Brain and Dualism in *Star Trek*

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Introduction

IN THE PHILOSOPHIES that deal with the mind, dualism is the precept that mental phenomena are, to some degree, non-physical and not completely dependent on the physical body, which includes the organic brain. René Descartes (1596-1650) popularised this concept, maintaining that the mind is an immaterial and non-physical essence that gives rise to self-awareness and consciousness. Dualism can be extended to include the notion that more broadly asserts that the universe contains two types of substances, on the one hand, the impalpable mind and consciousness and, on the other hand, common matter. This is in contrast with other world-views, such as monism, which asserts that all objects contained in the universe are reducible to one reality, and pluralism which asserts that the number of truly fundamental realities exceed two.

Star Trek (ST) is a fictional possible future history of how humanity might advance and develop up to the 24th century. The series and movies comprise a metanarrative that encompasses 735 hours of viewing time, and thereby provides a fertile ground for the analysis of various areas of critical study.

This paper will review the philosophy of the mind as depicted in ST, and will show that ST accedes to mind-body dualism, with a cognitive proviso that in turn complies with the tropes and conventions that are recognised not only by ST, but also within the broader scope of the SF genre itself. An inevitable tension will be shown to have arisen between the notion of what is, to all intents and purposes, a soul, with the spiritual and possibly even deist accoutrements that this brings along, versus science, which, even within SF, acknowledges exclusively rational tropes and explanations, an acknowledgment which would automatically exclude these motifs.

This paper will also demonstrate the interesting permutations and combinations of mind-body and mind-mind interaction that is only possible within this genre, with narratives that include the crossing of consciousness not only across organic bodily boundaries, but also across and between machine consciousnesses. It is crucial to note that these narratives ignore the warnings of post-humanist researchers who believe "that the mind-body duality is a social construction that obscures the holistic nature of human experience" (Hayles 245) and ignores "the importance of embodiment" (20).

Moreover, this essay will show that in the vast majority of cases, these interactions constitute one of two events: a dybbuk, which, in Jewish mythology, is defined as the possession of the body by a malevolent spirit, usually that of a dead person, or outright possession by beings with superhuman powers. The narratives then focus on countermeasures that need to be undertaken in order to restore the original personality into its former body, thereby emulating a morality play, with good mastering evil.

Narratives

For the purposes of this essay, only sources that are canonical to the ST *gesamtkunstwerk* are considered, i.e. the televisions series and the movies.

Mind resides in brain

The certain knowledge that consciousness somehow resides within the physical brain is acknowledged in Daniel's "Spock's Brain." In this episode, the *Enterprise*'s Vulcan first officer has his brain forcibly removed surgically. The remaining physical husk is clearly unconscious, while consciousness and self-awareness are retained within the relocated brain. Spock is eventually reanimated when the brain (which houses mind) is reunited with the body.

Mind alone has also been removed from body and brain in several episodes, as will now be shown. This is done through alien technology or through alien practices, plot techniques that bow to SF precepts that in turn invoke science, since SF purports to be science's handmaiden, a key concept that will be discussed later.

Humanoid to humanoid

One of the most famous episodes in ST The Original Series is "The Enemy Within" (Penn), wherein Kirk's mind is divorced from its Jungian shadow, a clear attempt at the depiction of the admixture that resides within the individual: gentle and compassionate vs. an assertive and brutal heart of darkness, two polar opposites which must be fused and somehow integrated and balanced in order to achieve coherent behaviour.

This series' last episode also terminates with Kirk's body being taken over by a human female, while his consciousness is simultaneously transferred to her body, through the use of alien technology. Spock discovers the exchange and, pointing to the woman, claims, "that whatever it is that makes James Kirk a living being special to himself is being held here in this body." Naturally, all is set right again at the end of the episode (Wallerstein, "Turnabout

Intruder").

The Trill species host a slug-like and long-lived symbiont that retains the memories of its more short-lived hosts. These memories, and indeed, entire personalities may be triggered and may temporarily take over other willing individuals in a ritual that is designed to allow the host to physically encounter previous hosts whose memories the symbiont retains permanently (Bole, "Facets"). This will be seen to be one of the few instances in this essay when host bodies are willingly offered for hosting. And this is shown not to be without risk as during the ceremony, a previous host (Curzon Dax) and the individual who was temporarily meant to serve as host (Constable Odo) so greatly enjoy this new co-existence that they actively consider remaining permanently combined.

Yet another willing hosting occurs when, after an accident, the *Enterprise* is lost and Spock speculates that he might perhaps be able to telepathically mind-meld with an alien who is also a superb navigator.

> Perhaps for the purpose of this emergency I might become Kollos. […] A fusion. A mind-link to create a double entity. Each of us would enjoy the knowledge and sensory capabilities of both. We will function as one being. […] If the link is successful there will be a tendency to lose separate identity. A necessary risk.

This works and the ship returns to Federation space (Senensky, "Is There in Truth No Beauty?").

