Chapter 6
Star Trek Online

The original 1966 *Star Trek* television series spawned movies, books, and a number of solo games for computers and videogame systems, but only on February 2, 2010 did it give birth to a massively multiplayer online game. Importantly, the entire *Star Trek* franchise was largely supported by the loyalty of a fan subculture, and fans themselves have created both extensive additional culture plus a set of expectations for new commercial offerings. Set in the year 2409, *Star Trek Online* (STO) involves both space battles in which the user is represented by a spaceship, and land missions in which the user is represented by a humanoid avatar. The primary conflict pits the multi-species United Federation of Planets against the Klingon Empire.

The fundamental principle of *Star Trek* is cultural diversity, and the stories often concern how members of different groups can develop mutual respect. In addition to suggesting this optimistic view of humanity, *Star Trek Online* illustrates how information technology may be used in real life over the coming decade or two. Indeed, all the games described here have that quality, plus serving as training grounds to give people command over the evolving technology, but as the most recent example STO offers the newest insights. In addition, it connects to the *Star Trek* mythos which embodies a distinctive ethical system and clear notions about how human social relations may evolve in the coming centuries. Even the obvious technical and aesthetic faults of STO can be valuable in this context, suggesting some of the hazards that humans will face in the real world.

Memory Alpha

All of the gameworlds described in this book exist only in a universe of information, connected via Internet, and composed of recently created cultural elements. *Star Trek Online*, however, illustrates best the modern conceptions of *cultural informatics*, and *human-computer interaction*. At the time of this writing, it was the most recent massively multiplayer online role-playing game, so it had the advantage of learning from all the previous ones. On the other hand, during its first two months

Fig. 6.1 Rho Xi's Ship, the Carbondale, at Memory Alpha

when I explored it, STO had many programming bugs, data errors, and design flaws which had not yet been corrected. The fact that its action took place in two very different environments added complexity. In addition, it experimented with new ways of spontaneously building teams of players and non-player characters. Thus, internally it was extremely complex and presented its designers and players with a host of challenges. But it was also complex externally, linking to 726 episodes of a television drama, to 11 movies, and to innumerable books and Internet resources. For example, the *Star Trek* cultural complex connects three things called "Memory Alpha."

The first is a base in *Star Trek Online* belonging to the United Federation of Planets. It is the base in the form of a series of interconnected domes on the planetoid in Fig. 6.1, and was a frequent port of call for my main STO avatar, the Bajoran scientist, Rho Xi. His last visit there will illustrate this gameworld's space travel command and control system, as well as the cultural-informatic heritage represented by Memory Alpha.

Immediately after completing the "Big Dig" mission, Rear Admiral Rho Xi returned to Earth Spacedock in the Sol system, and happened to visit the lecture hall where a discourse on astrophysics was in progress. To his embarrassment, the students saluted him even though he was merely observing them from the back of the room, and they whispered: "Did you hear about Rho Xi?" "Rho Xi is the best of the best." "I overheard Admiral Quinn recounting Rho Xi's last mission… impressive." The instructor, Commander Menn Hilo, proclaimed, "Impressive work, Rho Xi!" A science officer exclaimed, "Here, here!" To be sure, the Big Dig was an important mission, rescuing archaeologists and artifacts from Romulans and Remans, in

the huge excavation of an ancient pyramid on a distant planet. But Rho Xi knew that his own contribution to victory was minor since he was only one of two dozen members of the Federation involved, although he had been one of the four who defeated the last Reman captain, thereby completing the mission. Apologizing for interrupting the class, Rho Xi walked clockwise along the corridor that circled the station to the shipyard.

At that point in his long career, six ships were at his disposal. Five were the science vessels he had commanded, at increasing levels of capability: the Oberth, Goddard, Tsiolkovsky, von Braun, and Korolyov. For his next voyage, he decided to take the U.S.S. Carbondale, a light cruiser of the original Enterprise class. He opened the ship selection interface and clicked on the button for the Carbondale, which brought up a display of the ship's special equipment. Clicking "Set as Current," he then closed the shipyard window, clicked the "Beam to Ship" button on his interface, and the transporter on the Carbondale beamed him to its bridge. The next step was to click the "Warp to Sector" button on the ship's interface to leave the Sol system. Over the video communication link, a traffic control officer announced, "U.S.S. Carbondale, this is Earth Spacedock. You are cleared to warp to Sector Space." In response, Rho Xi clicked the "Warp to Sector Space" command button, and a graphic of the Carbondale going to warp speed filled his display.

A sector space is displayed as a luminous, lined surface with solar systems suspended above it, over which the spaceship flies, depicted as a small model. Sectors are assembled, three or four at a time, into a sector block. The Sol system is in the Vulcan Sector of the Sirius Sector Block, which also contains the Orion Sector and the Risa Sector. The Vulcan Sector contains these systems, in addition to Sol: Wolf 359, Kei, Beytan, Andoria, P'Jem, Pellme, Bhea, Pico, and Vulcan. In *Star Trek* lore, Wolf 359 is where a major battle raged between the Federation and the Borg [1], but it is also a real star which because of its proximity and small size has attracted the interest of astronomers [2].

Rho Xi had explored all accessible sectors of the galaxy at this point, and there was no need to explore to get this list of systems. He could press the "M" key on his keyboard to get the navigation system, which included a system list, a galaxy map, and a local map. To head toward Memory Alpha, he opened the system list and double-clicked the bar for the Alpha Centauri Sector Block. This immediately told the ship to start moving, and very soon Federation Traffic Control reported, "You are clear to warp to the Alpha Centauri Sector Block." Clicking "Warp," he waited a moment for the display to clear, indicating that he had warped to the new sector, then he opened the system list and double-clicked "Memory Alpha System." The Carbondale zoomed across sector space toward his goal.

