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VEGANISM IN STAR TREK:

A COMIC REFORMATTING OF PLANT-BASED SPACE EXPLORATION

Lahti University of
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Visual Communication
Multimedia Production

Bachelor's thesis

TAMMINEN, TIARIIA

Spring 2017

Lahden Ammattikorkeakoulu

Viestinnän koulutusohjelma: Multimediatuotanto

TAMMINEN, TIARIIA: Veganismi Star Trekissä: Kasvipohjaisen avaruusmatkailun uudelleentulkinta sarjakuvailmaisun keinoin

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TIIVISTELMÄ

Lopputyönäni tutkin viittä eri Star Trek -tuotemerkin televisiosarjaa siltä kannalta, miten ne käsittelevät veganismia, kasvissyöntiä ja eläinten oikeuksia. Kiinnitän kyseisissä tieteisfantasiagenren sarjoissa huomiota erityisesti miljööseen, hahmojen olemukseen ja näiden repliikkeihin. Viitteiden pohjalta analysoin Star Trekin esittelemän ruokateknologian ja eettisen ajatusmaailman kehittymistä ja soveltamista.

Tavoitteenani on esitellä, kuinka kyseinen tulevaisuuteen sijoittuva ja utopistinen konsepti on ottanut huomioon suhteemme eläimiin ja ruokaan erityisesti tutkivan avaruusmatkailun kannalta. Ilmaisen löytämiäni viitteitä ja korostan kasvipohjaisen avaruusmatkailun eettisiä ja käytännöllisiä puolia episodimaisen sarjakuvan avulla, jonka tuotan käsin ja viimeistelen digitaaliseksi PDF-dokumentiksi.

Star Trek maalaa huomattavan optimistisen mielikuvan ihmisyydestä tulevaisuudessa vuosina 2150-2350, eikä ihmiskunnan eettisyyden kehittyminen ole unohtunut. Joitain epäkohtia silti löytyy, ja sarjakuvani nostaa esille myös vähemmälle huomiolle jääneet alueet.

Asiasanat: sarjakuva, veganismi, kasvissyönti, tieteisfantasia, Star Trek, avaruus

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Visual Communication: Multimedia Production

TAMMINEN, TIARIIA: Veganism in Star Trek: A Comic Reformatting of Plant-Based Space Exploration

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ABSTRACT

My thesis revolves around collecting references to veganism and animal rights in five different science fiction TV series of the Star Trek franchise. I especially concentrate on how the character creation, setting and spoken lines express development and implementation of food technology and ethics.

My objective is to show how our relationship to food and animal rights is presented in the main canon of the Star Trek franchise in terms of exploration in space. I will express this further through hand-drawn episodic comic strips, edited in Photoshop and presented in digital PDF format. They represent moments found in the series and also some points that have been ignored.

Star Trek presents to us an optimistic utopia, where humanity has found harmony with itself and with other humanoid species. The ethical treatment of non-human animals has apparently followed. These references are highlighted along with points that slightly break this illusion of peace.

Key words: comic, veganism, vegetarian, sci-fi, science fiction, Star Trek, space

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1 INTRODUCTION: TO COMPASSIONATELY GO…

The roles of veganism, vegetarianism and plant-based lifestyles seem multifaceted in the Star Trek universe. The attitudes of crew members, and the conversations that go on among them, reflect similarities to our present. On the other hand, the future that Star Trek shows us has taken a step to the plant-based side, even if only for practicality.

At times, veganism is used in the storytelling to ”other” certain characters and highlight diversity, for example by attaching it to alien cultures (e.g. Vulcan lifestyle). Often the point made is about ideology and biology, but not about behaviour or practicality. This gives credit to plant-based living, but highlights the reasons for carrying it out. For example, the chronologically first series of Star Trek, *Enterprise*, lets us know that by the 2150s, intensive animal farming has ended in human culture. The technology has risen above the need to enslave animals for food purposes. We can see these technologies developing even today. Yet, the human ideology isn’t quite there, as we can see from various conversations among crew members about ethics and culture between alien and human species.