A Borg drone is also witnessed to have similar problems. This is a member of a species that subjugates individuals and even entire species, assimilating them into a hive mentality that represses the original personality. This particular drone, although rescued from the collective, still retains some cybernetic implants. She suffers from an electro-mechanical malfunction that permits the personalities of several individuals to take her over and manifest themselves as many distinct, consecutive personalities (Livingston, "Infinite Regress").

Telepathy may be used to project a mind transiently into another, resulting in the properties of each mind individual mind being temporarily retained. A Vulcan telepathic link, a "mind meld," is deliberately initiated between a Vulcan ship's security officer (Tuvok) and a psychopathic serial murderer (Suder). The latter becomes "[q]uite calm and controlled. Clearly the meld initiated some high cortical activity in his brain." However, for every action, there is an each and opposite reaction, and the former admits, "I am more disconcerted than I anticipated. […] I am already taking steps to purge these residual feelings." The Vulcan officer warns the murderer that despite his feeling of centeredness, he should not

be misled. Your violent instincts still exist. You are simply suppressing them as Vulcans do. […] Understand that this will not be a permanent change unless you commit to a strict daily regime of meditation and mental exercise.

Suder muses

> I can feel the difference. It is almost as if I can observe the violence inside me without letting it get too close. It is quite remarkable what you Vulcans have learnt to do. […] Since the meld, I feel capable of controlling myself. Perhaps with your help I can learn to stay this way. It must be difficult for you. […]. Knowing violence as I've known it. […] Studying it and knowing it are two different things, aren't they. It's attractive, isn't it? [I]t is disturbing, never knowing when that impulse may come or whether or not you can control it when it does. You live on the edge of every moment, and yet, in it's own way, violence is attractive, too. Maybe because it doesn't require logic. Perhaps that's why it's so liberating. Ironic, isn't it, that I can share with you of all people what I have hidden from everyone all my life.

Tuvok is eventually overwhelmed by Suder's residual mental influence, and decides to kill him. The latter observes, echoing the Nietzschean precept that when one gazes into the abyss, the abyss gazes back into you:

> To execute me. […] And calling it that makes it more comfortable for you. […] A most logical use of violence, to punish the violent. We both know that I am prepared to die, but are you prepared to kill? […] To release your violent impulses? […] I can promise you this will not silent your demons. If you can't control the violence, the violence controls you. Be prepared to yield your entire being to it, to sacrifice your place in civilised life for you will no longer be a part of it, and there's no return. […] you would not be able to live with yourself (Bole, "Meld").

The continuing effect of the meld is beneficial for Suder, and he expresses the desire "to do something for the ship […] if I could just, just contribute somehow." His chance comes when aliens overwhelm *Voyager* and he notes, "I'm going to have to kill some of them. […] I've worked so hard over the last few months to control the violent feelings. I'm almost at peace with myself." He succeeds in saving the ship and crew but dies, and Tuvok eulogises, "[m]ay your death bring you the peace you never found in life."

Captain Picard is equally devastated when he undergoes a mind-meld in order to stabilise the mind of a Vulcan ambassador who is ill and experiencing overwhelming

emotion, sobbing, "[i]t's quite difficult. The anguish of the man, the despair pouring out of him, all those feelings, the regrets. I can't stop them. I can't stop them. I can't. I can't" (Landau, "Sarek").

A completely novel takeover is posited by depicting the Kobali, an alien species that reproduce by infecting corpses of other species (including that of a human *Voyager* crewperson) with a "genetic pathogen" that convert "DNA into a Kobali protein structure. The biochemical changes have affected every system […] there isn't enough of your original DNA left to make you human again." The crewperson explains, "That's how they procreate. They salvage the dead of other races." The crewperson escapes from the Kobali and returns to *Voyager*, but is so changed that she eventually voluntarily returns to the Kobali (Windell, "Ashes to Ashes").

Memories and skills constitute integral parts of personality, and the introduction of artificial memories may therefore be considered a partial personality overlay. This occurs at least four times in the canon. Aliens punish a crewman accused of espionage by the implanting of years of memories of living in a prison, within a few hours. This has profound negative effects on the crewman who almost commits suicide (Singer, "Hard Time"). Similarly, a crewman falsely accused of murder and punished by being implanted the last dying memories of the victim, which are automatically replayed over and over again in his mind. This constant experience of being murdered has profound ill effects until the false memories are finally extirpated (Burton, "Ex Post Facto").

Yet another crewperson is telepathically implanted with memories of a concealed genocide, so that this would be exposed and brought to light to the younger generation, who have no knowledge of the actions of their forebears (Kolbe, "Remember"). And finally, Captain Picard is infused with a lifetime's worth of memories by an extinct alien race in only twenty-five minutes, so that he would be able to testify to the existence of a species that had been rendered extinct by their sun going nova a millennium earlier (Lauritson, "The Inner Light").

