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What are the requirements for biological personhood? Are biological gestation or unaided longevity necessary preconditions, or optional? *Foundation*, the Apple TV+ series whose first season aired in the fall of 2021, is one of many recent scripted dramas to explore these question of personhood from the perspective of synthetic and biological beings, and at times to blur distinctions between them. Based on the Isaac Asimov series of the same name, *Foundation's* first season follows these intertwined and mutually dependent figures, including the sentient robot Demerzel (Laura Birn) and the Galactic Emperors (portrayed by Cooper Carter as a child, Cassian Bilton as an adolescent, Lee Pace in adulthood to middle age and Terrence Mann in old age), clones of a single man who reign in triplicate, attempting to hold onto power after 400 years of their genetic line ruling a Galactic Empire from Trantor, the center of a system of human-occupied planets. The emperors and Demerzel are implicitly contrasted with Hari Seldon (Jared Harris), a mathematician who has predicted the imminent fall of the Empire and the loss of its knowledge within half a millennium. Seldon recruits volunteers to create the Foundation with him in exile on its furthest planet, Terminus, in order to preserve human history and technology for the future. He is alternately aided and thwarted by Raych Foss (Alfred Enoch), his mistreated foster son, and the instincts for societal and self-preservation of Gaal Dornick (Lou Llobell), a mathematician from Synnax, a rapidly warming planet, who joins Seldon in various iterations of his enterprise before embarking on a journey of her own. (Major spoilers for *Foundation* ahead.)

Some series explore the differences between biological and synthetic life as part of a tenuous but still binary divide that favors humanoid anatomical leanings, whether biological or synthetic. For example, the fraught relationship between humans and synthetic humanoids depicted throughout season 1 of *Star Trek: Picard* (2020) culminates in a war in which serpentine synths are sealed off from the known universe to prevent them from destroying humanity—a decision made by Soji (Isa Briones), one of a group of banned and hunted synthetic beings, after Picard (Patrick Stewart) appeals to their shared notion of humanoid personhood to save biological life. A recent episode of *Star Trek: Discovery*, the part of the franchise set furthest in the future, imagines advanced synthetic beings in the form of mobile landmines disguised as beetles; though they look like organic fauna, they are synthetic, not so much animate as activated, communicating with each other and attacking anyone attempting to liberate trapped prisoners by using a “shared control matrix.” (“The Examples,” Season 4, Episode 5, 2021) The beetles are Borg-like, hive-minded and

mechanistic, suggesting that as synthetic life in the *Star Trek* Universe evolves, it becomes less compatible with biological life, and perhaps inherently hostile to it.

Foundation complicates these divisions by building a world in which biological beings are not only conceived with reproductive assistance but can be synthetically replicated, conceived, and gestated; altered (to heal or to harm) through subcutaneous physical and genetic manipulation; and preserved from aging and death through cryostasis. And although the citizens and renegades of the Galactic Empire think of themselves as human, they also think of Earth as a rumored point of species emergence, rather than a definite one. We might read the post-Terran absence of a fixed sense of planetary origin as engendering a kind of flexibility around not only origins but the process of conception itself. The abovementioned Cleonic and Seldonic paradigms suggest that white cismen, in a distant future, replicate their power not only through the proliferation of institutions that privilege their presence, but by replicating themselves. But by following several groups of people, each of whom are conceived or preserved (or both) through synthetic means, we can see how *Foundation* affirms the possibility of change for humanity not by reifying any one manner of birth (or avoidance of death) via multiplication, but through a rejection of multiplicity or artificial longevity as a means of self-preservation above societal well-being and change.

