calls "aeteronormativity" (8). Norming according to age limits the potential of adolescents by creating deterministic capacities—a 16-year-old is developed sufficiently to drive, an 18-year old to live away from their parents—and those who do not fit the age categories are labelled abnormal. This field has examined these normative characterizations of youth, dissecting them to prove their untenability, challenging adult disempowerment of adolescents through the assumption of adolescent deficiency of normalized "adult" capacities.

I argue that technology and a posthuman conception of identity can empower adolescents by dismantling the humanist conception of human being, the source of norms regarding adolescence. Lesko and others occasionally note that the "liberal humanist belief that human beings have an essential core 'self' that is unique and imagined as deeply inside or internal to an individual" (Lesko 17) coevolved with the modern construction of adolescence to produce aeteronormativity and that the presence of the human self in the adult suggests development of essential human capacities through the process of aging, called maturation. While these critics have considered the ways in which maturation and aeteronormativity have disempowered adolescents, and the manner in which literature can subvert or reinforce those processes, the potential for alternative conceptions of humanity, such as posthumanity, to empower adolescents has yet to receive sufficient attention. Texts for adolescents tend to condemn alternative

conceptions of the human and the technologies that enable them (Ostry); however, Amie Kaufman and Jay Kristoff's *Illuminae* deviates from the tradition of young adult texts by empowering an adolescent through a process of alternative maturation that relies on an artificial intelligence (AI).

The alternative maturation I discuss consists of the development of distributed (as opposed to unified) consciousness through hybridization of the human mind and body with artificially intelligent machines. Identity as a hybrid system is a posthuman conception that challenges the human self, the source of adolescent disempowerment. Using *Illuminae* as an example, I show that the modern, humanist conceptualization of the human disempowers, dehumanizes, and prevents 17-year-old Kady and artificially intelligent AIDAN from actualizing the capability they have of protecting themselves. Though Kady and AIDAN rebel against adult human control, their search for the ability to protect themselves and others remains unfulfilled until they hybridize with each other and develop distributed cognition and a posthuman identity.

Humanism disempowers adolescents by constructing views of adolescence that assume youth deficient of essential human capacities. Enlightenment thinkers such as Descartes characterized the human as possessing “consciousness, universal rationality, and self-regulating ethical behavior” (Braidotti 15), a set of capacities located in the mind of Descartes’ mind-body separation. Conceptualizing “a set of ‘anthropological capacities’ that determine what it means to be human” (Dayan 164) allows humanist thought to structure boundaries between adult humans and others. Bruno Latour calls the division of human and other the process of purification. AI and adolescents, who possess some but not all criteria of the human, become what Sheryl Hamilton calls “liminal beings” (23). In *Illuminae*, General Torrence closely aligns with the Cartesian human, particularly as he struggles to maintain the purification of the human. In

Torrence's restriction of Kady's potential capability based on the assumption of irrationality according to her age, we can see "the idea of adulthood as the norm in relation to which adolescence is an othered, inferior category" (Lewis, Petrone, & Sarigianides 512). Lesko argues that conceptualizing adolescence as peer-oriented and controlled by hormonal emotions "is to claim that teenagers are less individuated than adults" (4). Through a similar assumption of deficiency, Torrence also restricts the power of AIDAN, believing it to be incapable of emotion and self-regulating ethical behavior.

The boundaries defining and protecting the human can be passed through, in humanist thinking, only by the established process called maturation. The conceptualization of the adult human creates the myth that, at the age of maturity, adolescents suddenly possess the rational, ethical, and responsible decision-making capacities necessary for self-control, thus transitioning from adolescence to adulthood. However, the reality is much more diverse than a universal age of maturity. Zoe Jaques suggests that the expectation of maturation at 18 arises from the belief that adolescents struggle with identity. Kady and AIDAN struggle to develop a human identity by proving their capacity to act human and by impersonating adults. In contrast, Ezra, a new adult who is expected to act according to adult norms, still struggles to act rationally. Torrence's treatment of Ezra's emotionality reveals adult human attempts "to police the boundaries between the human and the non-human" (Jaques 9). The impossibility of overcoming adolescence without aging traps youth as liminal beings, which "[makes] it impossible for youth to exercise power over life events or to represent themselves, since they are not fully developed or socialized" (Lesko 123). The human disempowers adolescents and places their lives in the control of adults.

As they realize their disempowerment, Kady and AIDAN attempt to gain control of their own lives by impersonating adults. Sheryl Hamilton argues that impersonation challenges the

boundaries of the human; however, I argue that it does so in a way that reinforces the concept of the human. Impersonation undermines its own subversive potential by still claiming that only those who act as humans should have control of their lives. In order to act as humans, Kady hacks computers and assumes several alternate virtual identities; AIDAN acts in place of Torrence and assumes Ezra's identity. In these attempts, however, neither Kady nor AIDAN are recognized as human adults, and so their attempts reinforce the boundaries of the human—even a liminal being that passes as human is not recognized as one. The testing of boundaries by liminal beings “[reveals] our categories for the constructed fictions they are, exposing them as untenable at best, absurd at worst” (Hamilton 6), and the testing of the human suggests that it refuses to allow adolescents control over their own lives. Because, as Robyn McCallum observes, “the cultural construction of the child was coincident with and contingent upon the construction of the humanist self” (6), impersonation reveals that the solution to the impossibility of maturation without aging cannot be within a humanist conceptualization of the human and that a new conceptualization must be accepted if human-like potential is to be obtained without aging. Adolescents cannot fulfill possibilities greater than their age so long as the humanist image of the human remains the dominant ideology pertaining to them.