Then, unexpectedly, two serious problems hit, one right after the other. First, a priority one message came in from Starfleet: "A Crystalline Entity has been sighted near your coordinates. All available ships are needed to respond to this threat. The entity is on a course that will take it to a populated system. It must be stopped now!" Reluctantly, because he had faced crystalline entities before and never been able to defeat them, he joined a few other ships in battling this one. Instantly, the second problem occurred: A complete loss of communications, not

only cutting the Carbondale off from Starfleet messages, but making it impossible for him to operate the ship!

After repeated attempts to log back in, Rho Xi returned to the battle a half hour later, saw that no progress had been made by the other captains, and returned to his original course in disgust. Finally, "Enter Memory Alpha System" placed him at the location shown in Fig. 6.1. He turned the ship to point directly at the planetoid, pressed the "E key" to increase engine power and briefly used his mouse to set impulse to maximum. Soon, a message came in from Orbital Control: "Welcome to Memory Alpha, Carbondale. You can beam down when ready." He clicked the "Beam Down" button on his command interface, and immediately appeared in the transporter room of the base. A short walk through twisting corridors, and he had reached his goal.

In the main central room, beneath the great, gold-colored rotating globe, he sold loot to Commander Jenna Romaine, the chief vendor at that location, increasing his store of money to 957,423 energy credits. I suspect she is the granddaughter of Mira Romaine, mentioned below. He walked a few paces to one of the bank interfaces, where he deposited many new research samples and trading commodities, then checked how his 19 tribbles were doing. Exiting from his own account, he checked that of the fleet he had recently joined, the William Shatner School of Acting, which at that time had 31 members. He deposited a science kit that was too low a level for him to use himself, thinking that somebody else might like it. Seeing that the fleet had only 18,011 energy credits, he added 20,000 from his own account. He could have sold some of his research samples to Romaine, because she was always seeking anomalous data to add to Memory Alpha's digital library, but she used the anomalous data bytes merely to upgrade people's armor, weapons and equipment, and all his stuff was already top grade.

While Rho Xi was visiting the bank in his Memory Alpha, I myself was visiting a second and even more valuable Memory Alpha, the online *Star Trek* wiki. Its welcome page explains: "Memory Alpha is a collaborative project to create the most definitive, accurate, and accessible encyclopedia and reference for everything related to *Star Trek*. The English-language Memory Alpha started in November 2003, and currently consists of 31,684 articles" [3]. Memory Alpha is one of the very highest quality information sources on the web, because so many people have labored long and hard not only to post data but to discuss and critique everything in the service of accuracy. Many of the articles are quite long, but care is invested in starting each one with a brief summary that gives a wandering reader an accurate quick impression.

For example, here is how the page about the first problem Rho Xi faced in his journey begins: "The Crystalline Entity was a powerful, spaceborne creature characterized by a crystalline structure that resembled a large snowflake. It had warp speed travel capability, formidable size, and the ability to consume all life on a planet or starship (TNG: 'Datalore')" [4]. The parentheses hold a link to the episode about the entity, "Datalore," in the series, *Star Trek: The Next Generation*. The page related to Rho Xi's destination begins:

Memory Alpha (also called The Memory Planet) is a planetoid. Memory Alpha is also the name of the library complex set up on the planetoid, containing an archive of the total

cultural history and scientific knowledge of all planetary Federation members. The library was assembled for academic purposes only. No defensive shielding was installed, as the information was available to anyone in the galaxy.

In 2269, The USS Enterprise was en route to transfer newly-designed equipment to Memory Alpha. Lieutenant Mira Romaine was on her first deep space assignment to supervise the transport from the emergency manual monitor. Before the arrival of the Enterprise, Memory Alpha was attacked by the non-corporeal Zetarians.

While the Zetarians were attempting to take over the bodies of the personnel of Memory Alpha, they managed to cause extensive damage to the complex. The memory core of the computer, called the central brain, was burned out. The energy generator was rendered inoperative. All occupants of the complex died from brain damage caused by resisting the mind control efforts of the Zetarians. After the Zetarians were destroyed, the Enterprise returned to Memory Alpha to begin repairs. (TOS: "The Lights of Zetar") [5]

"The Lights of Zetar." was first broadcast January 31, 1969, and a remastered version with enhanced special effects was broadcast June 7, 2008. Thus, just as there are multiple versions of Memory Alpha, there are two versions of the episode. In the original, the planetoid was depicted as a blurry circle, but STO used the enhanced version for its model, as depicted in Fig. 6.1. The wiki page gives far more details about the episode, including a romance between Mira Romaine and Scotty, the chief engineer of the Starship Enterprise. Because of her especially empathic abilities, she is not killed when the Zetarians take over her mind, and they speak through her, telling the story of how their planet was destroyed and they are seeking a new home [6].

"The Lights of Zetar" foreshadowed two features of modern information technology: digital libraries, of which Memory Alpha is an early example, and the use of one "person" by another as an avatar. Of course, spirit possession is an ancient religious idea, and avatars in Hindu religion were the source of the term. But there is another source of this idea. The chief author of the script was Shari Lewis, a puppeteer, ventriloquist, and *Star Trek* fan. In the 1960s, she became famous through very modest but high-quality children's television programs, often centered on a hand puppet of a sheep named Lamb Chop [7]. As her Wikipedia article notes, "Lamb Chop, who was little more than a sock with eyes, served as a sassy alter-ego for Shari" [8]. Mira Romaine became an avatar for the Zetarians, but she was also an avatar for Shari Lewis, and an actress named Jan Shutan gave life to the character on the screen [9]. The profusion of overlapping identities in online role-playing games has a long heritage and is rooted in primary facts of human nature, through which every mentally healthy is able to play the role of another.