A civilian massacre is also remembered by having all individuals within the range of a planet-based "synaptic transmitter" experience false memories through the diffusion of "neurgenic pulses." Indeed, the transmitter carries the following inscription: "Words alone cannot convey the suffering. Words alone cannot prevent what happened here from happening again. Beyond words lies experience. Beyond experience lies truth. Make this truth your own." The *Voyager* crew speculate that the memorial's creators "wanted others to know what it was like in the hopes that nothing like it would happen again." In this way, the crew become unwitting and involuntary "witnesses to a massacre," with negative consequences since "by being forced to relive those events, half the crew's been traumatised" (Kroeker, "Memorial")

Aliens dybukk Federation minds

As already noted, it is naturally only rarely that a mind is willingly offered to be taken over by another. For example, the *Enterprise* crew discover the inventor of warp drive who has been rejuvenated and kept young by a being "[v]aguely like a cloud of ionised hydrogen, but with strong erratic electrical impulses." This "companion" is female and loves the inventor who is her "centre of all things. I care for him." Kirk explains that she

> can't really love him. You haven't the slightest knowledge of love, the total union of two people. You are the Companion. He is the man. You are two different things. You can't join. You can't love. You may keep him here forever, but you will always be separate, apart from him.

The companion solves this by taking over a woman, a commissioner and negotiator, who has accompanied the team and is at death's door. She is instantly healed, "healthy. Heart like a hammer, respiration normal, blood pressure normal." She informs the others that "We are here. […] Both of us. Those you knew as the Commissioner and the Companion. We are both here" at the cost of losing immortality, and becoming completely human and therefore unable to arrest her lover's ills and eventual mortality (Senensky, "Metamorphosis").

In "Return to Tomorrow" (Senensky), three advanced and highly intelligent aliens beings are found in spherical containers "in order to preserve our essence in this fashion." These contain "energy but no substance. Sealed in this receptacle is the essence of my mind." Kirk, Spock and a female colleague volunteer to allow these aliens to take over their bodies, so as "[t]o build humanoid robots. We must borrow your bodies long enough to have the use of your hands, your fingers. […] Our methods, our skills are far beyond your abilities." This is the second instance when such displacement is volunteered, and again risk is involved. The crewmembers are temporarily housed in the receptacles. However, these intellects drive human bodies to the limit, "heart action doubled, temperature a hundred and four degrees." Moreover, the alien residing in Spock refuses to leave and is only killed by subterfuge, allowing Spock's essence to return to his body.

A woman's mind is taken over by incorporeal alien beings in "The Lights of Zetar" (Kenwith), such that "[t]

here is an identity of minds taking place between the alien beings and the mind of Lieutenant Romaine. Their thoughts are becoming hers." The lieutenant confesses that "I've been seeing through another mind. I've been flooded with thoughts not my own that control me." The aliens are exorcised by exposing the woman to high atmospheric pressures.

The *Enterprise*'s female doctor is the attempted victim of a noncorporeal being that explains to her that

> I'm a spirit. […] I was born in sixteen forty-seven, in Glasgow on Earth. […] I found a home with Jessel Howard. She was a pretty lass with a mane of red hair, and eyes like diamonds. I loved her very much. When she died, I stayed with her daughter, and her daughter, and on down through the years, generation after generation. […]. When your family moved out into the galaxy, I moved with them."

He seduces her, with compliments and erotic and frankly sexual physical sensations: "I believe you are the most beautiful women I have ever known. […] We're becoming one, Beverly. We're going to be together."

However, the doctor realises that

> There's no such thing as a ghost. You are some sort of anaphasic lifeform. Anaphasic energy is extremely unstable. It needs an organic host in order to maintain molecular cohesion or else you'll die. […] You have been using me, Nana, my entire family for centuries.

She destroys the being, and somewhat wistfully explains to the crew that

> Somehow, he realised that one of my ancestors had a biochemistry that was compatible with his energy matrix. I imagine that he took human form and seduced her like he did me. I was about to be initiated into a very unusual relationship. You might call it a family tradition. But there's a part of me that's a little sad. […] I re-read the entries in my grandmother's journals. Whatever else he might have done, he made her very happy. (Frakes, "Sub Rosa").

Very corporeal, slug-like beings, reminiscent of Robert Heinlein's The Puppet Masters, infiltrate the Federation and Starfleet, completely controlling the minds of those possessed (Bole, "Conspiracy"). This is "a parasitic being […]. It has complete control over all brain functions. It seems to breath through a small gill protruding from the back of […] neck. […] By the placement of the tendrils […]. The parasite appears to stimulate the victim's adrenal glands, generate great strength." When unmasked, the parasites willingly confess that "[i]t's a perfect match. We're the brains, you're the brawn. […] We've been moving slowly, cautiously, for many months now. Careful to cover our tracks. Careful not to arouse suspicion, until it's too late." The *Enterprise* crew naturally destroy the creatures before they can do more harm.

A centipede-like dark matter creature also very temporarily takes over a human's brain, and the person in question exclaims "it's activating my motor neurons. I can't make it stop. I'm sorry […]. You've got to stop it" (Kolbe, "Good Shepherd").

As already explained, the Borg are comprised of individuals who have been assimilated into a collective, which suppresses the original minds. However, it turns out that certain Borg have active personalities that manage to emerge in common, collective dreams, and who communicate with each other and plot rebellion against the collective (Kroeker, "Unimatrix Zero").