Conversely, the series endorses the preservation of the truly unique and individual, not only in reproductive terms, but in the form of artificial life extension. This is made evident in *Foundation's* depiction of three overlapping modes of life creation and preservation: reproductively assisted biological birth, synthetic reproduction, and cryostasis. As *New Yorker* critic Julian Lucas notes, the Seldon and Cleonic storylines arc in two different directions, alongside a third arc that tracks Salvor Hardin (Leah Harvey) and several decades of the Foundation's establishment. But I'd like to argue that Seldon's synthetic replication of himself, which takes place after the emperors exile him and his followers, collapses the distinctions between himself and the clones he opposes, rendering their two arcs into one in much the same way that Cleon I wrangles syngamy into parthenogenesis. While Seldon self-replicates in ways that deviate from the Cleonic plan—forgoing genetic cloning and literal rebirth—he embraces a similar kind of biopower to that of the emperors, complicating his self-proclaimed investments in notions of uniqueness and selfhood, and blurring the line between animacy and its synthetic imitation.

At its outset, *Foundation* blends two modes of human generation, one imagined as divine—parthenogenesis—and one used to oppress—eugenics—in the successive births and reign of 14 superficially identical emperors. Artificially assisted reproduction meets royal inbreeding in the many figures of Cleon, whose forbear has foregone syngamy in a fragile and exclusive form of life replication that melds reincarnation with resurrection. Each Emperor Cleon (an anagram for clone, suggesting continuity without originality) is copied from the genetic material of Cleon I, “decanted” in roughly 30 year intervals. (Episode 1, “The Emperor's Peace”) In this society, the eugenicist agenda is applied to the preservation and replication of a single set of genetic characteristics, excluding people of other identities and subject positions from leadership (the Cleons are literally addressed by the honorific “Empire”). Aside from the representation of illicit “biohacking” facilities, meant as much to implant weapons in human bodies as to heal them,

cloning is reserved for the white, cismale, and seemingly all-powerful Imperial line, known as the “Genetic Dynasty.”



Demerzel, Dawn, Day, and Dusk (Episode 1, “The Emperor’s Peace,” 2021; Apple TV+)

The creation of each emperor bypasses the creation of new zygotes through the combination of new sets of genetic data as each new Cleon is created with two strands of DNA, albeit the same ones. This genetic material is culled from the Principium—the preserved, ever wakeful and watchful body of Cleon I, exhibited like a specimen in an anatomical cabinet. While his copies are destroyed in turn as they age into senility, he is preserved. At one point, Dusk (Mann, as Cleon XI) asks Day (Pace, as Cleon XII) to consider the absurdity of their first progenitor’s decision to be replicated: “Can you imagine the sheer hubris required to think so much of your abilities, your mind, so much of your own heart, that you decide, from now on, that not only will you be the first, but the one? ‘I will be the river from which all rivers flow.’” (Episode 2, “Preparing to Live”)



“Can you imagine the sheer hubris?” Day and Dawn visit the Principium.
(Episode 2, “Preparing to Live,” 2021; Apple TV+)

In this first of many visual and vocalized natural metaphors for pride and vulnerability, Dusk deplores the river that engulfs and stops all the streams and tributaries that feed into it, making it less of a conduit than a dam. This simultaneous access and foreclosure is echoed in the great accomplishment envisioned by Cleon I, and completed by his replicated descendants: the Starbridge, an access point to Trantor for galactic travelers cycling in and out of the imperial capital.

The conundrum at the heart of Cleonic existence—the question whether the Cleons are each one of many or singular, biological and ensouled beings; that is, whether they are divinely or artificially triune in nature, or individual and unique—is articulated through floral imagery. The first of two invocations of the flower as metaphor for the flourishing but vulnerable Imperial genetic line is the

depiction of the Starbridge itself. The imperial port, which visually marries the Jetsons' towering domestic structures to the suspended flying saucers of the 1964/5 World's Fair, is made up of two rings, one large and one small, held on a stalk that carries cars up and down between the spaceport and the planet. The stalk evokes the middle throne of the Cleonic brothers, with Day orbited by younger and older versions of himself. The destruction of the Starbridge by anti-Cleonic rebels in the series premiere immediately conveys the fragility of the Empire's paradoxical dependence on successive iterations of the same ruler: the multiple depending entirely on the one.