I’ve selected five television series of the Star Trek franchise as the basis for my comic strips. The main area that I concentrate on with my reference material is the handling of veganism, vegetarianism and plant-based living in the franchise. How is otherness, character development, world building, storytelling and character design emphasised through diet and/or lifestyle, by attaching carnivorous, omnivorous or herbivorous diet and behaviour to the species? Researching and reflecting upon our presently known scientific facts about veganism and plant-based living is part of the process as well.

The purpose of my thesis product is to present the ideology, practicality and technology related to plant-based living during space exploration journeys in roughly 300 years. I will use comedy and ethics to directly express my background research and my own ideas about the subject at hand. One of my objectives is to express how making plant-based living a part of space exploration would add to the believability of science fiction works. The format of my expression is 2D comic strips, ranging from one panel to one A4 page in length. The comics will be collected into a digital comic book, as Portable Document Format (PDF).

My thesis product is a personal project, and I will run through the process as part of this documentation. The background research portion will include terminology, explaining the use of first-hand resources (such as episodes), and the themes of the comics. The process of reformatting canon necessitates research on how the source material presents the theme of veganism in canon. I will also make use of presently known scientific facts. This research will be used to produce new fictional, derivative content. The artistic process will include character design, scripting, drafting, drawing, storytelling, editing, and designing and executing the layout of the outcome.

2 METHODS & RESOURCES

This segment will elaborate on methods and resources used for research and inspirational purposes.

2.1 TV Series and Episodes: A Brief Chronological Overview

The television series make up the core canon of Star Trek (Gene Roddenberry, the creator even said that only the things seen on screen are canon, including movies and the animated series). I decided to concentrate my studies and reformatting to the television series that feature a space ship crew. In a later segment of the thesis I will be elaborating upon the chronology of their canonical food technology as well as the evolution of ethics. The canon itself is undoubtedly sometimes conflicted, as happens when multiple writers work on the same universe at different times and for different characters and series.

2.1.1 Star Trek: Enterprise

Star Trek: Enterprise (2001-2005) is canon-chronologically the first series; its events take place in the 2150s. This prequel is the newest installment of Star Trek TV-series. Canonically technological progress is relatively primitive and Starfleet is only starting interstellar travels. First Contact with Vulcans and Klingons is forged and ideological clashes take place with ethics and methods. The role of animals in food production is unclear. Transporters are slightly unstable and only used to transport cargo. Replicators do not exist at this point in the chronology *(Erdmann & Block, 2008, p. 247)*, but there is an invention called the ”protein resequencer”. The crew first comes into contact with such technology on an alien ship during repairs (ENT: ”Dead Stop”).

2.1.2 Star Trek: The Original Series & The Animated Series

Star Trek: The Original Series (1966-1969) takes place about a century after *Enterprise,* during the years 2260-2263. Off-screen *The Original Series* was supposed to continue for five years in production, meaning canonically five years in space. The series was cancelled after three years. The canon of vegan space travel is hinted at throughout the series in discussions and behavioural/diet norms. The overall mission to “explore strange new worlds, seek out new life and new civilisations and boldly go where no man has gone before” also implies a wider perspective on life and respect for those species different from our own. **Star Trek: The Animated Series** (1973-1974) depicts TOS through means of animation. It is still debatable whether replicators were used at this era or not.

2.1.3 Star Trek: The Next Generation

Star Trek: The Next Generation (1987-1994) takes place 100 years after *The Original Series*, during the years 2364-2370. Transporter and replicator advancements allow for more speculation upon the relationship between humans and other animals. Lines that the characters say even suggest a world without animal exploitation and enslavement. Replicated meat is still eaten, but the actual detailed progress of how the meat gets on the plate is left unexplained.

