

The Constant, the Variable, and the Bad Wolf in *Lost* and *Doctor Who***Kristine Larsen**

Today's science fiction television audience comprehends the basic science behind time travel and parallel universes thanks to the popular writings (and television documentaries) of scientists such as Stephen Hawking, Brian Greene, and Michio Kaku. In response, the writers of such series as *Doctor Who* and *Lost* use this science in a fairly consistent way, keeping their time travel as "realistic" as possible while at the same time entertaining their loyal yet discriminating audiences. The two series certainly differ in what defines consistency in time travel, and what liberties may be taken with these rules within the canon of the series. However, each series has a human wildcard, a character who appears to bend or supersede the rules: Rose Tyler (companion to the Ninth and Tenth Doctors) and Desmond David Hume (named for the 18th century philosopher) respectively. While these variables are able to move between timelines and even parallel universes with an ease inaccessible to fellow characters, they must rely upon constants (in the form of other characters, items, and actions) in order to remain grounded within the dizzying world of time travel. This essay will explore the intersections between science and science fiction in the respective travels of Desmond, Rose, and their accompanying characters, focusing on the skillful navigation of the series writers and viewers through the various paradoxes scientists warn are inherent in any attempt to change the past within the confines of a single universe.

The basis for our current scientific understanding of time travel is the work of Albert Einstein, whose 1915 General Theory of Relativity demonstrated that what we experience as the force of gravity is actually the warping of four-dimensional space-time by mass and energy. For example, the Earth orbits the Sun as it does because the Sun warps space-time in its vicinity in a specific way. If the presence of matter (and energy) can warp space-time, is it possible to warp it in such a way as to permit a material object to travel backwards in time? Not only is it possible to generate solutions of the Einstein field equations that allow for time travel, but a number of such solutions have been found.

However, with the possibility of time travel comes serious paradoxes. Take, for example, the so-called Grandfather paradox. A time traveler could theoretically travel back in time and either kill her grandfather or otherwise prevent her grandparents from marrying before her father or mother were conceived, meaning that she would never have been born. Assuming that a time machine can and will be successfully built, what are we to make of this very real paradox? Famed British theoretical physicist Stephen Hawking offered two possible resolutions to this and other paradoxes (such as an effect being its own cause), which he called the "consistent histories" and "alternative histories" approaches. The first solution demands that the laws of physics are constrained such that paradoxes cannot arise. For example, if you try to go into the past and kill your grandfather before your parents are conceived, the gun will jam, or you will slip and fall

and miss the shot. As Hawking (n.d.) succinctly put it, “So much for free will.” You might intend to change the future, and believe that you actually have the free will to do so, but in the end you will always do exactly what you were destined to do, acting in such a manner as to keep events historically consistent. This is termed a causal loop. A classic example is illustrated in the fifth season of *Lost*. During the Losties’ time travel back to 1977, a young Ben Linus is shot by Sayid and the other characters argue as to whether or not Ben can actually die, as doing so would certainly change the timeline. Kate realizes that it is they, as future and prescient beings, who are “supposed to save him.” Indeed, as the episode title says “Whatever Happened, Happened,” (Cuse, Lindeof, and Roth 2009) and the Losties are playing the part which had always been ordained for them. Therefore the past was never changed, but instead unfolded as it always had without paradox.

Central to this interpretation of time is the concept of what physicists call the “block universe,” in which the past, present, and future simultaneously exist. The term is said to have originated with Oxford philosopher Francis Herbert Bradley, who described time as a stream upon which we travel, and view in sequence a row of houses upon its banks. Bradley noted that although we have passed a past block of houses, and have yet to visit blocks of houses which still lay before us, all exist in a “firm fixed row” (Nahin, 1999: 151). Again, philosophical difficulties exist in that the block universe seems to negate the existence of free will, as all we can do is bring “the fixed future into existence” (Nahin, 1999: 177).

The ability to change history by time travel leads us to consider a wholly different possibility, namely alternative histories and the existence of parallel universes. The alternative histories explanation of time travel is based on an alternative to the standard Copenhagen interpretation of quantum mechanics, called the Many Worlds Interpretation or MWI (Everett, 1957). In this model, every time an experiment with several possible outcomes is conducted, the universe branches into parallel realities, one for each of the possible outcomes. For example, when you turned on your television this morning, in one reality you watched the morning news, in another you viewed an entertainment show, and in a third you decided to sleep late and so you had no time to view any television before work.

But as Deutsch (1997: 309) explains, it is actually more complicated than this. In fact, he has demonstrated that in a modification of the MWI it is possible for the various parallel universes to interact, and it is the existence of this infinite multiplicity of parallel universes, each with its own unique timeline, that allows time travel into the past without relinquishing free will or causing paradoxes. A time traveler who succeeds in going back in time and killing his grandmother before his parent’s conception is doing so in a universe in which he will never be born. In the universe in which he was born his grandparents lived to successfully reproduce. Free will is conserved, and no paradox results.