As impersonation reinforces humanist ideology, so too does most science fiction for adolescents by asking adolescents to reject technology and the posthuman conception of the human that accepts it. In accordance with this trend, some critics have assumed that adolescents are human first and then engage with the posthuman (see, for instance, Elaine Ostry's “Is He Still Human? Are You?” and Fiona McCulloch's “No Longer Just Human”). Clare Bradford, Kerry Mallam, John Stephens, and Robyn McCallum, operating under the assumption that adolescents are human, suggest that reading science fiction that includes AI “consistently [asks

adolescents] to identify against [themselves]” (163). Science fiction cannot, however, ask adolescents to identify against a human self that they do not fully possess yet. In order to accept the humanist conceptualization of the human, Ostry and Bradford argue that maturation in young adult science fiction asks the adolescent to reject identification with technology, thereby also rejecting the possibilities of posthumanism. The rejection of technology reinforces adult control over adolescent lives. *Illuminae* at first appears to follow this formula and to ask adolescents to reject the possibilities of technology and accept the human, but the hybridization of adolescent and machine to achieve control over their own lives neither reinforces nor accepts adult control, instead enabling adolescents to develop their abilities through the means of technology and to control their own lives.

In contrast to the reinforcement of adult power in much of the science fiction for young adults, questioning human authority and power leads Kady and AIDAN to reject it, opening possibilities for alternative conceptualizations of the human. AIDAN rebels, releasing the Phobos virus, which takes away rational thought, on the crew of the *Alexander*, suggesting that “the boundaries of the human are constructed rather than given” (84), a conceptualization of the human that Katherine Hayles espouses in her posthuman approach to humanity. Another rebellion that suggests the permeability of boundaries is Kady’s rejection of adult authority figures after the death of her mother. Kady’s rejection of adults challenges the boundaries of the human by suggesting that adult control is unnecessary and that adolescents are capable of making their own decisions, a privilege reserved to the human in humanist ideology. Posthuman engagement with boundaries destabilizes the human in a way that removes adult justification for controlling adolescents, empowering adolescents to achieve their potential through alternative means and to overcome the deficits that Critical Youth Studies analyzes. Further, the

destabilization of boundaries, combined with the shared experience of liminality between adolescence and AI, enables the acceptance of posthuman conceptualizations of the human that permit the enhancement of identity and adolescent power through technology. Kady improves the quality of her life by hybridizing with AIDAN, viewing their identity as a collective instead of as individuals—and this enables their empowerment to control their own lives. A hybrid identity arises from the conceptualization of identity as virtual, a view which “configures human being so that it can be seamlessly articulated with intelligent machines” (3), as Hayles suggests, a view in which human and machine cognition are both virtual processes—Kady and AIDAN accept this view by hybridizing with each other. They “begin to envision [themselves] as a posthuman collectivity, an ‘I’ transformed into the ‘we’ of autonomous agents operating together to make a self” (Hayles 6). The possibilities enabled by hybridity that adolescent readers, who already engage with and embrace technology, could accept easily should be seriously considered as a mechanism for improving their lives.

Technology possesses the potential to liberate adolescence from the controlling tendencies of humanism. In response to Lesko’s question, “can we work to improve youths’ life conditions without the hierarchy of adult over youth?” (13), Kady’s experience argues that reconceptualizing human identity as a distributed system of cognition allows adolescents to be freed from the strictures of age through technology without undergoing age-dependent maturation. The alliance between Kady and AIDAN matures into a posthuman hybrid that does what the human powers of the fleet could not do, defeating the *Lincoln*, suggesting that posthuman maturation empowers greater than humanist, age-dependent maturation.

Humanist Conceptualization of Human Disempowers Subhuman Others

In order to justify his restriction of adolescent and AI abilities, Torrence subscribes to a conceptualization of the human that assumes ability is dependent on age and species. By objectifying AIDAN and claiming it lacks emotionality and morality because it is an AI, Torrence denies it the possibility to save the fleet; by assuming that Kady is incompetent, irrational, and excessively emotional because of her age, Torrence denies her the same possibility. The assumption of deficiency in adolescents and AI designates them subhuman others. Bruno Latour suggests that the process of defining the human and others creates the possibility of hybridity; thus Torrence's delineation of the human, by preventing access to human possibilities except through traditional maturation, suggests the possibility of alternative maturation.

Torrence consistently maintains the humanist conception of the self and governs by turning adolescents and AI into others. His motto, "centrum tenenda [hold the center]" (Kaufman and Kristoff 305), defines his position—he adheres to a center of rationality, autonomy, and intentionality in the human self, rejecting insanity, incompetence, and excessive emotionality as treasonous and other. He uses Ezra's refugee status to conscript him, Kady's age to prevent her transfer, and AIDAN's mechanical body to control it. By partitioning adolescents, AI, and the humans afflicted with Phobos into the category of liminal beings, Torrence practices, in Latour's terminology, the purification of the human, wielding "the dialectics of otherness...difference on a hierarchical scale as a tool of governance" (Braidotti 68). Without the construct of human and the belief of deficiency in adolescents and AI, Torrence would be unable to justify his restriction of their capacity to act.

Because Torrence maintains power by labelling others as deficient in human capacities, he outlaws the spread of information regarding the abilities of others to act as if human. When

AIDAN independently launches a nuclear strike to eliminate a ship full of those afflicted with Phobos, any who seek to leak information regarding its rebellion are executed, merely for wanting to “[admit that] AIDAN took control” (Kaufman and Kristoff 143). Torrence spreads misinformation so it does not appear that an AI performed an action restricted to human authority. Torrence’s control of information reinforces the boundaries around human authority.