2.1.4 Star Trek: Voyager

Star Trek: Voyager (1995-2001) overlaps chronologically with The Next Generation, as it takes place during the years 2371-2378. The story of the USS Starship Voyager is unique as the crew gets stranded to the Delta Quadrant, a 75 years long voyage from Earth. The reason for this is Captain Kathryn Janeway's decision to save a species from genocide – risking never seeing Earth again just because she had empathy towards another species. Replicator and transporter technology is highly developed and the replicator would be ideally used as much as possible for food production, but energy conservation plays a vital role in survival. Survival also necessitates ethical discourse.

2.2 Encyclopedia Literature

I used encyclopedia literature as a fool-proof way to find facts of the canon universe of Star Trek. Although the writers of the shows themselves change and they are not completely in line with each other all the time, there is some safety in information that has been officially published into licensed books. If a Star Trek Encyclopedia, a ”101 guide”, or another official publication describes Vulcans as ”strict vegetarians”, and Klingons as eating some food while it's still living, there is very little space for doubt on these matters.

2.3 Articles

Magazine and newspaper articles were both a source of information, and creative inspiration for me. I sought out ones that touched upon the connection between food technology, innovation, ethics and Star Trek. The writers of course add their own voice to the mix when they speculate, but I focused on the facts and sources they derived from for my own argumentation. The articles were all found online through the library's system, as digitalized copies of paper publications. I also used articles written for digital publication (blogs and websites), with the same caution to the writer's own opinions.

2.4 Podcasts

I found one podcast, hosted by Russel Brand, which reflects upon the role of veganism and vegetarianism in science fiction generally. Some arguments are inspired by this insight into food ethics in fictional works.

2.5 The Internet

The Internet was used mainly to search for more reliable resources. For example, it was useful to look for transcripts online and search for keywords in order to find quotable references in the source material itself – the television series. There were two columnist-type articles which argued points for the theme of this thesis, so I got inspired by them and looked into the sources they had used.

2.6 A Note on Abbreviations

Abbreviations will be used throughout this thesis in reference to the different Star Trek series as follows:

- **ENT** (Star Trek: Enterprise)
- **TOS** (Star Trek: The Original Series)
- **TAS** (Star Trek: The Animated Series)
- **TNG** (Star Trek: The Next Generation)
- **VOY** (Star Trek: Voyager)

3 TERMINOLOGY & CONCEPTS

This section explains the most common thematic terminology used during the argumentation of this thesis. The terms specifically touch upon lifestyle and ethics in our everyday life, or they alternatively originate from various installments of *Star Trek.*

3.1 Vegan

”A vegan is the ultimate, hard-core vegetarian. Someone who follows a vegan diet avoids eating, drinking, wearing, using, or otherwise consuming anything that contains animal ingredients or that was tested on animals. This means a vegan eats pretty much everything except dairy (cheese, milk, butter) eggs, meat, poultry, fish, shellfish, or honey.” *(direct quote from Jamieson, 2010)*

Veganism is commonly based on three areas; health, the environment, and ethics. It is common for people to start at one place and then incorporate the rest of the areas into their reasoning as time goes by. An ideology based on ethics is required for veganism, while mere health reasons would only amount to a plant-based lifestyle. For example, health doesn’t require one to stop using leather and fur. In Star Trek, the concept of veganism will be explored as behaviour based on ethics, diplomacy, resource-intensity and culture.

In Star Trek specifically, there is the fictional **Vega star system**, which includes an Earth-colonised planet, **Vega IX.** It is the ninth planed orbiting the star of **Vega**. This planet was once largely inhabited by a species called the **Vegans**, before Earth colonised, forming the **Vega colony** (*Okuda & Mirek, 1994, p. 365*). The Vegan species have nothing to do with diet or lifestyle connected to veganism as we know it. The term for vegans in Star Trek series is ”vegetarian” probably for the aforementioned reasons. In this thesis, the term ”vegan” will be used appropriately in terms of our reality.