The metaphor is extended when a later Day, Cleon XIII (Pace), fabricates a holy vision from his quest to a salt cave. The cave is a site of miracles for Luminism, a matriarchal religion with a dogma of reincarnation based on a distant moon; he reaches it after a journey prompted when a Luminist priestess, Zephyr Halima (T'Nia Miller), denies his personhood as a clone, a soul reborn into the same body, rather than a new one. Recounting a vision of swirling salt forming a three-petaled bloom in the air to an audience of Zephyrs set to rule on the state of his soul, he is told that his vision represents the "ancient birthroot flower" born from a "monocot seedling." These flowers represent Luminism's conception of the triple goddess, a female trinity of Maiden, Mother and Crone, making the claimed vision a holy portent and endorsing his replicated personhood as ensouled. (Episode 8, "The Missing Piece") But Day is inspired by an actual birthroot flower preserved, in an echo of the Principium's display case, as a pressed specimen. Day witnesses the pressed flower on Demerzel's vanity—an 11,000-year old relic of her own journey to the cave, made possible by synthetic longevity. In claiming this vision, Day tries to harness the power of the trinitarian paradox—the three as one—while simultaneously inverting it in his subject position as the waxing sun—the one, as or more powerful than the three.

Day's fabricated vision, when paired with water scarcity on the dry moon, makes clear that the figure of the triune monocote—much like the river that absorbs all others—is fraught with the inherent dangers of overproduction. After all, birthroot flowers, a Luminist priestess tells Empire, are extinct. Such inevitable extinction is not only realized in the Cleonic line from without (Cleon XIV shows signs of genetic manipulation by those wishing to topple the Imperium) but acknowledged within, and well before the birthroot vision. In Episode 2 ("Preparing to Live"), Dusk, whose tasks include adding to the Mural of Souls, a graphic record of individual and collective Cleonic achievement, allows his tools to waver, making the "active chroma"—moving, quasi-animate pigment—of the mural spill off the wall.



Dusk/Cleon XI (Mann) toppling the golden ladder, the DNA of the “Genetic Dynasty.”

(Episode 2, “Preparing to Live,” 2021; Apple TV+)

In moving to correct himself, Dusk descends the ladder, before noticing his own aging, shaking hands and knocking the ladder to the ground, allowing the golden vision of the Imperial double helix to hit the floor in a spray of unformed royal blue and blood-evoking crimson. The ladder, toppled, symbolizes the impending collapse or destruction of Imperial cloning mechanisms.

In addition to the fragility inherent in plant and human monoculture, *Foundation* offers reproductive possibilities and limits in the imagined symbiosis of synthetic and biological beings. This is evident in the relationship between the robot Demerzel, who takes a blonde, cisfemme humanoid form, and the brothers Dawn, Day, and Dusk. Though this familial arrangement implies a rejection of heteronormative reproduction and an embrace of asexual generation, there is a kind of compulsory heterosexuality inherent to the execution of Cleon I’s reproductive plan—what other characters call a “birth directive.” Through his plan, Demerzel—the lone fully synthetic being in the galaxy, after the destruction of the rest of her kind—conceives, births, raises, serves and witnesses the rise and fall of the Cleonic Dynasty, the most privileged segment of post-Terran humanity, over 400 years. Though a synthetic being, it is Demerzel who performs many of the functions of caretaking that make up the parent-child and partnered portions of a life cycle. She sings to each Cleonic fetus in a tank before birth, the act of a mother molding a child to recognize and trust their voice above all others, and teaches and quizzes each child (and each adult) to improve their memory and knowledge, all while acting as their companion during times of stress, repose, and travel.