In *Doctor Who*, the eponymous Time Lord and various human (and occasionally non-human) companions travel through space and time via technology developed by his highly advanced species. As their name implies, the Time Lords possess great powers over time, but even they

must adhere to certain (rather loosely defined) guidelines, as they understand that changing even a seemingly insignificant event in the life of a rather ordinary being can have unforeseen consequences in the distant future. Therefore The Doctor usually offers his companions the option to visit and merely observe some exotic location or important event in history, with the intention to remain uninvolved. Of course, as a dramatic television series, this intention is nearly always thwarted, as The Doctor's involvement is usually required to save lives and keep history from being deleteriously changed by some nefarious meddling alien forces or stolen superior technology. Therefore pigeonholing *Doctor Who's* philosophy of time travel is rather difficult: in some instances, The Doctor's actions are of the consistent histories variety, while in others his actions do change the course of history, albeit often in seemingly small ways. As will be discussed later in this essay, there are also parallel universes, in which the timeline is often wildly different than that in the main universe in which The Doctor normally dwells (and from which the TARDIS derives its energy). As in the case of Deutsch's interpretation of the Many Worlds Interpretation, The Doctor and his companions can affect changes in the alternative universe without fear of changing their own primary timeline, although in the series canon such visits to parallel universes are rare and fraught with their own dangers.

Putting aside for the moment the controversial alternate reality/limbo/afterlife portrayed in *Lost's* final season, four identifiable kinds of space-time travel were portrayed in the series:

- 1) Teleportation from one place to another, as in the case of Ben and Locke using the so-called frozen donkey-wheel to travel to Tunisia from the Island;
- 2) The constant motion of the Island in space-time which makes it difficult to locate (and results in the disjointed time-measurements between the Island and the off-shore freighter in Season Four);
- 3) The physical motion of persons through time while on the Island due to the unique electromagnetic properties of the Island;
- 4) The motion of consciousnesses in space and time (and perhaps between alternate universes), including incidences of precognition.

While one can argue that the first three plotlines use some highly fictional application of Einstein's work (especially if one includes his unsuccessful thirty-plus year search for a unified field theory which would include both gravitation and electromagnetism under a single, self-consistent theory), the last draws upon pseudoscience rather than science, namely the writings of British engineer and experimental pilot J.W. Dunne. In the 1920's Dunne began to "experiment" with his dreams, carefully writing them down as soon as he awoke, and noting any instances in which he felt the dreams were later found to be foreknowledge of future events. He came to the conclusion that there was nothing supernatural in these occurrences; instead he posited that they were "merely displaced in Time" (Dunne, 2001: 26). Clairvoyance as such did not exist; rather, our understanding of time is faulty, and with practice, we can train our minds to overcome the habit of experiencing events only in the rigid order of past-present-future. It is in the dream state that our minds are most open to such travels.

Dunne's new concept of time, which he called serialism, is based on the idea that what we call the present is a window through which we view the entirety of reality, like a train rider viewing a landscape through a small window. Like the train rider, our present moves along a track, in the dimension we call time. Dunne argued that like the train track, what we call time (T1) is actually a spatial dimension, and that there must exist a higher dimension, a more ultimate time (T2), in which we measure the rate of motion of our journey along time's track (the rate of change of T1). There exists an Observer (a higher dimensional consciousness) in this T2 who has the freedom to observe all events in T1 (all events in our perceived time) and is free to observe them in whatever order he or she wishes. By comparison to a series expansion in mathematics he argued that there exists an infinite regression of these higher times, leading to some Ultimate Time and an Ultimate Observer which Dunne calls the "Super-Mind," which reads like a pantheistic deity. Dunne published his model as *An Experiment with Time*, originally published in 1927 and expanded to answer his critics in its 1938 third edition. Although Dunne's model does require the past, present, and future to simultaneously exist (i.e. it is based on the block universe), he appealed to his higher dimensions of time to somehow avoid strict predetermination. He wrote that the reason why we do not recognize some dreams as precognition is that upon experiencing the future in our dream, we change that future, all points along the future continuum are changed in response to the new information, and we do not experience the event when we arrive at that moment in our T1 future, never knowing that we have indeed changed it (Dunne, 1939: 133).

Dunne's work was read by a number of famous literary figures, such as C. S. Lewis, J.R.R. Tolkien, and Agatha Christie, and was the preferred method of time travel in a number of time travel tales. For example, philosopher William Olaf Stapledon published a number of science fiction books using Dunne's method of mind-only time travel as a vehicle to extol his thoughts on ethics, warfare, and human nature. In 1930's *First and Last Men*, 1932's *Last Men in London*, and 1937's *Star Maker*, the protagonists travel through both time and space by inserting their consciousnesses into the bodies of others, thus viewing the past through the eyes of those who actually lived it. In *First and Last Men*, Stapledon's exploration of eighteen fictional stages in the evolution of humans beginning with their current form, the "Fifth Men" first achieve this method of time travel after millions of years genetic manipulation directed to this goal. The first child forced to past-travel successfully accomplished the task, only to die during the debriefing after a subsequent experiment (Stapledon, 2007: 212). In further experiments, it was "found impossible to keep the 'medium' alive for more than a few weeks after his venture into the past. The experience seemed to set up a progressive mental disintegration which produced first insanity, then paralysis, and within a few months, death" (Stapledon, 2007: 212).