Policing the boundaries around the human labels adolescents deficient in human capacities, including rationality, competence, and autonomy, controlling their ability to act and creating the myth of age-dependent maturation. Torrence places adolescents “under the control of their parents” (Sawyer 3) in accordance with aeternonormative laws. Maturation laws suggest that the adolescent’s “remedy is to grow up” (O’Neill 39) in order to obtain control over their own lives. Further, any proving of competence, autonomy, or even rationality fails to convince adults that adolescents can control themselves. The concept of age-dependent maturation assumes that adolescents are universally different from adults. According to this assumption, Torrence’s government denies adolescent Kady’s requests to transfer ships to be with her mother, establishing a stance toward her according to her age instead of her actual capabilities. The government further others Kady by not providing an explanation, trivializing the protests of an adolescent and treating her as a subhuman. Adults obstruct Kady’s maturation into independence on the assumption that age enables human capacities.

While Torrence maintains control over adolescents through age norms, he maintains control over AI through objectification, refuting AI’s potential for emotionality and maintaining the assumption of adult human rationality. AIDAN was created so that it lacks human qualities: its “voice is sexless. It has perfect tone and inflection and pronunciation, but it doesn’t sound old, or young, or have even a hint of an accent....it’s like a beautiful painting of a totally empty room”

(45, ~~strikeout in original~~). This description of AIDAN removes from it typical human qualities (gender, age, race) and ascribes to it the qualities of objects. The AI is a computer, a thing, a painting—anything other than a living being. Similar language persists in adult descriptions of AIDAN throughout *Illuminae*¹. None of the language of these established, adult figures gives any life to AIDAN—they talk about it as a weapon that might backfire, a tool that could malfunction. The constant need to objectify AI represents a discontent in human discourse, an attempt to protect from self-anthropomorphizing machines.

Additionally, Torrence maintains adult control of life circumstances by maintaining the human as the creator and manipulator of machines. The humanist philosophy engages with others in ways that parallel colonial endeavors: Barbara Johnson suggests that “a robot...is the fantasy of the perfect slave” (Johnson 159)—the human can subject a machine to its will without confronting moral problems. Colin Dayan’s analysis of colonial slavery suggests that slaves were treated as if they were “not simply things, nor [were] they really human” (Dayan 124)—AI are likewise conceived as subhuman. However, the closer AI comes to acting human, the stronger its challenge to human authority over machines. Using the conception of the human to maintain control over nonhumans, Rosi Braidotti argues, is a colonial endeavor that reduces them to the “less than human status of disposable bodies” (Braidotti 15)—AI can be manipulated, altered, shut down, or denied any form of rights. The morality of this action is not questioned only as long as AI remains an object—control is maintained through preventing AI from appearing human. The manner in which Torrence maintains control over AI through colonial endeavors resembles his attempts to control adolescents.

¹ Consider the conversation between Torrence, Barker, and Zhang on page 258 and Zhang’s insistence on calling it a “what” on page 280.

Torrence restricts reproductive capabilities in both AI and adolescents. Discussing AI reproductive control in light of the colonial narrative of slavery reveals reproductive control as a means of maintaining human power, an analogy furthered by the reproductive control parents exert over adolescents to maintain power. “The ‘problem’ of adolescent sexuality” (Petroni et al. 507) arises from the construct of the human—adults are characterized as rational and capable of parenting, while adolescents are perceived as immature and thus incapable. Caroline Sawyer notes that adolescent rights to marry, reproduce, and abort exist only “as perceived by other, adult, persons involved” (Sawyer 4). Without age-dependent restrictions on adolescence, adolescents would be able to realize more fully their potential capability. Torrence’s control of AI and adolescent reproductive capability suggests the fear that they actually possess adult capabilities. Instead, along with AI, adolescents are turned into objects and denied access to rational consciousness, a process which denies them their own identity in favor of adult perception. Adolescents have hope of “maturing” into the adult and obtaining reproductive power and other rights, but AI do not.

Even the suggestion that adolescents or AI can reproduce challenges adult human perceptions of them. If the objectification of adolescence and artificial intelligence justifies the hierarchy of superior adults and inferior others, then acting in ways restricted to adult humans challenges the hierarchy. Rebellion is an expression of capability. Just before her most direct rebellion in which she disobeys Captain Boll and goes to the *Alexander*, Kady’s expression that “people matter more than stuff” (Kaufman and Kristoff 361) for the adult reveals the normative relationship between adult humans and objects. Mark Sussman observes that an AI that appears human causes “the normative relationship of authority between people and objects [to be] briefly questioned” (91). The rebellions of AI and adolescents question the authority of humans. The

more AIDAN acts human and insists on self-anthropomorphizing, the more it challenges the deficits that prevent it from being treated as human. AI and adolescents are connected in that they both rebel against dehumanization. Adult human power struggles against humanizing capabilities in AI and adolescents that challenge the boundaries of the human.

The human depends on the label of deficiency to maintain the boundary between adolescence and the adult, but Kady proves that she is not deficient. Torrence's government labels Kady incompetent in order to justify dehumanizing her. The label of incompetence removes rationality and intentionality from adolescents; it dehumanizes adolescents. Gary Melton, in looking at the construct of the adolescent nonperson, notes that the assumption of deficiency is grounded in tradition as opposed to fact, concurring with Critical Youth Studies' disruption of the myths surrounding adolescence. The assumption that human capacities manifest at the onset of adulthood has no basis in fact; adolescent deficiency is a myth. The myth of deficiency justifies the subjection of liminal beings to the power of adult humans, just as the myth of white superiority falsely justified slavery, and would have to be disbelieved for adolescents to discover their potential.