So there are three versions of Memory Alpha: the virtual place in *Star Trek Online*, the *Star Trek* wiki, and a setting in the original 1969 episode of the television program. All three are accessible online, including the television program, because CBS has made it available for free with only very brief advertisements [10]. This illustrates two points that may seem obvious once they are mentioned but represent profound transformations of civilization.

First, all forms of digital communication are merging, so that the differences vanish between computing, television broadcasts, telephone calls, news reporting,

book publishing, music distribution, and many information-related functions in private life such as picture-taking and diary writing. For example, the Memory Alpha wiki publishes news stories, such as this one from February 9, 2010 that reminds us again of the mysteries of human identity and links to a newspaper obituary: "Actor Bernard Kates, who portrayed Sigmund Freud in the *Star Trek: The Next Generation* episode 'Phantasms', passed away on 2 February 2010 from pneumonia and sepsis. He was 87 years old" [11]. Coincidentally, the day of the actor's death was the day *Star Trek Online* was born.

Second, building on the centuries-long traditions in printing and the arts, modern information technology is able to preserve vastly more knowledge than ever before and provide it as needed in real-time to serve a great variety of human purposes. The question then becomes: What does *Star Trek* mean?

Scientific and Philosophical Basis

In his book, *The Physics of Star Trek*, Lawrence M. Krauss shows that beaming down to a planet and traveling at warp speed are not really feasible in our physical universe, and they are really just dramatic conventions that allow the story to jump from one scene to the next [12]. Journalism professor David Hajdu has argued that *Star Trek* was never really about the future, but about the past, recycling popular culture clichés from western movies and police shows. As evidence, he cites "Sigma Iotia II, the gangster-movie planet" and observes:

> Certainly, few living astronomers expect to find Planet 892-IV, the gladiator-movie planet, where Spock and McCoy were forced to battle in Roman games. Or Ekos, the Nazi-movie planet, where Spock ended up discomfortingly sympathetic to the fascists. Or the unnamed orb in Melkotian space, the Western planet, where the crew literally re-enacted the gunfight at the O.K. Corral. Or Tarsus IV, the Shakespeare-movie planet, where everything was just frightfully dramatic [13].

I prefer to see this as *Star Trek's* way of anchoring its visions of the future in our human heritage, rendering it humanly meaningful. This is difficult to do for space travel, because the real universe is so different from the universe science fiction fans wish they lived in. It is possible, however, that *Star Trek* and the virtual worlds considered in this book can prepare humanity to become something different from what it traditionally has been, giving it a longer and higher vision. Today's civilization simply is not prepared to "boldly go where no one has gone before," especially if there will be no quick returns on financial investments. In a review of the 2009 *Star Trek* movie, Dave Itzkoff commented:

> It takes a certain mix of optimism and frustration to contemplate the possibility of space travel. To dream of navigating the cosmos is to assume that man has the resources and the know-how to propel himself into the heavens, but also some compelling reasons to exchange his home planet for the cold vast unknown [14].

Closer to home, the original *Star Trek* can be understood on two levels: (1) as a standard continuing one-hour television series in which most episodes tell complete stories, and (2) as a visionary subculture that expresses the social idealism and technological optimism of its decade, the 1960s. These two combine in the central philosophical concept, *IDIC*. Memory Alpha explains: "The Vulcan IDIC is an abbreviation for Infinite Diversity in Infinite Combinations, the basis of Vulcan philosophy, celebrating the vast array of variables in the universe" [15]. Wikipedia puts it this way: "The phrase 'Infinite Diversity in Infinite Combinations' (IDIC) refers to the infinite variables (or forms of intelligence) in the universe and the infinite ways in which they may beneficially combine" [16]. IDIC symbols are worn by some *Star Trek* characters, in the form of a triangle pointing to a small disc surrounded by a large offset ring. Several large sculptures of the IDIC symbol stand on the grounds of a Vulcan monastery on the planet P'Jem in STO.

Gene Roddenberry presented his plan for *Star Trek* to the NBC network in 1964 as "Wagon Train to the stars" [17]. In the 1961–1962 season, the NBC series *Wagon Train* was the highest-rated TV program, depicting a group of pioneers going from Missouri to California in the old days of the wild west [18]. A set of stock characters interacted with guest characters from episode to episode at different locales during the journey. Each episode was a separate story, divided into scenes punctuated by advertisements, and the over-all story of a given season was rather vague. This allowed the producers to air the episodes in any order. Crime shows on television generally use a different metaphor to accomplish the same thing, starting each episode when a crime is brought to the attention of the authorities who always can be found in their offices. When the *Wagon Train* pattern was adopted for *Star Trek*, the conceit that time was measured according to stardates allowed Captain Kirk to identify what day it was without clarifying how that day related to different episodes.

Thus the first meaning of IDIC is that many quite different stories can be linked under a set of unifying concepts, with a continuing cast consisting of actors in the case of the TV series and the players in the case of the game. In creating *Star Trek Online*, Cryptic Studios explicitly adopted the episode concept:

> In Star Trek Online episodes are player mission chains (also known as "quests"). They were called episodes rather than mission chains or quests mainly due to the *Star Trek* TV series and how they impacted Cryptic's influence on how to design and tell a story in-game. They stated that their content writers approached the content as if they were writing an episode from the TV shows. This seemingly allowed Cryptic to develop better stories for the game in relation to how they play, look and feel. Episodes in the game are written to advance the overall story; however, some episodes will be standalone and will not have much to do with the main story. This is by design as Cryptic has stated that the TV series often featured side-stories that were not directly part of the main storyline [19].

The episode and scene structure is not unique to television, but has been employed in the theater for centuries. Shakespeare's histories tell a vast story in segments at three scales: play, act, and scene. STO exploration episodes follow a freer pattern, sending the player to investigate three solar systems apparently at random in a given sector or nebula, doing either space or land missions that are limited in duration and may not be conceptually related to each other. Still others require the player to

participate in three space battles against the same enemy, different only in the random placement of enemy ships and different allies depending upon who has joined or left the fight.