3.2 Vegetarian

The Merriam-Webster Dictionary describes **vegetarian** as ” person who does not eat meat : someone whose diet consists wholly of vegetables, fruits, grains, nuts, and sometimes eggs or dairy products” and also ”herbivore”. In Star Trek, the term ”strict vegetarian” is used when referring to e.g. the race of aliens known as Vulcans *(Erdmann & Block, 2008).* This term is not only used in books, but is also uttered in many episodes. As a summary: in our reality a vegetarian refers to a **plant-based** lifestyle, but includes dairy products and eggs, while in the context of Star Trek, a vegetarian is essentially a vegan or at least actually plant-based. And even though Star Trek canon says ”vegetarian”, the concept will be referred to as ”veganism” or ”plant-based” in this thesis.

3.3 Plant-Based

Plant-based refers to vegan dietary behaviour without the ethics. A vegan does not utilise animals in any way (food, clothing or otherwise), but a plant-based person limits their restriction to food only, and does not limit the use of animals for other resources. A Vulcan is vegetarian (meaning **vegan**) because of culturally and morally installed ethics, but the crew of a starship might be **plant-based** because of resources needed for intergalactic space exploration, i.e. practicality. For example, the hauling of live animals on a spaceship is unnecessary and

impractical, and this forces the crew to eat plants. This thesis will of course bring up reasons why intergalactic explorers should by all accounts be **vegan** too.

3.4 Speciesism

Speciesism is a term that animal rights activist Peter Singer started using to point out a prejudice or biased attitude against beings of a different species. This automatically means favouring one's own species over others. Omnivorous humans exhibit entitlement to other beings' bodies by eating them. In this case, omnivorous humans are placing their own palate desires above another living being's right and will to live. The prejudice can be put on the same line with sexism (favouring one sex over another) and racism (favouring one race over another) (*McGrath 2000, p. 50-59)*. The consensus of morality tends to be to avoid harming others at all costs, but this is often not extended outside our own species.

The inherent speciesism in our society comes out especially when we ask the question: why do we love dogs but eat pigs? In the end, we are all living, sentient beings, and an arbitrarily set differentiation like species does not justify killing someone who does not wish to be killed.

3.5 Carnism

Carnism is a term coined by Doctor Melanie Joy. The term refers to the state of mind where enslaving, exploiting and killing thinking, sentient beings for food purposes is considered a normal act. A carnist is one who makes arbitrary justifications for these actions**.**

"It is normal" is one justification. It claims that because the act of killing animals for food is common, it is an okay route to take. Everyone does it, so it's not a bad thing to do. It relies on the majority being right.

"It is natural" is another justification. It means that just because we are able to use animals, and have hunted in the past when farming plants efficiently wasn't possible, it's okay to continue it now. Lion behaviour tends to be pulled in ("should we try to make lions vegan?") In fact, many so-called natural behaviours are harmful and inefficient, and usually glorified for some reason. Might does not make right.

"It is necessary" is the third justification. Flagging animals as a necessary food source gives people the sense of survival, of necessity. If we don't eat animals we will die from deficiency. In fact, the existence of vegans proves this false. Every ingredient can be found in plants, but marking animals as necessary gives people a way out of it.

The biggest problem with these justification is that discrimination due to race, gender and sexuality was also considered normal, natural and necessary at one point in time. Just because the majority thinks so now, doesn't make it right. In *Carnage*, a 2017 mockumentary directed by comedian Simon Amstelll, the UK finally turns vegan after people who kill animals for food get labelled as carnists and vegans are no longer labelled, as they become considered the "normal ones".

3.6 Starfleet

Starfleet is like the NASA of Star Trek. It is controlled by the United Federation of Planets, which is akin to the United Nations (but interstellar) *(Erdmann & Block, 2008, p. 21)*. Their headquarters are located in San Francisco on Earth, but other bases are scattered n different parts of Federation space. Because the distances of space travel can take ships out of contact range, the captains are often granted special decision-making freedoms *(Okuda & Mirek, 1994. p. 315).* The fleet's ships are given the mission of executing different types of missions in deep space; scientific, defensive, and exploratory *(Okuda & Mirek, 1994, p. 316) (Erdmann & Block, 2008, p. 21)*. The ships we follow during the different series are all part of Starfleet and designed to traverse the distances between star bases and into the unknown. There is a specific command structure and terminology on board but the atmosphere is not supposed to be army-like *(Erdmann & Block, 2008, p. 19)*.