With further genetic engineering the physical dangers were removed, and a vast recapturing of a previously lost history was begun. But as with past and future species of humans in Stapledon's work, the Fifth Men came to extinction, and it was not until the Eighteenth and last species of humans (billions of years in our future) that the past was once again explored. Using a special organ in their brains, and following a number of ritualistic precautions developed to keep their

bodies safe while they were “away” for perhaps weeks or months at a time, the Last Men were able to not only observe the past by co-habiting the bodies of others, but had developed the ability to influence those whose bodies they entered, thus allowing them to (in a limited way) change the past. The future narrator explains that there is paradox, as “some feature of a past event may depend on an event in the far future. The past event would never have been as it actually was (and is, eternally) if there had not been going to be a certain future event, which... influences it directly.” Therefore the Last Men intercede in the past because this is what they have always been meant to do, similarly to the actions of Kate and her companions in *Lost* in saving Ben Linus’s life in the 1970s and setting into motion the events which led Ben to become the man he eventually became (Stapledon, 2007: 284-6).

In the sequel, *Last Men in London*, the narrator recounts the tragedies that accompanied the Last Men’s first attempts at disembodied time travel, in which some travelers allowed their bodies to starve to death while they were in a trance, or fell into violent convulsions. In some cases the travelers kept falling back into trances, traveling from time to time to time, while in others the trances were permanent, and the travelers’ unresponsive bodies were kept in stasis for millions of years (Stapledon 2009: 33). The writers of *Lost* appear to have used Stapledon’s work as the basis for the series of deleterious physical effects that time travel has on the Island, both physical time travel as well as the mind-only version. Physicist Daniel Faraday (named after James Clerk Maxwell, the 19th century physicist whose seminal equations linked electricity and magnetism) explained in the Season Five opener “Because You Left” (Lindelof, Cuse, and Williams, 2009) that Ben Linus’s intentional moving of the island (to protect it from Charles Widmore’s mercenaries) resulted in it and its inhabitants becoming “dislodged” in time like a skipping record. As Daniel, Juliet, Locke, Miles, Jin, Sawyer and Charlotte flash back and forth through time, covering a roughly fifty year period, they are increasingly plagued with headaches, nosebleeds, memory lapses, periods of unconsciousness, and moments of disorientation. Charlotte finally succumbs to her symptoms four episodes later in “This Place is Death” (Kitsis, Horowitz, and Edwards, 2009a). Daniel explains the deleterious symptoms as being due to their brains’ internal clock being thrown off by the disorientating flashes of time travel (Vaughan, Taylor, and Williams, 2009). When Locke resets the frozen donkey wheel and travels himself to Tunisia, the Island quits its seemingly random swings in time, and the physical systems abate. However, the remaining Losties are trapped in 1974, forcing them to assume the identity of DHARMA Initiative recruits.

Desmond endures uncontrollable bouts of mind-only time travel in Season Four, as he travels from the Island to the offshore freighter via helicopter. Apparently as a side effect of the Island’s constant jittering in space-time (which makes it difficult to locate), Desmond, the freighter’s communications officer Minkowski, and others become mentally dislodged in time and suffer life-threatening symptoms similar to what the Losties encounter after the Island is moved. At the insistence of the present’s Daniel Faraday, Desmond travels to Oxford during one of his out of body flashes to the past and witnesses past Faraday’s experiments on the lab rat Eloise, named after his mother. Eloise’s consciousness leaves her current body and travels to her future body,

learns how to run a new maze, and then returns to her current body and successfully completes the task. However she dies of a brain hemorrhage shortly thereafter. Faraday explains that she couldn't tell which was which – the future or the present. As for Minkowski, his flashes escalate, he has a seizure, bleeds from his eyes, nose, and mouth, and gasps “I can't get back” before he dies (Cuse, Lindelof, and Bender, 2008). One of Daniel's two human test subjects (the other being himself), his girlfriend Theresa, falls into a permanent disabled state as she randomly travels between the past and present. As her sister explains to Desmond when he visits, “Theresa's away right now.... Sometimes she wakes up, thinks she's three, wants to know where her dolly is. Yesterday, she was talking to our dad. He died five years ago” (Sarnoff, Zbyszewski, and Holcomb, 2009).

While time travel in the *Who*-iverse does not carry nearly the same risks as is does in *Lost*, there are still measurable effects on the human body. In the episode “Dalek” (Shearman and Ahern, 2005), a nearly dead creature of that species revitalizes when The Ninth Doctor's human companion Rose Tyler touches its casing. According to The Doctor, time travelers soak up background radiation during their travels, which is normally harmless. However, in the infamous Time Wars between the Daleks and Time Lords, the former species evolved the ability to use this radiation as a power source. In the episode “Doomsday” (Davies and Harper, 2006b) the Daleks are only able to awaken the army they have stored within the Genesis Ark (technology they had stolen from the Time Lords) through the touch of a Time Traveler (in this case, Rose's some-time boyfriend Mickey).