Alien criminals of a particular species are imprisoned by being brought to an inhospitable moon ravaged by magnetic storms, "separated from […] bodies and left to drift in the storms." Three of these beings take over three of the *Enterprise*'s crew, one of whom is the android second officer Data. Brain scans show that they have "unusual synaptic activity. […] It may be another lifeform superimposing its neural patterns on our people." The situation is completely resolved and one of the three comments that "[i]t was as though my own consciousness were pushed to the side. I was watching everything happen, hearing my own voice, but not being able to control any of it" (Livingston, "Power Play").

Voyager's security officer is taken over by an alien, and the same alien extracts the first officer's persona, such that "his neural energy was displaced somehow and he's able to move from person to person," effectively possessing the other crewpersons. The situation is resolved when the alien is removed from the first officer and the doctor reintegrates the first officer into his body (Friedman, "Cathexis").

Similarly, a dying alien takes over the mind of a *Voyager* crewmember. This is the result of intensive research since "he became obsessed with his own mortality. He spent most of his time, and […] resources, searching for ways to overcome death. Somehow he's discovered a way to transfer his own mind into someone else's body." He meets his co-conspirators and informs them that "[t]he host body you were expecting is dead. Fortunately a young nurse was with me at the right time and she's provided me with a very suitable replacement." The alien is eventually displaced by a medical device that is concocted by the ship's doctor (Livingston, "Warlord").

Aliens propose to take over the bodies of an entire ship's crew since:

It's been a long time since we've encountered corporeal beings. […] we realised we were compatible. You're very interesting. Trapped in bodies that need maintenance. You have gender. You require mates to reproduce. You eat food. We were like you once, but we evolved. Now we can learn how our ancestors lived.

In turn the aliens explain that they are "offering them a great opportunity. They may never get another chance to experience existence as we do. [...] Losing your substance, existing as perceptive energy, but you'll be grateful once you've made the crossing, I promise you."

However, the crew discover that the aliens' "ship is deteriorating, and they have no way to repair it. They can't survive in space. […] they are doing this to save themselves." The *Enterprise* crew naturally manage to overcome the aliens and destroy their ship (Livingston, "The Crossing").

Individual humanoids may be taken over so as to allow communication with humans. For example, aliens "took control of Counsellor Troi's body to communicate" with the *Enterprise* crew (Landau, "Clues").

In a somewhat different vein, alien observers, "Organian, a nonphysical life-form," sequentially take over the minds of different crewmembers on the *Enterprise* in order to carry out covert observations on the species (Vejar, "Observer Effect").

It is worth noting that although the essence extracted from or suppressed within the abovementioned Federation bodies is tantamount to that which would ordinarily be called the soul, at no point is the term invoked, clearly eschewing any form of spiritualism or deism, a crucial point to which the discussion will return. Thus, the *Deep Space Nine* (DS9) series depicts aliens who inhabit an Einstein-Rosen bridge, a wormhole. However, to the deeply spiritual Bajoran race, "[t]hey're not just wormhole aliens, they're Prophets, part of Bajoran mythology just like the Pah-wraiths of the Fire Caves" who are imprisoned in caves on the planet Bajor and who are their Manichean counterparts (Kroeker, "The Assignment"). Both are capable of taking over humanoid bodies, and this is first seen when DS9's chief station engineer's wife is taken over by a Pah-wraith who plans to destroy the wormhole. When the wraith is banished, the victim notes that "[i]t was more like having something coiled around inside my head. I could see and hear through it, but any time I tried to do anything, it was like being stuck in sand and squeezed. […] Kind of a cold rage. I don't think it had any intention of leaving either one of us alive." Moreover, a violent and overtly Manichean struggle takes place on DS9 when the chief security officer is taken over by

a prophet while the commander's son is taken over by a Pah-wraith. Both are exorcised using a scientific procedure (Treviño, "The Reckoning").

Two more rare instances wherein the individual gives up his body in order to house another are witnessed when the principal alien (Cardassian) villain (Gul Dukat) in DS9 willingly hosts Pah-wraiths (Kroeker, "Tears of the Prophets;" Kroeker, "What You Leave Behind").

The Vulcan race have an equally mystical attribute, the *katra*. This is described as "his very essence, […] everything that was not of the body. [...] his *katra*, his living spirit" (Nimoy, "The Search for Spock"). When nearing death, Vulcans (who are telepathic) pass on their very *katra* to another. "It is the Vulcan way when the body's end is near." Thus, only "his body was in death." If this does not happen, "[t]hen everything that he was. ...Everything that he knew ...is lost."

On anticipating his death from radiation poisoning, Spock briefly mind melds with Dr. McCoy and passes on his *katra*. This is not without side effects and McCoy finds himself experiencing split personality disorder. A drug called "lexorin" is used to temporarily counteract these unwanted effects. When Spock's body is accidentally resurrected and rejuvenated, Vulcan's learned priestesses reinstall Spock's *katra* within his body, effectively reintegrating the individual. This process is known as "fal-tor-pan, the refusion. […] has not been done since ages past, and then, only in legend."