The second more visionary meaning of IDIC was illustrated in the episode that introduced the concept, "Is There in Truth No Beauty?" Broadcast October 18, 1968, the story concerned an alien species so ugly that to gaze upon it caused madness, yet the one human who did go insane was actually a victim of his own jealousy. Thus, the perception that aliens are ugly merely reflects the ugliness within us. A *Star Trek* fan advertisement of the same year explained, "Infinite Diversity in Infinite Combinations represents a Vulcan belief that beauty, growth, and progress all result from the union of the unlike. Concord, as much as discord, requires the presence of at least two different notes. The brotherhood of man is an ideal based on learning to delight in our essential differences, as well as learning to recognize our similarities" [20].

Many *Star Trek* episodes and a few in STO mention the Prime Directive, the strict rule in the United Federation of Planets against interfering in the natural cultural evolution of intelligent species across the galaxy who have not yet developed the advanced technology needed for interstellar travel. Despite endless debates about how to apply it in particular circumstances, the Prime Directive expresses the central theme of *Star Trek*: Technological progress and ethical progress must be achieved together [21]. The Prime Directive serves IDIC by preserving the cultural uniqueness of developing societies, until such time as they would naturally blend with the others in the galaxy.

Numerous STO missions involve four very different societies with different relationships between citizens: The United Federation of Planets, The Klingon Empire, The Borg Collective, and the Mirror Federation. Initially, users could create characters only in the Federation or the Klingon empire, the former enjoying all the most complex episodes since the television program was always told from the Federation perspective. The Klingons occasionally battled each other in combat between competing *houses* in their feudal society, but destruction was the goal of all the Klingon missions I tried. Figure 6.2 shows Korbette, receiving praise from the Klingon High Council, after defeating many enemies in simple combat missions.

While the other three groups were in the original series, the Borg were introduced in *Star Trek the Next Generation*. They are a technically advanced collectivist society that assimilates other species and controls their minds centrally, but except for rescuing a few prisoners from the Borg in land-based shootouts, their culture is not depicted in STO. Rather, on numerous occasions one must destroy Borg machinery in space battles: probes, spheres, and cubes.

Similarly, the game does not yet fully exploit the Mirror Universe concept. The original series of *Star Trek* drew heavily upon the science fiction subculture, and a number of experienced writers in that field wrote scripts for it. A notable example was Jerome Bixby who wrote four of them, including "Mirror, Mirror." Beamed up from a planet during a magnetic storm, Captain Kirk and three crewmates find themselves catapulted into a parallel universe, where everything is the same except human morals. They struggle to play the roles of their counterparts, with whom they have exchanged places, until they can beam back into their own version of the

Fig. 6.2 Female Warrior Korbette at the Klingon High Council

universe. Leaders in the mirror universe are harsh, sadistic, and selfish, belonging to an empire based on those principles. In STO, the player gets to battle ships belonging to the mirror empire, that look exactly like Federation ships, but subtle lessons about mercy and morality are absent.

Political issues of the 1960s often shaped *Star Trek* episodes, including the precarious balance of terror that existed between the Soviet Union and the United States. "The Doomsday Machine," written by prolific science fiction writer Norman Spinrad, concerns a robot weapon destroying one planet after another. This episode includes two direct references to the hydrogen bomb and only slightly more indirect references to the mutually assured destruction (MAD) that encouraged both sides to keep the peace, because they knew that war would lead to annihilation. Apparently, a civilization outside our galaxy created the doomsday machine under similar circumstances, but it failed to preserve peace and after destroying that civilization began wandering the cosmos in search of additional victims. STO ignores the philosophical meaning of the device, and the fact that no single ship can destroy it, so Rho Xi had no trouble putting it out of action on his first attempt.

Of the many species in the galaxy, the ten listed in Fig. 6.3 could be selected for a Federation avatar, and Klingons can also be played more conventionally as avatars in the Klingon Empire. Each species has distinctive traits, which increase one of the character's mathematical parameters, and players can add two or three more from a list. Players actually have an eleventh species option, crafting their own Alien with one of ten head styles and selecting four traits from a long list. In addition, it was possible to purchase the right to have a Ferengi or Tellarite avatar, for 80 or 200 Cryptic Points respectively, in which 1000 CPs can be bought online for $12.50 [22]. Note that three of the well-known characters in the table are actually mixtures.

Species	Description	Traits	Example
Human	"a great deal of diversity both in their culture and in their appearance"	leadership, teamwork	James T, Kirk, original series
Andorian	"a militaristic species that settles disputes through ritual combat... passionate and emotional but not overly concerned with sympathy"	acute senses	only minor characters
Bajoran	"a deeply spiritual race dedicated to their gods, the Prophets"	creative, spiritual	*Kira Nerys, Deep Space Nine*
Benzite	(no behavioral peculiarities)	natural armor, natural immunities	only minor characters
Betazoid	"Because of their telepathic abilities, Beatzoids are open about their emotions and they value honesty."	empathic, telepathic	*Deanna Troi, Next Generation*
Bolian	"highly outspoken and jovial"	corrosive blood	only minor characters
Klingon	"a proud species that values tradition, honor and strength"	honorable, warrior	Worf, *Next Generation*
Saurian	"renowned traders, and most of their early interactions with other species were related to commerce"	circulatory redundancies, acute senses	no named characters
Trill	"generally friendly and many serve the Federation as ambassadors or politicians"	hyper metabolism	*Jadzia Dax, Deep Space Nine*
Vulcan	"Known for their logical minds and stoicism"	logical, physical strength	Spock, original series

Fig. 6.3 Ten playable species in the United Federation of Planets

Both Kira Nerys and Spock are half-human hybrids, and Jadzia Dax is a combination of a Trill woman named Jadzia with a nearly immortal slug-like symbiont named Dax who had already outlived five other hosts.