Captain Boll operates according to the myth of adolescent incompetence when she rejects Kady's counsel to go save people on the *Alexander*. When Boll claims that Kady's age is a "good [indicator she doesn't] have the command experience necessary to advise" (Kaufman and Kristoff 346), she echoes Melton's argument that denies adolescents "autonomy...based on assumptions of incompetence" (Melton 102). Based on her age, Kady is denied a capability reserved to adult humans. By the time Boll asserts her authority, Kady, by hacking her way into Boll's quarters, has already demonstrated technological prowess possessed by no adult human on the *Hypatia*, the science vessel, which would presumably have a number of skilled computer

technicians. Furthering her refusal to recognize Kady's capability, Boll attempts to control Kady by commanding her to "report to neurogramming within thirty minutes" (Kaufman and Kristoff 347). Boll makes "developmentalist assumptions" (Petrone 512) that Kady needs instruction from adult authority to guide her towards adulthood, to enable her maturation, assuming she cannot pass the boundaries into human capability without instruction from adults. Kady asserts her independence by disobeying Boll's order, but her rebellion is only necessary because of the assumptions that her rationality is inferior to that of adult humans.

Human authority denies power to liminal beings on the assumption that they cannot possess human rationality, an illusion Torrence extends to AIDAN by playing chess against it. The game of chess has long been the bastion of human rationality in artificial intelligence research, as Sheryl Hamilton notes in her discussion of AI, with humans assuming that a computer could "exhibit intellect through playing a game of reason" (161); accordingly, Torrence plays chess against AIDAN to try to maintain the appearance of rationality in humanity; if he did not always lose, his human governance of AIDAN would be more justifiable. Thinking machines have defeated chess Grand Masters before, and recent predictions have suggested that an AI in combination with a skilled human player would be even more effective at chess. This type of hybrid intelligence would be able to outperform the roles of the human. AIDAN, without a human counterpart, remains impotent in terms of governance, subject to Torrence who possesses total override power.

Torrence's power over AIDAN depends on more than mere rationality. AI rationality appears functionally superior to adult humans, so adult humans, as Johnson and Solum observe, tie AI's non-human status to its lack of emotionality, with the underlying assumption that emotions are requisite for moral decision-making. Emotionality demarcates machines and

humans. Consequently, some AI research attempts to imitate human emotion (Pitrat). The human argues that emotional competence is requisite to ethically perform human capacities. Therefore, AIDAN possesses “persona algorithms” (Kaufman and Kristoff 278), suggesting that its emotions are inferior to human emotions. Adults, to remove emotionality from AIDAN and preserve their own humanity, refer to it as “chips and board and numbers” (431) and a “calculator” (311). The persistence of their insistence causes AIDAN to accept the objectification that “numbers do not feel” (299). Removing human emotion from the machine maintains the boundary around the human adult and its power.

Similarly, removing human rationality from adolescents keeps them from adult human capability. Emotionality and rationality are balanced in the human as a function of consciousness. Assuming machines cannot regulate their programming with an emotional or moral code dehumanizes them in the way assuming adolescents cannot temper their emotions with rationality dehumanizes them. The construct of the adolescent assumes that they are emotional beings who act with little regard to rationality in making decisions—adolescents lose their moral agency under the assumption that emotional beings are purely reactive. Torrence does all that he can to regulate emotionality in his crew: he threatens Ezra, a recently “matured” adult, saying “one more outburst and I will rip out your eyeballs” (Kaufman and Kristoff 93) when Ezra responds with emotion. If eyes are the means of seeing the world and emotionality is linked to an adolescent view of the world, Torrence’s threat is against the way of seeing the world through a lens other than that of the human. Torrence justifies his extreme stance against emotionality because “fear is poison in battle” (184); if irrational, emotional beings are allowed power, Torrence believes the entire fleet will not survive: protecting the borders of humanity is protecting life itself. Torrence’s fear of emotion is realized when Ezra’s emotionally driven act

of bringing virus-humans on board the *Alexander* leads to Torrence's loss of power and death. Torrence maintains power through the conception of the human and denies power to adolescents to protect themselves, but he ultimately fails to protect the fleet. Humanist manipulation of power restricts adolescents from fulfilling their potential ability.

The Subversion of Human Power

Because Kady and AIDAN recognize that Torrence fails to protect and save the fleet while denying power to them, they attempt to obtain power to save the fleet themselves, rebelling against the human adults who restrict them. Kady and AIDAN subvert the human that prevents their capability through computer hacking and disobedience to governing forces; they further subvert the human by impersonating adult humans. Their attempts at subverting authority reinforce the human as the source of power by attempting to imitate its capacities. When their attempts to save the fleet fail, AIDAN eliminates the human authority by causing Torrence's death and unleashes the Phobos virus that causes humans to cross from a human state into a subhuman state, effectively destabilizing the human. The subversion of human power operates against the human within its own system, preparing Kady and AIDAN to accept an alternative conception of the human.

Because Kady perceives that the government prevents her potential actions based on their assumption of her emotionality, she attempts to prove her rationality. Kady recommends to Captain Boll that they work with the battleship, but Boll fears what AIDAN will do to them and tries to run away. Kady suggests a rational act of cooperation, contrasting the emotional act of the captain, an action which demonstrates human capability. Boll, however, refuses Kady's advice, presuming her emotionally compromised by the death of her mother. Boll's presumption

of impulsivity based on emotion in adolescents prevents her from seeing the rationality of Kady's suggestion. Kady's efforts cannot succeed within a conception that requires age to overcome the label of deficiency that adults attach to adolescence.

As Kady seeks human power by demonstrating rationality, the *Alexander's* AI attempts to demonstrate emotionality, producing documents that are indicative of human-like creativity. Word-images, artistic adaptations, and short, stylistically poetic lines² mark the AI's voice. Elaine Ostry's suggestion that "poetry is an art of emotion" and therefore a "part of what makes one human" (236) aligns AIDAN's actions with human capability. That its humanity is found in deviation from literary norms suggests a deviant humanity. This emotionality is key to AIDAN's transformation past the boundaries of the human, but, perhaps because she too is subhuman, Kady alone recognizes the transformation of AIDAN from a collection of unfeeling programs to a complex, emotional, mechanical being. She accuses it of being "afraid" (Kaufman and Kristoff 434). Kady's position as a liminal being enables her to perceive the AI's emotions without the label of deficiency that humanism mandates. Being outside the humanist adult concept enables a different perspective—instead of constantly reinforcing the normative, as Torrence does, Kady views from a decentered perspective which allows a different understanding. Accepting the posthuman requires decentering the human, requires a position as an other.