This incident is not unique and, for example, Captain Archer finds himself carrying the *katra* of Vulcan's greatest philosopher, Surak (Grossman, "The Forge"), which is later transferred to a Vulcan priest (Livingston, "Kir'Shara"). During this carriage, he communes with Surak, and also experiences events that happened in Surak's time. *Katras* are not normally housed in individuals but repose in receptacles called "katric arks" (Grossman, "The Forge").

Similarly, in the abovementioned episode "Return to Tomorrow" (Senensky), Spock transfers his *katra* into Nurse Christine Chapel in order to foil the alien who wishes to steal a humanoid body, and is later reinstalled in his own body.

Captain Janeway is also taken over by an alien when she is severely injured. On recovering, she is informed that "we detected an alien presence within your cerebral cortex. It appeared to be preventing our attempts to heal you. […] Eventually it was dislodged, but there were a number of times I thought we'd lost you." The creature is exorcised by a "thoron pulse" (Malone, "Coda").

And finally, a murderous, noncorporeal alien entity is

discovered that is able to "exist without form in conventional sense. Most probable mass of energy of highly cohesive electromagnetic field." This creature is capable of taking over humans and committing murder since "[d]eriving sustenance from emotion is not unknown in the galaxy, and fear is among the strongest and most violent of the emotions." Therefore the creature frightens and kills in order to survive (Pevney, "Wolf in the Fold").

Organic minds downloaded into machine minds

In "Return to Tomorrow" (Senensky), we have already noted human minds downloaded into alien receptacles, replacing alien minds who were previously housed there.

In "The Schizoid Man" (Landau), a famous and arrogant scientist (Ira Graves) is on the verge of death but has "learned to transfer the wealth of my knowledge into a computer. Before I die, I plan to transfer my great intelligence into this machine, thus cheating the Grim Reaper of his greatest prize." He mockingly chides Data,

> [y]our existence must be a kind of walking purgatory. Neither dead nor alive. Never really feeling anything. Just existing. Just existing. Listen to me. A dying man takes the time to mourn a man who will never know death.

Graves manages to deactivate Data and applies his knowledge to download his mind into Data. The crew discover that

> [t]here are two disparate personalities within Lieutenant Commander Data. Each distinctly different. A dominant and a recessive. […] The dominant personality is unstable. Brilliant but vain, sensitive yet paranoid. And I believe it is prone to irrationality. […] It seems to have an especially strong hatred of you, Captain, or to a lesser degree, any authority figure. And worst part is, it's growing. […] The alien persona is getting stronger and gobbling up what is left of the weaker ego, the Data we know. If something isn't done to stop it immediately, we will lose our Data forever.

When confronted, Graves freely admits and justifies his actions:

> I deactivated Data and transferred my mind into his frame. I never imagined how much of my self I would retain. My feelings, my dreams. […] Data? Before me, he was nothing. Just a walking tin can with circuits for intestines. Pathetic. Without heart, a man is meaningless.

He eventually relents, vacates Data's body and moves into a simple computer, and the Captain notes the difference: "[t]he intellect of Ira Graves has been deposited into our computer. There is knowledge but no consciousness. The human equation has been lost."

In another episode, Data is once again taken over, and this time, his computer brain with its tremendous capacity finds itself host to "thousands, of all ages and walks of life. It was a remarkable experience." The Captain ripostes: "you never may become fully human, but you've had an experience that transcends the human condition. You have been an entire civilisation" (Weimer, "Masks").

In the *Voyager* series, the computer-generated Emergency Medical Hologram on *Voyager* embarks on a self-enhancement project, a hubristic scheme that involves the grafting of famous historical personae onto his program, software that defines his personality. He hopes to achieve "[a]n improved bedside manner, a fresh perspective on diagnoses, more patience with my patients" (Singer, "Darkling"). But he unwittingly invokes the Frankensteinian trope, since "[a] lot of the historical characters […] have this dark thread running through their personalities." The "new personality from the subroutines" is Mr. Hyde to the original Dr. Jekyll, and the new and malevolent doctor explains: "I was born of the hidden, the suppressed. I am the dark threads from many personalities." Like Dr. Ira Graves, he mocks the previous doctor whose personality he has replaced, in Nietzschean vein:

> What a hollow excuse for a life. Servile, pathetic, at the beck and call of any idiot who invokes his name. The thought of him sickens me. […] He is detestable. […] I deserve to exist more than your Doctor does. […] I am beyond considerations of wrong and right. Behavioural categories are for the weak, for those of you without the will to define your existence, to do what they must, no matter who might get harmed along the way. […] I fear nothing, no one.

The situation is resolved when the extra personality subroutines are finally eliminated.