I decided to create Rho Xi as a Bajoran scientist, something of a contradiction because Bajorans are perhaps the most religious of the ten species. All STO Federation characters have the same experiences, and the missions near the planet Bajor are not reserved for Bajorans. I chose the name Rho Xi because it plays off Chi Rho, a Christian religious symbolism, yet Rho has many uses in science, including representing density and a correlation coefficient. I chose Xi rather than Chi, because I admired the 1950 science fiction story, "The Xi Effect," by Philip Latham (a pen name for astronomer Robert S. Richardson) that imagined what would happen if a fundamental constant of nature changed.

Rho Xi quickly assembled a crew of secondary avatars, representing diverse species cooperating on his away team that carried out many land-based missions. He relied heavily upon Thuvia, a female Andorian tactical (combat) officer, named after the central character of *Thuvia, Maid of Mars*, a 1916 novel by Edgar Rice

Burroughs. Azura, a female Vulcan science officer, was named after the Martian Queen in the 1938 movie serial, *Flash Gordon's trip to Mars*, and was responsible for healing injured team members. Tonga, a female Trill engineering officer, named after the Lady of Diamonds from the early 1950s television program *Space Patrol*, strengthened the shields of individual team members and could create a large force-field shield for the entire group. Initially I had a second engineering officer, a male Human named Flash Gordon, but for practical reasons I replaced him with a second tactical officer, a male Ferengi named Marx after Karl Marx, a play on the fact that Ferengi are devout capitalists.

Episodes

Three STO episodes illustrate very close connections to famous episodes of the original series: "The Ultimate Klingon," "City on the Edge of Never," and "The Tribble with Klingons." The first derived from the episode of the original series, "Space Seed," which first aired on February 16, 1967, and which also led to the 1982 movie, *Star Trek II: The Wrath of Kahn*. The Enterprise finds an ancient space-ship slowly traveling between the stars, with six dozen passengers asleep in suspended animation. Their leader, Khan Noonien Singh, slyly avoids explaining who he is and why his people were fleeing Earth, until he has mastered the command systems of the Enterprise, at which point he attempts to seize control.

Kahn was the dictator of one quarter of the Earth's population, from India through the Middle East, in the mid-1990s. The result of eugenic selective breeding, he was a superman, physically as well as mentally, one of a set of nearly a 100 such elites who controlled many parts of the planet before being defeated in the Eugenics Wars. He hopes to enlist the crew of the Enterprise to conquer some inhabited planet, where he can prove his superiority by creating a perfect society.

Selective breeding could not really create a superman so quickly, and today the slightly less implausible science fiction explanation would be genetic engineering that changes the DNA code. In the 1960s, the "master race" pretensions of the Nazis were fresh in everybody's mind. In the original story, Marla McGivers, the ship's historian, develops a crush on Khan, because she admires great male leaders of the past, such as Alexander the Great. For a while she helps Khan, then turns against him at the last minute, allowing Kirk to retake command of the Enterprise. Surprisingly, Kirk does not deliver Khan over to Starfleet authorities, but settles him and his followers (including McGivers) on an uninhabited planet where they can prove what supermen can accomplish when they have nobody to dominate but themselves. Spock comments, "It would be interesting, captain, to return to that world in a 100 years, and learn what crop had sprung from the seed you planted today."

"The Ultimate Klingon" begins as starfleet tells Rho Xi that Klingons have been raiding shipments of medical supplies. He is sent to the Korvat system to meet Ghee P'Trell, a medical researcher who can analyze what the medical supplies could be used for. There, he encounters Gorn allies of the Klingons, and the first scene of the

episode requires destroying two of their patrols. The second scene begins as Rho Xi beams down to P'Trell's medical research facility with an away team consisting of Tonga, Thuvia, Azura, and Flash Gordon. There they must kill many Klingons and Gorns in hand-to-hand combat, then rescue P'Trell. He explains the Klingon commander demanded information about Earth's Eugenics Wars, hoping to develop technologies to augment the abilities of his warriors. P'Trell mentions the 30 million deaths in the wars and the dark age that followed, then recounts the Klingons' own dismal experience in an earlier augmentation effort that led to a devastating epidemic among their people. The third scene consists of another space battle; the fourth rather brief scene involves sneaking past Klingon ships through a nebula, and the fifth scene is an extended battle through a Klingon laboratory complex.

There, Amar Singh, grandson of Khan, proclaims, "Combining several different species will create the perfect race! We will rule the galaxy!" When the away team finally defeats augmented Gorns, Rho Xi reminds Singh that genetic modification is illegal. He scornfully replies, "I don't recognize the laws of your petty, judgmental Federation. You mouth pretty words about morality and diversity and peace, but you fly around in death machines that could obliterate a planet! You talk about personal freedoms, but impose your will on everyone in your grasp! The Federation is a collection of tyrants!"

Rho Xi learns from Singh that the Klingon who is most vigorously promoting the war, B'vat, was especially interested in learning about a Federation officer named Miral Paris, a Human-Klingon hybrid. She is the daughter of two major characters from the fourth television series, *Star Trek: Voyager*, and her DNA is the basis for a cure of a fatal Klingon disease [23]. B'vat was also seeking information about time travel. This provides a transition to the episode, "City on the Edge of Never," which is a sequel to "The City on the Edge of Forever" from the original series.