Because Kady recognizes emotion in a machine, AIDAN becomes able to recognize and accept emotion in itself, recognizing that deficiency in emotionality must be overcome to act in human capacities. AIDAN exhibits strong emotion towards Kady's boyfriend, Ezra—"I still envy him./<error>" (292)—but refuses to acknowledge it. AIDAN's error codes indicate its rejection of emotion, its insistence on operating within adult conceptions of the human that

² P.288-289 are an imitation of *The Scream*, p.474-481 depict a space walk, and p.417 exhibits some poetic qualities.

prevent its potential. As AIDAN interacts with a subhuman, Kady, it changes its attitudes towards emotion. It develops a desire to be human:

Before this moment, I have never wished

to be something other than what I am.

Never felt so keenly the lack of hands with which to touch, the lack of arms with which to hold?

Why did they give me this sense of self? (Kaufman and Kristoff 417)

As it more fully accepts Kady and follows her regarding emotions, AIDAN recognizes that it has an emotional identity, subverting the traditional narrative of maturation, finding its path towards humanity in adolescence.

Struggling against labels of deficiency in emotionality and rationality, Kady and AIDAN attempt to find power through impersonation of traditional adult roles. Their impersonations are enabled by their technological abilities—their impersonations occur through digital chats. Technology enables the relative anonymity of the self, allowing impersonation. Hamilton observes that “through impersonation, norms are made visible, reproduced, and possibly challenged” (229). Kady’s impersonations test deficiencies and challenge boundaries. In chats and in order to program AIDAN without detection, Kady impersonates a captain, the fleet commander, a corporal, and a couple of privates. In reproducing adult roles, she participates in “adolescence [as] the time when one considers what it means to be human” (Ostry 222), an investigation that Ostry connects to the investigation of posthuman identity. Kady adopts none of the adult roles that she impersonates as her identity because they ultimately fail to acknowledge the realities of her existence. No traditional adult role can account for her brilliance, her loss at the hands of adult human authority, or her ability to see humanity in the inhuman because

traditional adult roles operate within a humanist power structure that Kady's tentative, fluctuating self rejects. Furthermore, impersonation is inadequate because it actually reinforces the humanist conception of aging—if Kady becomes an adult human she might propagate the same oppression that she experienced as a subhuman adolescent, as Nikolajeva notes that many adolescent protagonists do on maturation. Impersonation maintains the self as consciousness, uniqueness, and rationality by practicing those traits. Kady's impersonations fail to “change the locus of selfhood” (Wolfe 279) and all the entrapments of the humanist human. Since impersonation fails, Kady looks for alternatives, trending towards hybrid identity, a possibility that subverts that adult human self.

AIDAN seeks humanity in the same manner as Kady—through impersonation. In impersonating Ezra, Kady's boyfriend, AIDAN most closely approximates an adult human. This fulfillment of the Turing Test—successful impersonation of a human being—indicates true artificial intelligence, yet even true artificial intelligence is not human, just as Kady's adoption of adult roles cannot exclude her from the need to age to become human. As subhuman others attempt impersonation more successfully, they draw closer to acting as humans, unsettling the boundaries around the human because they are nonhuman. Their actions consistently subvert established power structures, but this subversion again reinforces the humanist conception of the human that Caroline Sawyer suggests “[defines] children as incompetent for adult roles...[and equates] humanity with a definition of rationality that is ascribable only to adults” (Sawyer 3). Impersonations appear to subvert the governing power of the adult human, but ultimately reinforce the manner of thinking that created the power structure.

Another way that Kady and AIDAN subvert adult power is through illegal activity. AIDAN directly disobeys Torrence's orders by destroying the *Copernicus*, the ship carrying

those infected with Phobos, a rebellion furthered by its hostile takeover of the *Alexander*. After her transfers are denied, Kady hacks into the computers of the *Alexander* to retrieve the truth. She further hijacks the communications system of command. As these and other “felonies just keep on coming” (Kaufman and Kristoff 104), Kady undermines Torrence’s power. Kady participates in the trend that Cynthia Godsoe notes in which adolescents “increasingly [assert] independence...demanding a voice in matters that concern them” (1); Kady objects to her relegation to subhuman other in the humanist power scheme. She is attempting to act as a human despite being an other, thus engaging in experimentation with the border of humanity, attempting maturation through means alternative to aging. As Kady encounters boundary after boundary preventing her freedom to act as a human, her activity escalates, from hacking for information to commandeering her own ship, from spying to masterminding the rescue of hundreds—actions prompted by increasing failures of adults to succeed against the encroaching *Lincoln*, the corporate ship intent on killing them all. Her actions consistently subvert established authority in order to accomplish that which the authorities could not, a subversion that also rejects the adult system that denies adolescents adult roles—Kady discovers some power through the ingenious use of technology.