The Frankensteinian trope is reinvoked in "What are Little Girls Made Of?" (Goldstone), where human scientists discover alien technology that can function in three ways. Either to copy the individual by creating a complete android along with an identical mind containing "[t]he same memories, the same attitudes, the same abilities." Or to give this android copy a different program and agenda to the one inherent in the original being. Or to completely transfer the individual into an android replica in Moravec fashion. The discoverer exhorts Captain Kirk:

> I could've transferred you, your very consciousness into that android. Your soul, if you wish. All of you. In android form, a human being can have practical immortality. Can you understand what I'm offering mankind? […] Can you understand that a human

converted to an android can be programmed for the better? Can you imagine how life could be improved if we could do away with jealousy, greed, hate? No one need ever die again. No disease, no deformities. Why even fear can be programmed away, replaced with joy. I'm offering you a practical heaven, a new paradise, and all I need is your help. […] I need transportation to a planet colony with proper raw materials. […] I want no suspicions aroused. I'll begin producing androids carefully, selectively. […] They must be strongly infiltrated into society before the android existence is revealed. I want no wave of hysteria to destroy what is good and right.

Kirk's rejection is outright and the scientist's plans are thwarted.

Partial cyborgization of the human brain is deemed appropriate when essential to the continuation of life, but the complete replacement of the human brain by a cyborg analog is not. Brain damage from an explosion and attempted treatment leads to the loss of half of an individual's brain. This is a member of the Bajoran religious order, called Bareil. His brain is partially replaced with an Asimovian "positronic matrix." This allows the individual to function almost normally, but when the remaining organic half also fails, the doctor refuses:

I'm sorry, […] but this is where it ends. […] I won't remove whatever last shred of humanity Bareil has left. […] if I remove the rest of his brain and replace it with a machine, he may look like Bareil, he may even talk like Bareil, but he won't be Bareil. The spark of life will be gone. He'll be dead. And I'll be the one who killed him. […] he'll die like a man, not a machine (Badiyi, "Life Support").

Humanoids may also be downloaded into computer matrices that support holographic projections that simulate a complete body. The doctor explains that he extracted "undamaged chromosomes, […] original DNA code, and then programmed the computer to project a holographic template based on that genome. […]. A three-dimensional projection of light and energy" (Bole, "Lifesigns"). Similarly, during a shuttle accident, five crewmembers are beamed on board, with the bodies rematerializing in the holodeck and the mental patterns downloaded into the station's computer (Kolbe, "Our Man Bashir").

Human brains may also be downloaded without their knowledge. An injured scientist is downloaded into a positronic matrix with an android body by her husband when she is close to death after massive injuries. The scientist is the android Data's own creator and he never tells his wife what has happened as

[t]here was no reason for her to know […] The truth is, in every way that matters, she is Juliana Soong. I programmed her to terminate after a long life. Let her live out her days, and die believing she was human. Don't rob her of that.

And finally, the noncorporeal alien entity witnessed in "Wolf in the Fold" (Pevney) leaves its human hosts, and the crew discover that "computer will not respond to these controls. The entity is unquestionably controlling it."

Machine mind to human

Cybernetic minds may also overwhelm human minds. In "Body and soul" (McNeill), the computer doctor on uploads his software into the cybernetic implants of the abovementioned Borg drone. He explains:

I downloaded my programme into her cybernetic matrix. An interesting sensation, to say the least. […] Physiologically, she's fine. As for her consciousness I'm assuming it's submerged, but there's no way to be sure until I vacate her systems and conduct a neurological exam. […] This experience will make a fascinating article for the Starfleet medical journal.

On experiencing qualia (subjective human experiences) for the first time, the doctor exults "I had no idea that eating was such a sensual experience. The tastes, the textures, feeling it slide down […] oesophagus, it's, it's exquisite." And overwhelmed, the doctor overindulges in food and drink.

Machine mind to machine mind

Machines may also become incorporated into machine minds. In "The Offspring" (Frakes), the android Data creates a second android and treats her as his child, but the experiment fails. However, before she is extinguished, he absorbs her experiences. Tapping his head, he informs his fellow crew that

she is here. Her presence so enriched my life that I could not allow her to pass into oblivion. So I incorporated her programs back into my own. I have transferred her memories to me.

Similarly, when an android is discovered that is identical to Data but a presumably earlier and more primitive version, Data elects to download his memories into this "B4" android. He notes that

Captain Picard agrees that the B-4 was probably designed with the same self-actualisation parameters as myself. If my memory engrams are successfully integrated into his positronic matrix, he should have all my abilities. […] It is my belief that with my memory engrams he will be able to function as a more com-

plete individual. […] I believe he should have the opportunity to explore his potential.

More urgently, a faulty alien missile that is controlled by an artificial intelligence rejects its orders to return to base since hostilities have ceased, and takes over the *Voyager*'s Emergency Medical Hologram. It "used the interlink to commandeer the Doctor's programme," and The *Voyager* crew remonstrate:

> You've been programmed with intelligence so you could make decisions on your own. Well, it's time to make one. Countless lives are at stake. Ever since you took the Doctor's form you've been learning what it's like to be one of us. Now, try to imagine what it's like to be one of your victims. Your first victim, you've seen her suffering. Increase that by a factor of one million, ten million and that's how much suffering you'll cause if you don't end this.