This award-winning episode was written by science fiction author Harlan Ellison. Catapulted into the past through a portal called the Guardian of Forever, Kirk and Spock find themselves in New York City in the year 1930 trying to undo harm that time travel has done to the fabric of history. They meet an idealistic social worker named Edith Keeler and gradually discover that she is the key, but their broken tricorder cannot access the data they need. Disguised as ordinary men in this early year of the Great Depression, they gratefully accept jobs from her. As Memory Alpha says,

> After their third day of work, Kirk returns from shopping with radio tubes, wires and other items. Spock is noticeably frustrated at the lack of technology in the 1930s. He spends many hours building circuits and connections. Eventually, after several setbacks, the tricorder reveals its wealth of information. Spock sees Edith Keeler's imminent obituary. Then he plays the recording for Kirk – and they see a report about Edith Keeler's meeting with United States President Franklin D. Roosevelt 6 years hence. She cannot have two futures; they've discovered the point where McCoy altered the past. But did he save her? Or kill her? And how? "What if Edith Keeler must die?" Spock asks the troubled Kirk [24].

The sad answer is that she must die, because in her naive idealism she would convince Roosevelt to delay American entry into the Second World War, allowing the Nazis to develop nuclear warheads and long range missiles with which they conquered the world.

The sequel in STO sends the Carbondale to the Hromi Sector to meet the USS Kirk, to follow up on this hint of time travel. The first scene of "City on the Edge of Never" is a space battle helping the Kirk fight Klingons, and the second beams the away team into the Kirk to fight some who have boarded this historically-named ship. The captain of the Kirk tells Rho Xi that the enemy kidnapped Miral Paris: "Miral's ties to the Klingons have always been trouble. Half of them think she's a traitor, the other half think she's a savior, and now this bunch thinks she can cure some crazy virus!" The next scene is a brief space battle, followed by travel to the Gateway System where the fourth scene is another space battle. Then the Carbondale's team beams down to the planet where the Klingons used the Guardian of Forever. When asked what happened to Miral, the Guardian says,

> The one known as Miral Paris finds her future in the time before her time. She is the kuvah'magh. Her people follow her footsteps before she has made them. Her presence in her past alters the river of time. Those who took the kuvah'magh are conquering before the warriors arrive. They have brought the weapons of your world to a time that will be helpless to resist them. Your reality, your world, your beginning? All that you know is gone.

Transported back to the year 2270, the team first assists the original Enterprise, commanded by Spock. This concludes the episode, but leads into a sequel, called Past Imperfect, to rescue Miral and stop genetically augmented Klingons from altering the timeline, in scenes with evocative names like "Through the Looking Glass" and "Time Savior."

"The Tribble with Klingons" is based on the comic episode, "The Trouble with Tribbles," first broadcast December 29, 1967. To his great displeasure, Kirk is ordered to take the Enterprise to Space Station K-7 and protect a shipment of grain seeds destined for a planet claimed both by the Federation and by the Klingons. The variety of grain, quadrotriticale, is a wheat-rye hybrid that will grow well on the planet, thus strengthening the Federation's claims of ownership. Klingons arrive at K-7, arousing suspicions that they plan to sabotage this plan, but under the terms of a recent peace treaty they are allowed to enter.

Serious issues beneath the surface of this farce concern relations between different nations and species. The Russian member of the Enterprise crew, Chekov, makes several questionable assertions that key scientific discoveries had been made by Russians. This was a standard joke of the period in America, casting scorn on the delusions of grandeur of the Soviet Union, and it is worth noting that the episode was produced exactly a decade after the Soviets launched the first space satellites. Later in the episode, Federation and Klingon personnel exchange insults, and they react in exactly opposite ways to the tribbles.

Ah, tribbles! A traveling salesman offers these furry, featureless creatures as the ideal pets, and Lieutenant Uhura of the Enterprise takes one as a gift when the salesman see that she likes it so much that she will get her friends to buy some. She caresses it as it coos at her, little realizing that as soon as it gets into her ship it will begin eating them out of house and home, and reproducing faster than the proverbial rabbits. Humans adore tribbles, Klingons loathe them, and Spock the Vulcan thinks they are impractical and thus uninteresting. Back on the space station, they begin eating the quadrotriticale, but when some tribbles die it is revealed that the Klingons

are poisoning the grain. In the end, Scotty, the chief engineer of the Enterprise, beams the tribbles into the departing Klingon ship, commenting that they will be "no tribble at all."

"The Tribble with Klingons" sends Rho Xi in command of the von Braun to the Minos Korva system, where the first scene, "Enter the Tribble," involves battling a Klingon Threat Eradication Force intent upon destroying what they consider to be an extremely dangerous environmental hazard, namely tribbles. Scene two, "Wack a Tribble," and scene three, "Tribble Savior," require an away team to protect tribbles and kill Klingons in and around a Federation exobiology lab where the furry animals have taken up residence. At the end, the head of the lab explains that Klingons view tribbles as a menace rather than an endangered species, and tried unsuccessfully to breed a predator to cull their numbers. "They sent warriors to hunt tribbles throughout the galaxy, and they destroyed the tribble homeworld with an orbital bombardment."

A month later, noticing that he had a variety of the adorable creatures throughout his storage spaces, Rho Xi decided to breed them scientifically, feeding them particular food items that would stimulate them to produce rare offspring. Tribbles are useful, because caressing one gives a character increased abilities for a time on away missions, how much and which ability depending upon the particular variety of tribble. Rho Xi never was able to afford three of the rarest tribbles, or the expensive food required to breed them from other varieties he already possessed, but others had posted online the results of their research, documenting 25 types and how to produce them [25]. For example, he had a Mattson tribble, which improved health regeneration and damage per second (DPS) and which if fed a *tranya* would give birth to a Velasquez tribble, which had double the benefit for DPS. But the cheapest tranya cost 84,000 credits on the auction system! At the end of his labors, he realized that all four of his personal storage spaces contained tribbles, so he checked the ten members of his crew and discovered the same was true of them. All 66 slots of his inventory, and all 96 slots of his bank vault were likewise totally tribblized!