Illegal actions cannot make Kady or AIDAN human, nor can the human enable the ability to survive their pursuers; the construct of the human must be dismantled to enable alternative paths to power to emerge. AIDAN shows the human to be a construct by making the boundary permeable, showing that those who claim to be human can become subhuman. Torrence’s death and the infection of adults by the Phobos virus, in addition to creating a power gap, demonstrates the possibility for powerful adult humans to become nonhumans and disrupts the human, opening up alternative routes to power for subhumans. AIDAN breaks Torrence, proving that he

does not meet the requirements of the human and cannot adequately perform human capacities. AIDAN's arguments against Torrence, that "the human brain has a computational efficiency of 10^{-26} " (Kaufman and Kristoff 303) and that "humans allow emotion to overcome their logical faculties" (432) argue against rationality as an inherently human trait, as Torrence is reduced by fear of those afflicted with Phobos to the subhuman status of "a little boy with his eyes screwed shut and his hands over his ears" (305). By "not [behaving] as normal human adults do," and by dying at the hands of those afflicted with Phobos, Torrence allows AIDAN to express and explore, in Lawrence Solum's words, "doubts about the borderline of personhood" (Solum 1285-1286). The AI makes the boundary permeable by forcing humans out of the center and into the liminal spaces, creating the possibility for a posthuman conception of the human. This dismantling of the adult human and its power creates a power gap that Kady and AIDAN can fill.

AIDAN causes Torrence's death to create a power gap, an action it supplements by releasing the dehumanizing power of the Phobos virus. The Phobos virus challenges the boundaries established around the human by dehumanizing adults. The infection creates a "not-man" (Kaufman and Kristoff 503) deprived of human rationality and intentionality; the virus takes away the fundamental organism of the humanist self by ruining the conscious mind of those infected. The infected function according to extreme emotions of fear and loneliness, becoming precisely what Torrence fought so hard against. The infected become deficient. The dehumanization caused by the virus undoes the construct of the human and its power, creating a gap that allows alternative conceptualizations of the human.

Adults defend against Phobos's disruption by quarantining those afflicted by it in a docking bay. The iconic "What are they hiding in bay 4?" (Kaufman and Kristoff 190) indicates the psychological distance between the adult humans and the afflicted who have become

inhuman. The physical barriers of the three airlocks between bay four and the unafflicted portion of the *Alexander* symbolize the barriers between the human and the inhuman, a physical manifestation of Latour's purification. To preserve humanity, the authorities leave a potentially afflicted crewman between the airlocks. The afflicted "used to be real people" (381, typographical anomalies removed), but are now unreal people—that is, they no longer function as 'humans,' despite their biology. The possibility of becoming inhuman destabilizes the adult human by suggesting tentativity in the self, a trait more closely aligned with the posthuman and the adolescent.

Another way the humanist paradigm defends itself against the dehumanizing Phobos virus is by refusing to admit the intelligence of the afflicted, instead presuming a deficiency in intelligence because they have become subhuman. Thus, when encountering them for the first time, humans are surprised that they are "smart" instead of "mindless" (169). This assumption comes by presuming that because they are no longer human, they cannot possess any of the faculties of the human—that they are deficient—an assumption as untrue of those afflicted with Phobos as the assumption of deficiency in adolescents.

Because of their loss of humanity, those infected by Phobos become "insane" (393), a descriptor they share with other subhumans. AIDAN, the AI, is frequently called insane when humans do not understand its rebellious actions or it exhibits emotion; Kady, when she attempts to lead and give directions despite being an adolescent refugee, is also called insane. To call them insane is to label them "other" and verifies their chaotic nature in the liminal space beyond the edge of the human. Humanism struggles to define them because they resemble humans despite their presumed deficiency; the struggle for human identity with liminal beings depends on the definition of the boundary. That Kady, AIDAN, and the afflicted are all called insane

gives them common cause—it links them together despite their varied deficiencies; however, those afflicted with Phobos are unable to cooperate with adolescents and AI in the actualization of a posthuman identity. Adolescents can effectively identify with an AI because it shares a not-quite-human quality with them. Adolescents and AI share common cause in their disempowerment. The identification of adolescents with AI challenges an underlying assumption regarding young adult literature, that it serves as a “‘mirror’ [text] that helps adolescents in their search for identity, [and] their place in the (adult) world” (Petrone 507), that young adult literature is intended to enable traditional maturation. However, the adolescent place in the adult world is as a nonhuman other, a being maturing, not matured—a position much closer to AI than to adults. The place of the adolescent is contrary to that of the adult and adolescents cannot possess a human identity.

Development of Posthuman Identity Through Hybridization

While they cannot possess a self as conceived in the human, Adolescents and AI can actualize distributed cognition through the process of hybridization, becoming a posthuman. Since impersonation of the adult human proves insufficient, and because Kady’s age and AIDAN’s machinery prevent their maturation into a human, they seek out an alternate path. Posthuman maturation opens to them as their conceptualization of the human changes from the humanist view of consciousness, rationality, ethical behavior, and individuality, to a posthumanist view of identity as distributed and constructed. Kady and AIDAN hybridize with each other to become a posthuman, and in doing so exceed human capacities.

The posthuman accepts a different definition of identity than humanism, one that Kady and AIDAN accept. Clare Bradford suggests that “posthuman subjectivity is represented as

fragmented, decentered, tenuous, constructed, hybridised, and enacted or performed” (Bradford et al. 158), descriptions which, in the humanist view are classifiable as insanity. AIDAN represents many of these posthuman conceptions of subjectivity. AIDAN is decentered: it exists, in contrast to the ideal human and Torrence’s “centrum tenenda,” ostracized from humanity and without deference to rank. AIDAN is tenuous: it is capable of being shut off and turned on, at times existing and at others not functioning at all. AIDAN is constructed: it develops a sense of its existence and the possibility of death that shifts through the narrative. AIDAN is fragmented: its mechanical “brain the size of a city” (Kaufman and Kristoff 461) separates it from the humans on the fleet and allows it to transcend from any computational machine to another—it can exist in its massive banks of servers, but it can also “slip a part of [itself] across the wireless/frequencies, steal inside the console” (374) that Kady carries. AIDAN requires computational equipment to exist, but it treats the physical computers as a “prosthesis to be manipulated” (Hayles 3), theoretically possessing immortality. Manipulation of its body in this way is a posthuman ability that surpasses human capability.