The background radiation field might be harmless to human minds and bodies, but the so-called “heart of the TARDIS” – the telepathic power source of the Time Lord time machine – is anything but. In The Ninth Doctor's final episode, “The Parting of the Ways,” Rose Tyler pries open the console of the TARDIS and looks directly into its heart. Not only does it grant Rose's wish to return to Satellite Five and rescue The Doctor from the Daleks, but it infuses her body and mind with the Time Vortex, granting her nearly god-like powers over time and space, life and death. With a sweep of her hand she disintegrates the Daleks and restores life to the recently-deceased Captain Jack Harkness. Her body is consumed with a golden light, and she has the ability to see “everything. All that is, all that was. All that ever could be.” As a Time Lord, The Doctor well understands what Rose is experiencing, and asks “doesn't it drive you mad?” (Davies and Ahern, 2005c). Unfortunately for Rose (and The Doctor), it threatens to do far worse to Rose, and through a kiss he draws the vortex energy from Rose into himself, causing the death of his Ninth incarnation and his regeneration into The Tenth Doctor. Similarly, in “Journey's End” (Davies and Harper 2008a) The Tenth Doctor's human companion Donna Noble nearly dies after her DNA is mixed with that of The Doctor's amputated hand, resulting in the growth of a Time Lord – Human hybrid called the Meta-crisis and Donna taking on part of The Doctor's consciousness (the combination dubbed “Doctor-Donna”). While the symbiosis allows Donna to help the Meta-crisis defeat the Daleks (once again) and save the universe (and all other parallel universes) from their Reality Bomb, it threatens to burn out her brain, and The Doctor is forced

to wipe all memory of their time together from her mind.

The dangers inherent in a human mind comprehending the entirety of time are also found in Stapledon's novels. In *Last Men in London* it is explained that in order to send their consciousness back in time the highly-evolved last species of humans had to glimpse for only a moment "the point of view of eternity." Such a glimpse had to be momentary and not lingering, because it would be lethal (Stapledon, 2009: 32-33). As a result, many of the early time travelers returned from their journeys insane, especially those very few who actually succeeded in traveling to the future.

While both *Doctor Who* and *Lost* depart from hard science in exploring mental and physiological effects of time travel, as science fiction series both programs often deal with questions which philosophers and scientists have debated since before the development of Einstein's theory. These include the extent to which history can be changed, whether changing history can actually destroy a timeline or parallel universe, the relative roles of free will and fate (and the differing meanings of sacrifice in each point of view), and the possible existence of individuals who possess the ability to bend the rules (or break them altogether).

To say that the dynamic tension between fate and free will play a central role in the mythos of *Lost* is as obvious as claiming that water is wet. For example, characters Desmond David Hume and John Locke are named for philosophers whose work discussed these concepts in depth. Beginning with the early episodes of the first season, characters as loudly and often cling to free will by proclaiming "don't tell me what I can't do" as they claim that the Island brought them together for a reason. With the end of the series, it is still unclear as to how many of the important choices made by the characters throughout the six seasons were strictly the result of their own free will, and how many were merely the inevitable and logical end result of years of careful manipulation by the Island's protector, Jacob. Over the course of the series, paraplegic John Locke's originally unquestioning faith in fate faded in direct relation to the slow evolution of "man of science" physician Jack Shephard's acceptance of his own. Beginning from an atheistic belief in unbridled free will, Jack completed his cycle by embracing an acceptance of his fatalistic role on the Island, a role which he ultimately believed provided meaning to his life.

Although *Lost*'s brilliant mathematical physicist Daniel Faraday succeeds in experimenting with time travel, both in his Oxford University laboratory and unwittingly while on the Island, he spends the majority of his time on the series as a slave to the deterministic block universe. When he travels to the Island's past with other main characters, he admonishes his friends that time is "like a street.... We can move forward on that street, we can move in reverse, but we cannot ever create a new street. If we try to do anything different, we will fail every time. Whatever happened, happened" (Lindelof, Cuse, and Williams, 2009). However, Daniel does deviate from his slavish adherence to the block universe when, in his desperation to stop the Island's time flashes and save Charlotte's life, he bangs on the Swan Station's door and begs Desmond's past self to go

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to Oxford University and find Daniel's mother, Eloise Hawking (a mysterious character in her own right named after the British physicist). Although Daniel's intervention at the hatch does not in itself stop the flashes nor does it save Charlotte, it does apparently change the timeline (for as Daniel notes, Desmond is "uniquely and miraculously special"). The future Desmond awakens from a dream with a "new memory" of Daniel's visit to the hatch (Lindelof, Cuse, and Williams, 2009) and helps to set into motion the return to the Island of Jack, Hurley, Kate, Sayid and Sun – many of Jacob's candidates for future caretaker of the Island. Desmond's actions can be explained in the context of Dunne's serialism model, in which the future "resets" as it incorporates the new event. Desmond is therefore able to make changes in the timeline because he can access the position of a higher order Observer in T2 more readily than other people.