Empire *in utero*. (Episode 3, “The Mathematician’s Ghost,” 2021; Apple TV+)

It is a multiplicity that both enrages and entices Cleon’s opponents. Hari Seldon and Zephyr Halima, along with others in revolt against the empire, ask (or attempt to force) the Cleonic descendants to stop imperial cloning altogether. Seldon’s objections are material, as he variously implies and proclaims that the replication of one form (the white, cismale Cleon I) prevents a diversity of other voices from being heard, his protégée Gaal, a young woman of color, among them. Halima’s objection to the clones is spiritual: as a priestess of the Luminist religion, which holds that reincarnation is possible, she believes a soul will stagnate if not transformed by inhabiting successive and differing bodies. As she confronts Cleon XII with the demand that his unchanging line end, she calls the terminology he uses for his family into question: “Brothers? You are not brothers. You are the reverberations of a dead man’s ego, by nature blind to all that you lack.” (Episode 6, “Death and the Maiden”) Cleon’s response to these objections: to exile Seldon,

and to order Demerzel to end Halima's life. But when faced with this task, meant to quell Cleon's rage at being framed as a "motherless monster," Demerzel confesses to Zephyr Halima that she, too, does "not have individuated sentience." (Episode 8, "The Missing Piece") This suggests that not only was Demerzel one of many androids (though she is the only survivor of the distant "robot wars"), but that she was one of a dyad or triad, or perhaps an even larger group of identical and simultaneously produced synthetic beings. While she does not agree with the order to kill that she has been given, both her programming (for obedience) and her nature (multiple, fragmented, and seeking comfort in multiplicity) align her with Cleonic aims.

While Demerzel represents the perils of obedience to a dictator who literally cannot die (or, rather, die out), Hari Seldon embodies the dangers of a leader who appears to resist the powers that be, while wishing to claim their life-extending possibilities and privileges to themselves. Although Seldon claims to champion diversity, shortly after being exiled it becomes clear that he is not opposed to hoarding access and commandeering talented people of color to serve his aims—he plans for Gaal to calculate the success rate of his plans, and for Raych to execute them. Nor is he truly opposed to self-replication in theory; while he is banished from Trantor for criticizing the preservation of one privileged set of genetic code (Cleon's), he subsequently uses several replication technologies to create multiple versions of himself.

However, rather than literally rebirth himself, starting again and again from infancy, Hari uses synthetic means to preserve multiple time-arrested versions of himself for later rebooting. Though Seldon leads his followers onto a ship bound for a new planet to establish the foundation, he decides, in the wake of a self-diagnosis with a terminal illness, to die prematurely and send his remains to the Foundation's location ahead of the ship. His terror at losing his mental acuity is represented by the image of his wavering reflection in a bowl of water—a blurring of boundaries between the self and obscurity, not unlike the image of Dusk's toppled ladder and spilled pigment. While Empire uses technology to repeat his life, Seldon uses it to arrest the aging process altogether, preserving his mind in a state of lucidity.