Korbette's last mission required her to lead a Klingon team into an outpost infested by tribbles, exterminating them all and not being allowed to collect any of them. She found she was able to buy a couple of these obnoxious critters from Federation players on the auction system and breed them just as Rho Xi had. But when she held one in her hand, they recoiled from each other. Given that she was a tactical warrior rather than a scientist, she decided to leave research on these abominations to Klingons who specialized in such loathsome labor.

Social Bugs

Many new virtual worlds contain programming bugs and data errors, and *Star Trek Online* seemed to have more than its share. Some were just typographical errors and misspellings in displayed text, such as *tacticle* for *tactical* in one place. Others prevented missions from being completed, as when Rho Xi destroyed four groups of

enemy ships but could never find the required fifth, or when one of the enemies he was fighting was just outside the boundaries of the instance he was in and would take no damage. Minor errors get corrected in time, but many reviewers and players complained that the game possessed major design flaws. My own view is that it is a very interesting virtual world, well worth the investment of time and money, and that the complaints about it might just as well be directed at the real human future.

People came to *Star Trek Online* with very strong preconceptions about what it should be, yet perhaps no game could really succeed in going "where no one has gone before." Notably, the many *Star Wars* games are generally considered better than the many *Star Trek* games – although I rather liked *Deep Space Nine: The Fallen* and *Voyager Elite Force: Set Phasers to Frag*. *Star Wars* is about combat, and combat games are relatively easy to create, but *Star Trek* has elements of soap opera and psychological drama, which do not lend themselves easily to "gamification."

For example, early in April 2010, one of the STO wikis featured a very critical article by a player using the name JadeEnigma: "When those of us who have grown up with *Star Trek* think on it, we experience a very particular sensation, one that the Great Bird of the Galaxy, Mr. Roddenberry himself, had wanted, designed, and planned for. Hope. A bright and fulfilling future. There will be conflict, since that is the nature of existence, but in *Star Trek* there was always purpose to it… a reason and an ambition and meaning that was better for the whole if not for the individual. In that, there was heroism" [26]. STO, in contrast, features one meaningless battle after another, in JadeEnigma's view.

About the same time, a player using the name Angelus exclaimed in the game's text chat, "I just want to say that this game sucks! (waits for the flames about: 'Well don't play it then.')." Another player made an obscene comment about Angelus's mother, a third offered sound effects, and a fourth respectfully asked Angelus to explain further. "Well, I don't like the fact you don't have a death penalty, or how they've turned *Star Trek* into an arcade game. It's not even as good as an R-Type, yet all you do is shoot constantly." R-Type is a primitive side-scrolling shooter arcade game from the 1980s, which had a futuristic theme. "You die, respawn. Die, respawn. There is no fear of losing your ships or xp [experience points]. There is no point to healing… you might as well keep going. When you rank up, you find that everyone else in the game is Rear Admiral. And you have five Rear Admirals running around on away mission. The in space battles are repetitive, if pretty. And the away missions are dull, with a very poor third person interface." Another player told Angelus to quit the game calling him a loser, but he continued his tirade: "They don't have elements on the bridge like they originally advertised… and they instead just made it into the most non-tactical, non-thinking brain dead shoot em up. I would move on, but I fell for the adverts and bought a lifetime subscription."

Other criticism focused on STO's economic system. Early in his career, Rho Xi posted three unneeded mark-II weapons on the system for selling virtual goods, which is shared by the Federation and the Klingons. K'mpok bought his disruptor sniper rifle, T'Hrathen bought his disruptor split beam rifle, and Kah-lel bought his disruptor arcwave assault gun, each for 215 credits. A discussion in the zone chat debated the viability of the exchange system, noting that many of the posted prices

were ridiculously high, not prices of a few hundred credits, but hundreds of thousands. Dearth said this was the case "because there are no real ways that a substantial amount of Energy credits leave the system… they just keep stacking up." Cortharis mentioned ship buying as a counter-example, but Dearth replied that this "is a onetime deal and not that substantial."

Zutty chimed in: "I think if Cryptic had made more vendors accept energy credits instead of freaking medals and badges, things wouldn't be so bad." There are many separate currencies in STO, which cannot readily be converted into each other, one of which can be used only to upgrade equipment, and another that can be used only to complete certain missions. The exchange system does not permit auctions, as *World of Warcraft* and *Lord of the Rings Online* do, because potential buyers cannot bid competitively, thereby efficiently setting the market price. As Dearth noted, there could be other solutions like "a repair system for gear that required Credits, or countless other methods, something to get a constant stream of creds out." The discussion turned to "gold spammers," the people reputed to be Chinese gold farmers or credit card scammers who sent advertisements like the following over the chat and email system: "Sto_Energy_Credits <<www.ignmin.com>> 100 K=3\$ Star Trek Online Coupon Code 'STO' 100 K sale 3\$, Powerleveling 1–10 15\$, Supper [sic] Best Services !"A given advertisement appeared many times, purportedly sent by different characters.

It is difficult for any economic system to stabilize if outsiders are constantly disrupting it. One reason the STO designers created multiple currency systems was precisely to damp down tendencies for money to dominate the action. And action is what this game is about. Many of the space battles are extremely fast-paced, so much so that players cannot pause in firing their weapons and adjusting their shields to type messages to the others on their team. Setting up voice chat takes time and effort, so it was seldom used, given that the membership of teams was constantly changing.

STO pioneered real-time automatic team building. When Rho Xi entered a solar system, he never knew if he would be alone, fighting against spaceships automatically set to be appropriate for his level, or automatically combined with as many as four other players fighting more difficult enemies. While most away missions on the surface of a planet involved a team of five, sometimes the other four were members of his bridge crew of secondary avatars, and sometimes they were other players, automatically assembled into an appropriate team. Because it was so fast-paced, STO used innovative methods to combine players into teams, but this may have eroded the ordinary mechanisms of social trust that take time and effort to build teams that may endure long after the battle.