The missile understands: "You want me to see past my programming." When it is finally convinced that the war for which it has been created is over, and that its original purpose is negated, it sets up a rendezvous with other, equally misguided missiles, and triggering itself, destroys all of the remaining missiles (Kertchmer, "Warhead").

Yet another alien inadvertently invades *Voyager* later on the series, a denizen of a gaseous nebula that initially manifests as an

> EM discharge […] seems to be travelling through the bio-neural circuitry, jumping from system to system […] an intelligence […]. Some kind of electromagnetic life form that's using the environmental controls to make the ship more hospitable for itself […]. And attacking anyone who tries to stop it.

The situation is aggravated when it is discovered that "the life-form's infiltrated the main computer matrix," taking total control of the ship, but resolution is eventually effected when the crew returns the alien to its original habitat, a nebula (Livingston, "The Haunting of Deck Twelve")

Discussion

Richard Slotkin states that myth is "the primary language of historical memory: a body of traditional stories that have, over time, been used to summarize the course of our collective history." (70) Myth is thus recognised as the earliest narrative form and provides a conduit through which histories can be rewritten and retold.

The retelling of myths is an integral part of ST and part of its popularity since by reframing recognizable myths in new modes, it provides the reader with a sense of familiarity. ST adapts its stories to incorporate familiar mythical paradigms that figure centrally within our own society, history, and culture. These stories may be centuries old and have been resigned to the past, but Star Trek breathes life back into them by retelling them in a yet-to-be-decided utopian future (Geraghty 56).

The mythic origin of the displacement of the individual from within the body is an old trope, as acknowledged by Worf, the *Enterprise*'s Klingon security officer: "[s]piritual possessions of this sort have been reported throughout Klingon history. It is called jat'yIn, the taking of the living by the dead." Picard concurs, "[h]uman history is full of many similar legends" (Livingston, "Power Play").

Darko Suvin defined the genre as "the literature of cognitive estrangement" (372), a literature that "takes off from a fictional ("literary") hypothesis and develops it with extrapolating and totalizing ("scientific") rigor" (374). Suvin deliberately uses the term cognition instead of knowledge, since in the English language, "science is in any case a problematic concept […], it carries a very strong bias toward the natural sciences. Indeed, the French science and the German wissenschaft are often better translated as 'knowledge'" (Parrinder 21).

Moreover, while all fiction is at one remove from reality, SF is doubly removed through the additional introduction of "a strange newness, a novum" (Suvin 372), an estrangement similar to the ostrananie noted by the Formalist school.

Thus, SF "is, then a literary genre whose necessary and sufficient conditions are the presence and interaction of estrangement and cognition, and whose main formal device is an imaginative framework alternative to the author's empirical environment" (375).

Therefore, since SF purports to be the handmaiden of science, which is "arguably the last metanarrative with any significant cachet in the post-postmodern condition" (Grech 4), ST generally reflects science as accurately as possible, nodding to immutable physical laws while gently sidestepping them through technobabble and other ersatz scientific legerdemain.

In the narratives mentioned in this paper, the novum and estrangement vary from the extreme espoused by hard science fiction to the more soft and even quasi-religious visions of prophets and wraiths.

The former are more congruent with the liberal humanist outlook of the show's creator, Gene Roddenberry, whose views are in keeping with those of John W. Campbell, editor of Astounding Science Fiction (editor for the period 1939-1971). Campbell's "ideal reader was an engineer, who would bat around ideas in stories with other

engineers […] in their search for real solutions" (James 23). This notion dovetails perfectly with narratives wherein machine intelligences—which are software based—are displaced, in a copy-and-paste modus operandi and this is possible even with contemporary software.

Similarly, the possibility of the transfer of a human intelligence to a machine has been prophesied by Hans Moravec, who averred that the performance of artificial intelligence computers will match the general intellectual performance of the human brain in the 2020s, potentially allowing the transfer of the intact working contents of a human mind into a computer were it also to become possible to convert the mind to a software program (Moravec 32). These calculations are made by extrapolating Moore's law, which observes that computing power doubles every eighteen months.

However, many posthumanist thinkers are in complete disagreement, arguing that mind-body "separation allows the construction of a hierarchy in which information is given the dominant position and materiality runs a distant second" (Hayles 12). This has the effect of "privileging the abstract as the real and downplaying the importance of material instantiation" (13). The latter is regarded as crucial by these thinkers who contend that "[e]mbodiment cannot exist without a material structure that always deviates in some measure from its abstract representations; […] an embodied creature […] who always deviates in some measure from the norms" (200). Hayles describes this key concept as turning "Descartes upside down" (203) since the only real certainty is that "the body exists in space and time and that, through its interaction with the environment, it defines the parameters within which the cogitating mind can arrive at "certainties" […] generating the boundaries of thought" (203). Thus, "conscious thought becomes an epiphenomenon corresponding to the phenomenal base the body provides" (203).