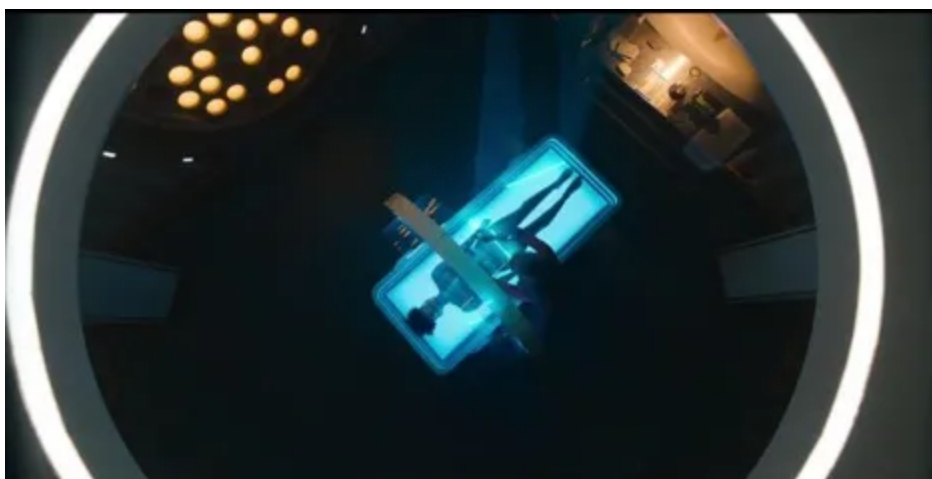
The series' criticism of self-replication is clear in the chaos and pain that Hari Seldon causes as he is replicated. The pseudo-Seldons take several forms: a hologram (made possible by Raych, who killed Hari I at the latter's request, though not before Seldon uploaded his synapses into a holomatrix installed on his cranium, and removed by Raych for transport); as a statue, overlooking the Foundation; and as a synthetic-biological being, remade from the synaptic and biological patterns recorded by a pill taken as Seldon was dying. Transported ahead of the Foundation ship's crew to terminus in a coffin that becomes a vault, he is reformed into a bio-holographic being who emerges in a moment of crisis to give advice, offer commentary, and retreat into stasis, a quasi-helpful embodiment of postmortem sentience.

In creating this last version of himself, Seldon represents what philosopher Rosi Braidotti, in her discussion of the "Posthuman as becoming-machine," terms "the technologically bio-mediated other," possessing "machinic vitality [that] is not so much about determinism, inbuilt purpose or finality, but rather about becoming and transformation." (Rosi Braidotti, *The Posthuman*, Germany:

Wiley, 2013) Though no copies of Seldon are purely biological, one being static and the other two intermittently offline or in a kind of sleep mode, they all resist age and decay, appearing to oversee and interfere in the lives of others in the name of Hari I's designs. These designs include plans for not one but two Foundations, a vision he keeps to himself until Gaal, rather than Raych, appears on his holographic doorstep, waking from a cryopod only to realize holo-Hari means to enlist her in a second Foundation scheme. Like Empire, Hari Seldon opts to be doubled and tripled at will in order to preserve and realize his greater and greater ambitions, giving little consideration as to others' wishes to witness, assist, or resist his replicated selves and their aims.

Though self-replication marks the dominant mode of attempted resurrection in the series—the coming to life, again and again, of new versions of the same people—the series condemns the winnowing of the genetic pool, whether in biological form (Cleon) or holographic or synthetic replication (Seldon). That condemnation is enfolded as the season closes, with the revelation that the youngest Dawn (Bilton), Cleon XIV, while phenotypically identical to his parent-brothers, is genetically anomalous, not by chance, but by design. Confronted with this deviation from the Cleonic plan, Demerzel and Cleon XIII reveal their individuation not through their looks, but through their actions, with Demerzel dismantling Dawn (and herself), and Cleon XIII smashing the Principium.

While the Seldonic and Cleonic storylines suggest a toxic misuse of technology for self-reproduction and resurrection, Gaal's interactions with these technologies provide a note of hope, both for their use and for the future of a humanity long dominated by Cleonic—that is, white, cismale—forms. Her storyline achieves this in two ways, the first being an imagined advance to a technology we possess: the storage of human embryos. During her initial journey to Terminus (before departing in a cryopod after Hari I's death), Gaal and Raych conceive. Their embryo is harvested as part of the ship's "Seed Bank" program, meant to store genetic material to preserve it and gestating bodies from radiation as they travel through space, avoiding the scarcity-minded monoculture of Cleonic (and Seldonic) replication. But though the technology is advanced compared to the options AFAB humans have today—not only eggs but whole fertilized embryos may be removed through the torso—and is put to use to preserve a heterogenous variety of genetic material, it is not clear, at first, that this will be a good thing. The scene at the Seed Bank is staged as one of horror, with Gaal laid out like a corpse on a gurney.