3.7 The Prime Directive

The Prime Directive is the most important rule of Starfleet Space Travel. It is also known as the Starfleet General Order number one. It states that while exploring unknown worlds, the crew of the spacecraft is forbidden to interfere in or affect the normal development of a society *(Okuda & Mirek, 1994, p. 315)*. The society shall be contacted only after it has developed some kind of a warp drive engine for interstellar travel. This order even sees any crew member as expendable if The Prime Directive will remain unbroken (*Okuda & Mirek, 1994, p. 261*). Breaking The Prime Directive might cause cultural contamination, for example accelerated technological progress in one species of the planet. Often the landing party members disguise themselves in order to inconspicuously make contact with the natives and to study their life beforehand.

Until Vulcans made known First Contact with humans, they thought it would be best to not interfere with human technological progress, because humans were not yet ”ready”. Only after Zefram Cochrane developed the first warp drive, the Vulcans made First Contact to guide humans to advanced faster-than-light-speed travel (*Okuda & Mirek, 1994, p. 371*). Even then, the Vulcans didn't give out every answer at once, but made Humans work for it, according to crew member Tucker (ENT: “Terra Prime”).

There is a lot of discourse around the double standards of The Prime Directive, specifically the possible positive effect vs. negative effect on the planet's occupants. In the context of animal rights and veganism, the thought of hunting on an alien planet becomes troubling. How can Earthlings possibly rate the intelligence and sentience of alien species and thus condemn them to death or not? Actions like these might have devastating effects on the ecology and culture. The Prime Directive will be used in this thesis in order to establish first contact with new species and possibly falsely assuming their place on our own spectrum.

3.8 Replicator

A transporter (commonly used during and after *The Original Series*) is used as a transportation device for both humans and cargo. It converts matter into energy and reassembles it at another location (*Okuda & Mirek, 1994, p. 349*). The replicator works with the same logic. It disassembles and then reassembles molecules into anything programmed into the database, except for living tissue (*Erdmann & Block, 2008, p. 75*).

This technology presented in Star Trek enables the characters to order any dish they want seemingly from thin air. The foods are compiled from proteins and other molecules and taste (nearly) the same as the wanted product. Replicators provide a wide selection of foods, because they are only limited by software, and most people cannot tell the difference (*Okuda & Mirek, 1994, p. 274*). Any more detailed functions of a replicator are not brought up.

The closest thing to a replicator that we have now would be the 3D food printer (Scott, 2004). Lab grown meat is also being developed so that production efficiency could meet the price of animal flesh.

In *The Original Series* food on the ship could sometimes be seen, as colourful shapes or more recognizable foodstuffs. In the *Next Generation* series it is mentioned that ”we no longer enslave animals for food purposes … you’ve seen something as fresh and tasty as meat but inorganically materialized out of patterns used from our transporters.” (William Riker, TNG: “Lonely Among Us”).

Although the replicator is convenient for variety and saved space, it still demands energy. Apparently the energy consumption is greater than what enhanced greenhouse maintenance requires. When Starship Voyager needs to conserve energy, crew members get replicator rations and plants are grown in the hydroponics bay and made into food the old-fashioned way (Ruditis, 2013, p. 81).

3.9 Hydroponics Bay / Airponics Bay

Hydroponics means growing plants in a medium other than soil – for example in a nutrient-rich liquid. **Airponics** means suspending them in an oxygen-rich environment and misting their roots with nutrient solution.

Enterprise NX-01 has a hydroponic greenhouse for the sake of fresh produce (ENT: ”Breaking the Ice”). This is the first known occurrence to such a practice chronologically.