The series' first hint of Desmond's special relationship with time in Season Three's "Flashes Before Your Eyes," when the audience learns of Desmond's experiences directly subsequent to his using the failsafe key to implode the Swan Station hatch. Desmond's consciousness travels back to the time when he planned to propose to his beloved Penelope Widmore but instead got cold feet, setting into motion the path which led him to the Island and his years of pushing the Swan Station's degaussing button. Desmond retains his knowledge of the future, and tries to change the timeline by actually purchasing the engagement ring, only to be discouraged by his physicist friend Donovan's claim that time travel does not exist and his own faulty remembrance of events at a local pub, and more importantly by the intervention of Eloise Hawking, who (not coincidentally) is the salesperson at the jewelry shop. Although he initially threatened to create a paradox by taking the ring from the shop, and actively affirmed his belief in his own free will, in the end Desmond merely did what he was supposed to do all along – break Penny's heart. Another example in the same episode occurs when Desmond realizes that his recollection of the end of the soccer game he had viewed on television in the local pub was a day off. He exclaims, "I can still change things," but before he can rush off to see Penny he encounters an angry friend with the cricket bat and is hit in the head, which sends him back to the island and apparently prevents him from changing history (Lindelof and Bender, 2007). However, in a podcast posted on February 20, 2007 on the official ABC website, executive producers Damon Lindelof and Carlton Cuse noted that Desmond had indeed changed history, as the bat attack was meant for the bartender, not Desmond, thus setting into motion an entire series of changes to the timeline which are largely unknown to the viewers.

When Desmond returns to the present of the Island, he finds that he has the curse of precognition, and repeatedly saves Charlie from increasingly gruesome deaths over the course of Season Three. According to Dunne's serialism model of time, since Desmond can access the point of view of a higher order observer in T2, as he changes the timeline (by saving Charlie) the rest of the timeline adjusts. Ultimately Desmond is convinced that he cannot keep saving Charlie for as Eloise Hawking had explained to him during his past time travel in "Flashes Before Your Eyes," the universe has a way of course-correcting regardless of one's attempts of cheating fate (Lindelof and Bender, 2007), and that Charlie must die to save his friends. Instead, he intervenes

in a different way, explaining to Charlie that he must drown after flipping a switch in an underwater hatch. However, up until the very moment he explains this to Charlie, Desmond continues to save Charlie using his flashes of prescience, and his final vision – of Claire and Aaron leaving the Island together in a helicopter – does not come to pass, because he has apparently changed the timeline yet again (Kitsis, Horowitz, and Williams, 2007).

As a Time Lord, The Doctor has far greater powers over time than the mere mortals of *Lost*, but even he must tread lightly, as one can never be certain whether changes to a timeline will have beneficial or catastrophic effects. However, there are apparently some vague rules which cannot be superseded even by Gallifreyans, and certainly not by human companions, as demonstrated in various series episodes. A stark example can be found in The Ninth Doctor adventure “Father’s Day,” in which Rose Tyler convinces The Doctor to revisit the day when her father, Pete Tyler, was killed in a hit-and-run traffic accident (Cornell and Ahearne, 2005). Despite The Doctor’s admonition that they can only watch the event unfold, Rose intervenes and changes history, leading to a wound in time which the horrific Reapers attempt to sterilize by devouring the Earth bit by bit. Rose makes matters worse when she touches her infant self, thus creating a paradox and allowing the Reapers entrance into the church which The Doctor and a handful of survivors have been using as a temporary sanctuary. The situation is only rectified when Pete, in a knowing sacrifice, exercises his free will and runs directly into the path of the car which was supposed to kill him. However, Rose is still allowed some small modicum of power to change the future, in that she stays by her father’s side as he dies, so he no longer dies alone, and the driver of the car stops and takes responsibility. At the end of the episode, we see Rose as a young girl, being told the revised history by her mother, Jackie, including the mysterious appearance of an unidentified young woman who held Pete’s hand as he died (Cornell and Ahearne, 2005).