The extraction of the embryo (Gaal in the Seed Bank). (Episode 2, "Preparing to Live," 2021; Apple TV+)

Gaal awaits the be-gloved hand of a technician, who extracts her embryo before depositing it in a tube that will be stored in a hive-like assembly of vessels, honeyed cells for preservative repose and future emergence. While she is confident in the process, responding in the negative to the technician's probing questions ("Any change in your birth directive?") and opting to wait for "planetfall" to have her embryo implanted in a womb, other expectant parents are skeptical. The engineer Lowre (Kim Aids), both knowing and fearing that her zygote will be implanted in another settler if she does not survive the journey, laments to Gaal: "I know the odds of carrying healthy to term, and defects, and my milk being poison. But I also know where we're going. ... We're just preparing to live. For some of us to live. It's the Plan. What if I let them take her out and something happens, and I never get to feel her grow inside me ever again? I'll just never get to look into her eyes." Gaal responds with total understanding: "There would be nothing worse." As it turns out, Gaal is ejected from the ship to avoid blame for Hari's death; while her embryo leaves cryostasis, she is put into it, preserved (and, for a time, trapped) by Raych and Hari's plan to establish a first Foundation on Terminus without them, and a second far afield.



Gaal in cryostasis, dreaming into the future. (Episode 5, "Upon Awakening," 2021; Apple TV+)

The image of Gaal in cryostasis suggests an almost peaceful sleep, with her appearing almost as if she is preserved in amber, an echo of the amber-hued preservative technology of the Seed Bank. This does not mitigate the forced nature of her stasis; rather, her first, 34-year cryosleep speaks to the many interrupted, suspended, and reproduced life cycles in which the humans of *Foundation* exist. It suggests not only the outsize role cryo technology plays in the life cycle of these post-Terran humans, but the possibility that ordinary galactic citizens, whether by choice or force, may evade the forces of time through artificial life extension. Gaal and other characters' experiences show how the Cleonic dynasty, for all its hegemonic claims to self-preservation, does not have exclusive access to death-defying technology. For example, Salvor's partner Hugo (Daniel MacPherson), an interplanetary trader born 70-odd years before the start of the series, boasts a physical age between 35 and 45 as a result of cryo-sleeping through long voyages. Whereas in our world, cryo technology is effective only as a preservation tool of the embryonic (as potentially living) and viral or dead tissue (available for a degree of replication and study), the deep freeze of *Foundation* is something a body can emerge from, not as inanimate matter, but whole and alive.

And emerge Gaal does, leaving holo-Hari behind and heading for Synnax, 135 years away. When she awakens from cryosleep, her first encounter is with a scene of devastation: her home planet, always blue, has been completely covered with water as a result of climate disaster. Save for some

very friendly mega-fauna (dolphin-like squeaking manta rays), no other life is in sight of Gaal's pod and landing gear. But upon investigating wreckage near the site of her drowned village, Gaal finds another cryopod. When it opens, she brings the human inside to the surface, and meets Salvor—her daughter, born from her extracted embryo, implanted into and carried by another.



Mother and Daughter. (Episode 10, "The Leap," 2021; Apple TV+)

Though juxtaposed against the fall of the Empire, and the devastation of Gaal's home planet, the season finale ends on this hopeful note. Synnax boasts human life again, and in the form of two unique beings—a dyad of mother and daughter—emerging and meeting, in a moment made uniquely possible by life-extending technology, at the same time, and at the same age. Neither is a replica of the other; neither is meant to live the other's life. Instead, in a miracle of synthetic preservation and artificial life extension, the chronologies of two unique, ensouled, biological beings align. Their meeting is a vision of post-extinction possibility, as Salvor presents Gaal with the prime radiant, a computational artifact Hari constructed to project, predict and guide the first Foundation's progress—and which Gaal may use as she and Salvor build their own Foundation, looking not to the past, but to the future.