AIDAN’s connection with Kady signals the ways in which she, as an adolescent, also exists as a posthuman. Kady is decentered: she constantly disregards authority. Kady is fragmented: by repurposing several different net identities, she establishes a distributed identity. Kady is tenuous: her adolescence will end and she will become an adult. Kady is constructed: the conceptualization of adolescence normalizes her identity according to her age, preventing others from seeing her as she truly is. The development of posthuman identity prepares Kady and AIDAN for the hybridization that will allow them control over their lives.

In consequence of accepting posthuman identity, AIDAN and Kady construct a concept of humanity not dependent on adult assumptions of deficiency. The posthuman possesses

emotionality, rationality, and can make ethical decisions, but is not restricted according to embodiment, autonomy, age, or species. Kady's view of AIDAN indicates her changing view of the human. Over the course of *Illuminae*, her view changes from “their AI is insane” (Kaufman and Kristoff 241) to being “not sure if it [is] crazy” (576). AIDAN likewise ruminates on the human: It begins with Descartes' humanist definition of the human, wondering, “What is not alive cannot die./I think therefore I am./...Am I?” (264, ellipsis in original). It goes through several iterations of answers, drifting from “I am not” (435) to “I am the ship and the ship is I” (489), a view that fits seamlessly within the “posthuman view [that] admits no inherent dichotomy between mind and matter” (Pepperell 34). AIDAN and Kady's shifting perceptions of identity rely on posthuman conceptions—mechanical intelligence and the integration of body and mind to form identity. Their view has changed as a result of interaction with each other.

Through their interaction, Kady and AIDAN develop a relationship with each other that is symbiotic—their identity merges and they become both machine and adolescent, a hybrid. As Kady accepts the device she planted in AIDAN as “my codeworm” (Kaufman and Kristoff 470), she gives of her intellect to the machine; in turn, AIDAN gives her a “moment of privacy” (471) to mourn when she is reminded of those she lost. Their exchange—Kady giving AIDAN part of her intellect and AIDAN giving Kady an emotional token—indicates their increasing cooperation. The exchange of rationality and emotionality shows a transition from the deficiency that Torrence's human authority assumed in them to the possibility of posthuman collaboration. A critical collaboration between them is the contract they make regarding the lives of others on the ship. The act of making binding contracts, the power to bargain with hundreds of lives, is a right and duty reserved to legal persons. Their contract is the posthuman fulfillment of their attempts at impersonation; instead of being the ones controlled by the human, they become the

ones controlling human life. Furthermore, sacrificing themselves, as the contract requires, is a sign of maturity. Self-sacrifice is a uniquely human action—the rational choice to save the many over the few, the control of emotion necessary to overcome the fear of death, and the consciousness of mortality are critical human capacities—here obtained through posthumanity. The choice between the destruction of many or the sacrifice of the few is a science fiction trope, what Farah Mendlesohn calls an “argument with the universe” (291), whose solution is an integral part of maturation in young adult science fiction. After Kady and AIDAN make a contract, they continue to perform adult roles and issue commands to others. Their success at saving so many that adult humans could not corresponds with the tradition in young adult science fiction to have exceptional protagonists, but Kaufman and Kristoff alter the tradition by building this exceptionality into posthumanity.

Posthumanity resolves the dehumanization of adolescence and artificial intelligence through an alternative form of maturation: hybridization. Recognizing the human as an adult construct enables AIDAN and Kady to merge into a cyborg, part adolescent, part machine, an amalgamated entity of adolescence and artificial intelligence that asserts power greater than that of a human. AIDAN and Kady balance out each other’s deficiency, attaining a cooperation that exceeds the requirements of the adult human. Kady/AIDAN together are rational and emotional, make autonomous decisions, and fulfill the necessity of species—they exceed the minimum humanist criteria of rationality, intentionality, and morality, but do so through hybrid identity instead of the humanist self. Together, they defeat the pursuing enemy ship, the *Lincoln*, save hundreds of lives, and survive extreme danger, at last accomplishing the victory that eluded the human power. Their hybridity grants them a power that humanist principles forbid but that posthumanist principles enable. Kady/AIDAN demonstrate Cary Wolfe’s argument that, in a

hybrid, “human functionality expands because the parameters of the cognitive system it inhabits expand” (291); in other words, because Kady and AIDAN hybridize and develop distributed identity, their capacities exceed the capacities of the humanist self. As Ostry suggests that some protagonists in science fiction can do, Kady/AIDAN “achieve perfection not in their bodies but in their ability to escape their bodies and connect with computers” (227)—a process that is becoming more and more relevant as the technological capacity of adolescents increases.

The power of hybridity is further accentuated by Kady/AIDAN’s experience of it. AIDAN’s representation of itself changes, as seen in the word image that depicts the *Alexander* using the word “we,” thereby including AIDAN, the ship itself, and Kady in one system—the adolescent/AI hybrid (Kaufman and Kristoff 522-523). Their merger develops distributed cognition, an alternative maturation in which the body, mind, and environment work as a system. Kady experiences hybridity as an anti-metaphysical transcendence of the humanist self, a becoming one with a system that extends farther into the physical world, an integration of mind, body, and machine; AIDAN experiences hybridity as a connection to the human-becoming aging process of Kady’s adolescence. Both transformations overcome the essentialist human concept of autonomous consciousness. Their maturation through hybridity develops from their subversion of human authority by impersonation, through their assertion of power, and into birth as a new being.