In the early weeks of STO, players often expressed skepticism about the value of *fleets*, the persistent groups of players generally called *guilds* in fantasy games. So many STO missions automatically combined players into teams, or adjusted automatically to be suitable for solo play, that few players worried about fleets until they had reached very high levels of experience.

Over three weeks into his own career, Rho Xi noticed this message in the text chat: "Now… Recruiting… For… The William Shatner School of Acting. New

Fleet… looking for… Casual members. If you… want… to learn… to play lead… roles… in… Rescue… 911, or price line negotiator." This message parodied the "method" acting style of William Shatner, the actor who played Captain James T. Kirk in the original series. The *method* is a system developed by acting teacher Lee Strasberg based on principles proposed by Konstantin Stanislavski, in which the actor achieves the most lifelike acting style by really feeling the emotions of the character. *Star Trek* merged with Shatner's real life profoundly, although he was more successful than others of the original cast in finding a range of roles in later years. He was nominal author of some of the *Star Trek* novels [27], hosted the dramatic reenactment series *Rescue 911* that blurred reality with fiction, and played the Priceline Negotiator gangster in TV commercials which used high-emotion drama to sell a real service.

Rho Xi asked if this was a real fleet or a joke, and when told it was real he joined it. At its peak, it had 33 members, but few were ever online at the same time, a web-based forum never really got going, and the fleet folded when the founder quit playing STO a month later. Soon afterward, Rho Xi was doing business at Memory Alpha when he saw a message asking if anybody had tetryon particles to sell. He replied that he had 17 and was immediately offered 50,000 credits for them. He gave them to the other player for free and then inquired about the fellow's fleet, named Starfleet Consoritium [sic]. It seemed both large and active, so he joined, but he had already reached Rear Admiral rank and maximum level 45, so he never became active in it. Fleets may have value for advanced players who have completed all available missions but want to continue battling with social support from comrades, often in PvP combat against other groups of players. Early in STO's history, they did not seem to evolve into role-playing groups of dedicated *Star Trek* fans, although that could happen with the passage of time.

Thus, I believe the criticisms of STO are literally misplaced, because they may in fact reflect problems that real society will face. Using mobile and ubiquitous computing, often in computer-supported cooperative work, may preclude the development of traditional social bonds between people. If events are always moving too fast for the individual to keep up, and technologies are developed to handle the chaos and complexity of future life, we may lose our humanity in a way we never anticipated. To use a phase-change metaphor from physical science: The solid institutions of society may melt; society itself may boil, and we will wind up living in a gas or ionized plasma is which social atoms churn at a rate far beyond the ability of any person to comprehend.

Conclusion

I named my replica of the starship Enterprise the "Carbondale" and gave it a serial number ending in "1972" because it was in Carbondale, Illinois, in 1972 that I met Gene Roddenberry, the creator of *Star Trek*, while doing research for my Harvard doctoral dissertation and first book about the spaceflight social movement [28]. He

was attending the first Syncon conference staged by the Committee for the Future, which had the goals of uniting humanity, transcending the current human condition, and becoming a universal species that would expand throughout the galaxy. Its wealthy leader, Barbara Marx Hubbard was considering investing in a new television series about a lunar colony, but Roddenberry's three attempts to create another science fiction series in the 1970s never got beyond the pilot stage. The nearest Roddenberry ever got to real spaceflight was after his death, when some of his ashes were placed in orbit a quarter century after I met him.

I met Nichelle Nichols, who played communications officer Uhura on the Enterprise, at a Los Angeles spaceflight convention in 1981, while I was visiting Jet Propulsion Laboratory to study the encounter of the real spacecraft Voyager II with the planet Saturn. She was part of the revolution in Hollywood that improved the career opportunities for African Americans like herself, and her character's name was based on the Swahili word, *uhuru*, which means *freedom* and was the name of an African liberation movement. Her Wikipedia article explains: "After the cancellation of *Star Trek*, Nichols volunteered her time in a special project with NASA to recruit minority and female personnel for the space agency, which proved to be a success. Those recruited include Dr. Sally Ride, the first American female astronaut, and United States Air Force Col. Guion Bluford, the first African-American astronaut, as well as Dr. Judith Resnik and Dr. Ronald McNair, who both flew successful missions during the space shuttle program before their deaths in the Space Shuttle Challenger disaster on January 28, 1986" [29]. I was at JPL again at the time Resnik and McNair were killed, which coincided with Voyager II encounter with Uranus, and the trauma inspired me to write another sociological book, *Goals in Space* [30]. The first *Star Trek* movie, in which Nichols again played Uhura, had been released in 1979, and concerned a Voyager spacecraft that had been captured and augmented by an advanced machine civilization and returned to threaten Earth.

Repeatedly, *Star Trek* has linked to real space exploration, providing popular cultural support for this vast enterprise, even as it promotes Infinite Diversity in Infinite Combinations. The first space shuttle was even named after Captain Kirk's ship. Its Wikipedia article notes, "On September 17, 1976, Enterprise was rolled out of Rockwell's plant at Palmdale, California. In recognition of its fictional namesake, *Star Trek* creator Gene Roddenberry and most of the cast of the original series of *Star Trek* were on hand at the dedication ceremony" [31]. As it moved slowly across the pavement on its wheels, the program's theme music played. Perhaps symbolically, this Enterprise never flew in space, but was used merely for glide tests to perfect landing techniques, and it currently rests in a museum at Washington Dulles International Airport. Thus, looking at a conflict-ridden world in the post-shuttle years, we can wonder whether either of *Star Trek's* utopian dreams can be fulfilled, spaceflight or human unification, through respect for diversity.

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