The Doctor’s own powers and limitations in changing history can be demonstrated in two episodes, The Fourth Doctor adventure “Genesis of the Daleks” and The Tenth Doctor adventure “The Waters of Mars.” In the former, The Doctor is sent by the Time Lords High Council to the planet Skaro, to either prevent the birth of the Dalek species, or change the events sufficiently to prevent the carnage the creatures promulgate throughout the universe in subsequent centuries (Nation and Maloney, 1975). The Doctor is successful in preventing the death of Davros, the Dalek’s creator, and his continued presence in the new timeline is a sufficient catalyst to prevent the Daleks from achieving their previous potential for destruction (although as episodes of the Ninth and Tenth Doctors demonstrate, The Doctor and his companions are still required to occasionally halt some nefarious Dalek plots for universal domination). After the destruction of Gallifrey (and presumably the influence of the Time Lords) in the Time Wars, The Tenth Doctor sometimes acts more recklessly in his interventions in history. His actions come to a head in “The Waters of Mars,” when he saves several characters from their deaths on a Mars colony. He explains to the human crew that fate is not his concern and that those who once governed the rules of time were gone. “Do you know who that leaves?” he asks. “Me! It’s taken all these years to realize, the laws of time are mine, and they will obey me!” (Davies, Ford, and Harper,

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2009). The Doctor – who proclaims himself “The Time Lord Victorious” - returns three crew members safely to Earth on the day that they had died in the original timeline, but one of them, Adelaide, worries that because she has not died heroically her granddaughter will no longer be inspired by her selfless act, thus causing a ripple effect which could gravely affect the future of Earth. She therefore exercises her free will and kills herself. The Doctor immediately realizes the abomination that he has become, and faces the fact that not only that he has gone too far, but that the prediction of the Ood is inescapable: his Tenth Incarnation is fated to soon expire, and does so in “The End of Time” when he gives his life to save that of Wilf Mott, companion Donna Noble’s grandfather (Davies and Lyn, 2010).

While some fans theorized about the existence of parallel universes during the run of *Lost* (especially during the final season), such alternate dimensions are part of the *Doctor Who* canon. However, with the demise of the Time Lords in the Time War, such travel is deemed more difficult and precarious, and the “walls of reality have closed,” sealing off multiple universes from each other (MacRae and Harper, 2006). Despite this fact, the Tenth Doctor and companions Rose and Mickey find themselves breaching the void and accidentally ending up in another universe, one in which the Cybermen were created by terminally-ill industrialist John Lumic in order to house his brain, and in which Pete Tyler, Rose’s father, is alive and well, but Rose herself had never been born. After temporarily thwarting the power of the Cybermen, Rose and the Doctor return to their main universe, leaving Pete with the knowledge that in another universe he has a daughter and that his wife, Jackie, is still alive (the parallel universe’s Jackie having been killed by the Cybermen). Mickey decides to remain in Pete’s World (as The Doctor terms the parallel universe), assuming the identity of “Rickey” (that world’s version of him) in order to watch over his Pete’s World grandmother (who had died previously in the main universe in a household accident).

While The Doctor warns all involved that the doorway between the universes would be closed forever, he is proven wrong several episodes later in “Army of Ghosts” when the Cybermen and Daleks both find ways to cross the void and travel to the main universe in an attempt to conquer that timeline. The episode begins with an ominous voiceover by Rose, explaining that “This is the story of how I died” (Davies Harper, 2006a). It is revealed that the Daleks used stolen Time Lord technology (the previously mentioned Genesis Ark) to cross between realities and the Cybermen followed, and that Pete’s World’s version of Torchwood (a shadowy government agency that monitors and counteracts alien activity) has developed their own technology (a special medallion) which allows passage between realities. In order to stop the Daleks and Cybermen, the Doctor plots to trap his enemies within the void between universes, and while Mickey decides to return to the main universe, the Doctor and Pete try to keep Rose and her mother Jackie safe by transporting them to the Pete’s World. Rose actively rebels against The Doctor making decisions for her, explaining “I made my choice a long time ago, and I’m never gonna leave you” (Davies and Harper 2006b). While the plan initially works as planned, Rose is sucked towards the void just before the walls between universes are sealed forever. She is rescued by Pete and trapped

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in his world, apparently separated from her beloved Doctor forever. The Doctor triggers the supernova of a star in order to generate enough power to send a holographic signal to Rose, explaining that he dared not try to appear in the flesh for fears of collapsing the two universes. Thus in exercising their free will, both Rose and The Doctor make sacrifices for the sake of the greater universe(s); just as the main universe's Pete had willingly died in "Father's Day," Rose is now dead in the main universe, even though she lives in the alternate reality.