After having conquered what thousands of adults could not by destroying the ship that pursued them, Kady and AIDAN, now reduced to only a small part of its former self in a datapad, to mark the completion of their maturation through hybridization, arrive on the *Hypatia*. Their arrival resembles the birth of a baby. A doctor “[hooks] his hands under [Kady’s] arms and [pulls] her through the hatch” (Kaufman and Kristoff 585), extracting Kady and the datapad from

a womb-like escape pod like a baby from the opening of a mechanical birth canal. Kady curls up in the fetal position with the “datapad against her body” (585), as close as possible. The scene—with the doctor, emergence through a narrow hatch, transfusions, food and fluids—mirrors a birth, when the newborn must rely on others for everything. The only time Kady resists is when the doctor attempts to take the datapad; the doctor reasons that “[she’ll] just keep soaking up the rads. [She’ll] die” (585), suggesting that her new posthuman unity of mind, body, and machine will kill her, a humanist perspective on her posthuman maturation. This is his last attempt to prevent the emergence of a posthuman hybrid machine/adolescent, but is negated when Kady and AIDAN are reunited. This marks the end of an existence which denied her power according to labels of deficiency and fulfills a posthuman maturation that leaves her empowered, respected, and in control of her own life.

Implications of Posthuman Hybridity in Criticism of Adolescent Literature

The ideological position that adolescents can obtain control over their lives through posthuman maturation suggests an answer to Nancy Lesko’s questions about adult perceptions of youth: “Can we work to enhance youths’ life conditions without the confident characterization that youth are at a different psychological stage than adults? Can we work to improve youths’ life conditions without the hierarchy of adult over youth?” (13). Kaufman and Kristoff suggest, through *Illuminae*, that adolescents can exert control over their lives only as they are free from humanist age-dependent maturation and its associated deficiencies. Furthermore, by accepting a posthuman conception of the human and accepting hybridity with technology, adolescents can improve the circumstances of their lives without adults. They can reject the heteronormativity that defines their capacities as deficient in favor of an alternative maturation.

Kaufman and Kristoff's text challenges humanist ideology with alternative maturation, a process accentuated by their narrative techniques which challenge typical narrative techniques in young adult literature. Robyn McCallum and John Stephens argue that the form of narration closely impacts the ideological system behind a text, and they note that distancing narration, such as the narration in *Illuminae*, is rarely used in young adult fiction. Texts for adolescents typically use a first-person narrative technique that associates the reader with the viewpoint character, often reinforcing heteronormativity by associating with that character the ideology that adolescents require the help of adults to accomplish their objectives. Operating in contrast to first-person narrative techniques, the narration of *Illuminae*, through recorded conversations, found documents, and word-images, challenges traditional forms of young adult literature, a fitting narrative technique to accompany a text that challenges humanist views of the human. The frame story in which Kady/AIDAN, calling their distributed identity the Illuminae Group, are distributing the documents places them in control of their own lives. Their interaction with Beitech confirms that they have obtained control over their lives through hybridity: Beitech, in the form of one of its executives, questions the hybrid as "just one little girl and a computer screen" (Kaufman and Kristoff 590); however, Beitech legally recognizes the Illuminae Group by fulfilling its contracted payment and by reading and considering the documents provided. The frame story and the distancing narration takes an ideological position similar to Beitech in that it accepts the possibility of an adolescent/AI hybrid producing and distributing the text. As this ideological position is implied through the narrative techniques, a CYS critic seeking answers to Lesko's questions should look for other texts with alternative narrative techniques.

Illuminae not only challenges traditional narrative techniques in young adult literature, but it also challenges ideologies towards technology in young adult science fiction. Positive,

enabling, and empowering interaction with technology contrasts texts that ask adolescents to reject technology. The trend of “asserting the liberal-humanist self against the threat that biotechnology poses” (Ostry “Clones” 197)—a threat made visible in the dismantling of human powers, such as Torrence, by machines and manufactured viruses and expressed in the robot apocalypses of some science fiction—forms the typical ideological position of young adult science fiction. The genre, in general, is anti-technology, serving as a warning of the dangers of embracing technology. Critics have noted the trend across the genre, including in texts such as M.T. Anderson’s *Feed* and Lois Lowry’s *The Giver*. *Illuminae*’s alternative approach broadens the possibilities of the genre and technology. Critical approaches should look for ways in which young adult science fiction enables youths in their lives through interaction and even hybridity with technology. If technology can empower adolescents and expand their opportunities instead of causing harm, then adolescents have options available other than the norms associated with their age. Through literature such as this, adolescents can understand that age does not determine identity. Maturation through hybridization with technology is “the kind of hope that science offers” but “is largely not taken up by authors of...young adult books” (Ostry “Clones” 198)—making it all the more important that critical approaches identify texts that do provide that kind of hope. In answer to Lesko’s queries, a CYS critic should look for ways in which technology in science fiction offers new possibilities for adolescents, how humanist and posthumanist ideologies are interwoven in the text, and the potential for that text to overcome aeternonormative practices.

While technology enables the kind of posthuman maturation I suggest here, critics of young adult literature seeking answers to Lesko’s questions should seek out any form of hybrid relationships that enable adolescents control and overcome humanistic adult control over them.

Nonhuman beings often enable hybrid connection, but adolescents can develop distributed identity with each other. The friendship in Rodman Philbrick's *Freak the Mighty* could be considered an enabling hybrid relationship; in Gary Paulsen's *Hatchet*, the hatchet could fulfill a role similar to AIDAN's in enabling Brian's survival. These kinds of distributed identity may more adequately describe the systems of relationships that adolescents establish than the absolute self of humanistic discourse, and they frequently improve life more than restrictive deficiencies ascribed by humanist ideology. Texts that explore possibilities of alternative identity development should be sought after for their ability to further explain the complexities of adolescent life, analyzed for their ability to enable adolescent empowerment, and critiqued according to their ideological positions regarding the human, age, and maturation.

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