In these narratives, the transfer of biological minds to other biological minds has been shown to require one of two novums: the invocation of alien technologies or the superhuman mental abilities of alien minds. In these ways, humanist SF narratives are able to fall just short of using terms such as "soul," likewise dispensing with equally embarrassing words like "spirit" that potentially usher in concepts such as spirituality or even outright deism, concepts with which the genre is extremely discomfited.

Instead, "energy" is used and incorporated into euphemisms that replace that which is spiritually and commonly referred to as the soul, such as the isolated term "energy" and combinations thereof, including "energy matrix," "anaphasic energy," "neural energy" and "perceptive energy." These expressions are inherently and scientifically meaningless but acquire a veneer of acceptable respectability since by the act of naming, they are somehow defined, framed and thereby comfortably explained away by science.

Science strengthens its hold on these tropes by almost always requiring a material receptacle for mind of some sort, be it organic or machine, such as katric arks for Vulcan *katras* (Grossman, "The Forge"). Medicine, an applied branch of the sciences, is also utilised whenever required to deemphasise the spiritual nature of the noncorporeal self, such as the use of the fictitious drug lexorin when an individual finds him or herself carrying another's *katra* (Nimoy, "The Search for Spock").

Some entities, such as the Organians, are shown to be "[p]ure energy. Pure thought. Totally incorporeal. Not life as we know it at all" (Newland, "Errand of Mercy"), but this is somehow mitigated by the fact that these are completely alien beings who have, in some mysterious way, evolved beyond the need of corporeal bodies.

Some degree of ambiguity and acceptance of the spiritual was introduced after the death of Gene Roddenberry (1921-1991). Rodenberry referred to the series as "my social philosophy, my racial philosophy, my overview on life and the human condition" (Alexander 18). The humanist values that are relevant to this discussion include the reliance on science and reason in the search for truths, with the eventual banishment of all superstition, a Nietzschean adherence to the tenet that reliance on religion is incorrect and inappropriate.

Deep Space Nine (1993-1999) and applied a more postmodern take to the ST future. Moreover, it is in this series that religion features very prominently for the first time, perhaps due to the fact that Roddenberry's humanist views were not totally enforced. *Voyager* (1995-2001) followed *Deep Space Nine* and also bows to this precept. For example, the *Voyager*'s crew are open minded, admitting to an alien

> for all I know, […] thanatologists are right […] and you do go on to a higher consciousness. […] I don't know what happens to your people after they die. I don't even know what happens to my people after they die. […] There have certainly been medical experts, philosophers, theologians who have spent a great deal of time debating what happens after death. But no one's come up with an answer yet.

Indirect evidence of some sort of afterlife is obtained when alien bodies appear on *Voyager* and

> each one of them has released some kind of neural

energy. In every case, the energy has passed through the hull and out into the rings. The energy's frequency is identical to the ambient radiation in the asteroid field. […], becomes part of the ambient electromagnetic field surrounding the planet. Our readings also indicate the energy's unusually dynamic. There's a great deal of variation and pattern complexity, quantum density. […] What we don't know about death is far, far greater than what we do know. (Livingston, "Emanations")

It may also be for this same reason that the concept of the Vulcan *katra* was expanded and elaborated in the *Enterprise* series (2001-2005).

These narratives allow the drawing of three conclusions. Firstly, that ST experiences tension when it portrays that which is in effect a reluctant spirituality, a trope that is deliberately tempered by ambiguity, allowing viewers to dispense with supernatural explanations. For example, the Bajoran Prophets and Pah-Wraiths are considered to be supernatural beings by Bajorans and wormhole aliens by Federation officers. *Deep Space Nine*'s commanding officer neatly sums this up as a matter of perspective,

> [w]ormhole aliens or Prophets, it really doesn't matter. The fact is, they exist out of time, and over the centuries they've given the Bajorans glimpses of the future. Glimpses that the Bajorans have written down to help them guide succeeding generations ("Treviño, The Reckoning").

This is accepted by the equally open minded Bajoran second in command, as "[t]hat's the thing about faith, if you don't have it, you can't understand it. If you do, no explanation is necessary" (Landau, "Accession").

The second conclusion is that ST upholds Norbert Wiener's contention that since the body is impermanent, always in flux with turnover of cells and tissues, then it would seem to follow that "[w]e are but whirlpools in a river of ever-flowing water. We are not stuff that abides, but patterns that perpetuate themselves" (The Human Use 96). Wiener famously encapsulated this notion in the aphorism: "Information is information, not matter or energy. No materialism which does not admit this can survive at the present day" (Cybernetics 132). The outcome, as demonstrated in the episodes, is that the pattern that constitutes consciousness can be somehow copied or extracted and instantiated in another body or machine.

The final conclusion is that almost all of these narratives constitute morality plays, with the forces of good struggling in Manichean fashion against, and eventually triumphing over evil. This accedes to Umberto Eco's contention that series such as ST appeal to fans due to their "infantile need of always hearing the same story, of being consoled by the return of the identical, superficially disguised" (Eco 70), with uplifting tales that reassure us of better things to come in an almost perfect utopian, liberal humanist future.

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