Other characters in the Who-niverse likewise sacrifice their lives in alternate universes (and indeed destroy entire alternate realities) for the sake of The Doctor and the main timeline. In "Turn Left," Rose is able to travel from Pete's World to what appears to be the main universe, but which is, in reality, a much more complex paradox. A member of the Trickster's Brigade, a large unsightly beetle that is at times conveniently invisible, attaches itself to the Tenth Doctor's companion Donna's back, and changes her life by affecting a simple life choice (turning right instead of left at an intersection). As a result, the timeline of the main universe is changed, such that Donna and The Doctor never meet, and The Doctor is killed in the Racnoss invasion. As a result those who The Doctor subsequently saved from certain death (such as companions Martha Jones and Sarah Jane Smith) die, and the entire history of Earth is changed, for example, as the spaceship replica of the Titanic crashes into London, resulting in a nuclear fireball that decimates the country. Rose is "pulled across" from Pete's World using various technologies (including the now-abandoned TARDIS) because every reality is now in peril, in order to try and get Donna to reset the timeline by consciously making the same choice she had originally made – to turn left. As Rose explains the situation to Donna, she is careful to intervene as little as possible, and never tells her name to anyone helping her, fearful that by crossing so many different realities, "the wrong word in the wrong place can change an entire causal nexus" (Davies and Harper, 2008b). While Donna protests that there is nothing special about herself, Rose disagrees, explaining that fate has intertwined Donna and The Doctor since the day Donna was born, and that both of them were needed to prevent "the stars from going out" (Ibid.), a reference to the Daleks' plot to use a reality bomb to destroy all universes and a precognition of the Doctor-Donna hybridization. It is revealed in the subsequent episodes that the convergence of The Doctor's and Donna's paths was facilitated by the prophetic Dalek Caan, who, like some of the first time travelers in Stapledon's final human species, went insane through their contact with the entirety of time. Rose convinces Donna that she has to exercise her free will and make a knowing sacrifice – Donna has to die, and with it the entire timeline. Donna does exactly this, running in front of a truck to create a traffic jam which will prevent her past self from turning right on the road.

When the timelines are reset, The Doctor realizes that the only reason Rose would be able to travel back to his universe is that the walls between realities are breaking down, and with it the entire structure of reality is threatened. In "Journey's End," Rose is briefly reunited with The Doctor, until the Doctor-Donna and the Human-Time Lord Meta-crisis destroy the Daleks and their Reality Bomb, thus saving all realities. But many characters make significant sacrifices, with

Donna's memory of The Doctor removed in order to prevent her brain from burning out, Rose's return to Pete's World, and the banishment of the Meta-crisis to Pete's World, as he was deemed too dangerous to remain in the main universe after committing genocide against the Daleks (Davies and Harper, 2008a).

The concept of willing sacrifice and the importance of such a sacrifice in maintaining the integrity of a timeline is also important in the universe of *Lost*. When he travels to the past after the implosion of the hatch, Desmond is told by Eloise Hawking that he has to break Penny's heart in order to keep history consistent. In their aforementioned 2007 podcast, Lindelof and Cuse emphasized that the entire populace of "this planet and all other planets" would be destroyed if Desmond married Penny. As previously described, Charlie Pace willingly sacrifices himself at the end of Season Three to turn off the jamming signal in The Looking Glass station in order to secure the rescue of Claire and Aaron (although the events do not exactly unfold as he expected), while John Locke makes peace with what he is repeatedly told is his fate – to willingly die in order to secure the return of Jack, Hurley, and the other remaining candidates for Jacob's replacement to the Island. Ironically, John's free will is actually in question in the end, as he is killed by Ben Linus, and the idea that he had to sacrifice himself was apparently planted in his head by none other than the evil Man in Black, in order to secure a human body to occupy as part of his plan to escape from the Island (Zbyszewski, Sarnoff, and Williams, 2009).

The series ends with a series of sacrifices, such as Jack's giving of his life to defeat the Man in Black, Hurley's agreement to become the new protector of the Island, and especially Desmond's willing agreement to be the weapon which leads to the Man in Black's demise. After being kidnapped and brought to the Island against his will by Charles Widmore (who ultimately sacrifice his own life to set this plan into action), Desmond is subjected to an intense electromagnetic field strong enough to fry an ordinary human being, but in an apparent nod to his previous experience in the Swan Station's implosion, Desmond's consciousness instead travels, but not to the past, but rather to a peculiar kind of parallel reality which in the series finale (Lindelof, Cuse, and Bender, 2010a) is revealed to be a metaphysical way-station created by the main characters in order to reunite with each other after their respective deaths and be able to work out their individual personal problems in preparation to move on to the afterlife. Therefore Desmond's experiences in the solenoid chamber represent a different kind of "out of body" experience, more akin to a near-death experience. As a result, Desmond is at peace with what is to be asked of him, and he allows himself to be captured by the Man in Black and ultimately suffers the pains of being exposed to the heart of the Island in order to temporarily extinguish it and remove the Man in Black's invincibility (Lindelof, Cuse, and Bender, 2010a). This powerful force is the very root of the electromagnetic energy that permeates the Island and is apparently responsible for many of its distinctive qualities, but which was also the cause of the Man in Black's death and apotheosis into the so-called Smoke Monster. While Desmond appears to make a conscious free choice in agreeing to expose himself to the heart of the Island to save his friends (akin to Rose's choice to expose herself to the heart of the TARDIS to save The Doctor), given the peculiar pathway which

led Desmond to this place, one can argue that although he is certainly “special,” he too may, in the end, as much of a slave to fate as the other characters of *Lost*.

Therefore, in examining the time travel plotlines in *Lost* and *Doctor Who*, we find instances of fate and free will, the pre-determined and the wild cards, and the interesting gray areas between, where the difference between the two is open to the interpretation of the individual viewer. This fuzzy dichotomy is openly embraced in the canon in *Lost* in the concepts of constants and variables, including episodes which owe their titles to these terms. In “The Constant,” Desmond becomes unstuck in time during his helicopter ride to the freighter and in the past observes Daniel’s experiments on Eloise the rat. While the rat does successfully travel to the future and return with the foreknowledge of how to run a maze, the creature soon after dies of a brain hemorrhage. Faraday explains that she couldn’t tell which was which – the future or the present. “She had no anchor” – no constant (Cuse, Lindelof, and Bender, 2008). Desmond is ultimately able to return to the present and remain there after arranging to call Penny on a prearranged date, thus acting as his constant. Likewise, after meeting Desmond in the past, Daniel Faraday wrote in his journal – the very same journal that was given to him by his mother, knowing that she would be the cause of his death - that Desmond would be his constant in the future if events ran awry.

There are a number of other “constants” in *Lost*, such as the infamous numbers, and even the heading that Daniel Faraday warns travelers to strictly adhere to when traveling to and from the Island. But equally important are the variables which exist within the series, including the ever-shifting coordinates of the Island in space and time and, most importantly, the variable of human behavior. In Season Five’s “The Variable” (Kitsis, Horowitz, and Edwards, 2009b), Faraday is finally converted from his belief that they are impotent to change the timeline by the realization that because they possess free will, humans are the variables that can change destiny. He intends to put this belief to the test through his plan to use the detonator of the “Jughead” hydrogen bomb to prevent the original “incident” at the Swan Station, thus, he believes ultimately reversing the need to degauss the station’s continual build-up of electromagnetic radiation through the pushing of the computer button, and ultimately preventing the crash of Oceanic 815 on the Island. However, in typical *Lost* style, Daniel’s seeming act of free will precisely leads to the fulfillment of his fate (to die at his mother’s hand) and explosion of the bomb does not prevent the incident, but only provides the energy to return the main characters to the present where they can continue on the path which leads them to their ultimate individual fates. Ironically, it is in “The Variable” that the true extent to which Daniel’s life has been directed toward this end is revealed. From the moment his mother Eloise Hawking accidentally kills him (when she is actually pregnant with him), his life has been directed by his mother in such a way as to lead him to become a physicist who specializes in time travel and makes his way to the Island so that he can be killed by his mother, thus keeping the timeline consistent. It is this same single-minded determination to keep the Island’s timeline intact that is reflected in Hawking’s insistence that Desmond not change history by proposing to Penny during his post-implosion time travel. *Lost* producer Damon Lindelof has

described Eloise Hawking as a kind of “temporal policeman in place to make sure that everybody who is supposed to get to the Island does,” and that this role is related to the series’ meta-theme of fate versus free will (lostpedia.wikia.com/wiki/Eloise_Hawking).

Fortunately for viewers of *Doctor Who*, while one can certainly debate the extent to which free will is perfectly free of any taint of coercion by destiny (especially in the case of the Doctor-Donna symbiosis), there are clear constants which help to steady the viewer within the potentially dizzying world of continual space-time travel and periodic transmutations of The Doctor from one incarnation to another. The unchanging appearance of the TARDIS (with its broken Chameleon Circuit) is certainly one constant, as is Rose’s unwavering love for The Doctor. Rose herself is an important constant throughout the first season of the New Series, in her so-called Bad Wolf manifestation after being imbued with energy from the heart of the TARDIS. Throughout the previous episodes of the season, references to “bad wolf” appeared without explanation, for example as graffiti spray-painted on the TARDIS in “Aliens of London” (Davies and Boak, 2005), the call sign of Harry van Stratten’s helicopter in “Dalek” (Shearman and Ahearne, 2005), and the name of the nuclear power plant project in “Boom Town” (Davies and Ahearne, 2005b). In the first part of the season finale, entitled “Bad Wolf,” the term is revealed to be the name of a corporation running the Game Station space station. In the second half of the finale, “The Parting of the Ways,” Rose is spurred into a desperate attempt to use the TARDIS to rescue The Doctor when she sees “Bad Wolf” repeatedly written across her neighborhood and realizes that it is an encouraging message rather than a warning (Davies and Ahearne, 2005c).

When Rose – now filled with the knowledge and power of the heart of the TARDIS - returns to the station, she calls herself “the Bad Wolf. I create myself. I took the words. I scattered them in time, in space. A message, to lead myself here” (Davies and Ahearne, 2005c). With a wave of her hand, the words are indeed scattered throughout the space-time continuum, a secret message to herself which completes the loop of causality. Rose has therefore become her own constant, leading herself to this moment in time when she can save The Doctor, combining free will with fate in a complex way which both entertains and challenges the viewers. Likewise, the viewers of *Lost* were taken on an exhilarating six-year ride through a much more limited section of space and time, but one which also bent the rules of science while still remaining true to many of the paradoxes and philosophical underpinnings with which academics continue to struggle today. This is perhaps the most important constant of both series, and at one of many intersecting reasons for the success of both.

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