The Hydroponics Bay also plays a large role in the *Star Trek: Voyager* series as the resources of the ship are compromised – the crew is stranded to the furthest Delta Quadrant and must ration energy in order to make safe travel back home to Earth. Kes, the Ocampan crew member, uses her skills learned on a desert planet to grow vegetables in a setting with hydrated air instead of soil – a combination hydroponics-airponics bay *(Ruditis, 2013, p. 90).*

> *”I've been thinking that you might be able to convert one of your lower decks into a hydroponics bay to grow your own food. I understand that the replicators are down and that the emergency rations won't hold out much longer.”*
>
> - **Kes**,VOY: ”Parallax”)

In science fiction it would be safe to assume that genetic manipulation and/or the growth method makes the produce grow fast enough in a type of plant factory farming setting to actually help feed the crew.

4 STAR TREK & VEGAN IDEOLOGY

This segment explains briefly how Star Trek builds a view of the future. It serves as an introduction to the exploration of references to plant-based space exploration and vegan lifestyle.

4.1 The Vegan Worldview in Star Trek

Gene Roddenberry, the creator of Star Trek, was interviewed by *The Humanist* magazine in 1991, and his quotes give us an idea of the world Star Trek (*The Original Series* and *The Next Generation*) is supposed to reflect:

> *”Understand that Star Trek is … my overview on life and the human condition ... My philosophy about the use of animals has changed. I am not yet a vegetarian, but I don’t feel comfortable as a meat eater knowing a lot of the things that go on to put meat on the table … We would have our juicy T-bone steak without having to kill the animal. I feel different way about domestic animals now. I am a bit queasy about the way we raise our chickens and beef cattle and so on. It’s really ugly... I also look forward to when we will contact other races and other life forms. What will our attitude be toward them? If we are not careful, we may see sentient life that is so different we won’t realize it is sentient. Because the creatures we meet don’t act and interact as we do, we might consider them valuable — much as many people disdain dolphins and whales today.”*

For the main part, Star Trek does center around humanist issues, ethics, the treatment of humanoids who are different from us – and the view on gender and race. The issue of animal use is also lifted on the table, even though Gene himself wasn’t even a vegetarian. He still recognized that in the future there was supposed to be something different in the way we treat other sentient beings.

One established constant in the Trek lore is that all humanoids originated from a single alien species, and thus have the same ancestor. This species visited different planets and left their offspring to evolve (*Bormanis, 1998, p. 195*). The events of Star Trek propelled into motion after a ”World War III” (*Okuda & Mirek, 1994, p. 386*). Conflict on Earth drove humanity into space, to colonise and seek out other life.

It feels like a natural progression; once humans realize that gender, race, size or sexuality doesn’t matter, species will become a blurred line. The idea of similarities, instead of differences, will become relevant. New humanoid and non-humanoid species get discovered through space travel, and it shifts thoughts back to the species we know on our planet. We wouldn’t treat these new intelligent, sentient beings badly – why do we enslave our local fauna, when it’s completely unnecessary?

4.2 Examples of Species: Well-Known…

4.2.1 Carnivores

The Kzinti are described as carnivorous and also misogynistic (TAS: ”The Slaver Weapon”). They are described to find even the thought of eating vegetables offensive, so while they try to read minds, it’s the best idea to think about eating vegetables.

Klingons are culturally carnivorous, and prefer their food as fresh as still alive, when possible *(Ruditis, 2013, p. 59).* Klingons are described as aggressive, honor-driven warriors who do not mourn the deaths of their kin in battle (*Okuda & Mirek, 1994, p. 261*).

Anticans are a carnivorous species that look like large furry humanoids and like their food in the form of still living animals (*Okuda & Mirek, 1994, p. 11*). Antican ambassadors insist on slaughtering live animals for food, and are appalled at the notion of replicator-made meat (TNG: “Lonely Among Us”).

4.2.2 Herbivores & Vegans

> *“You’re a Vulcan. I feel no pressing need to talk to an eater of roots and leaves. Humans at least are omnivorous.”*
>
> - **Kzinti** (TAS: ”The Slaver Weapon”)

Vulcans are called ”herbivores”, which would suggest they are biologically meant to be plant eaters. This is probably meant as an insult by the Kzinti aliens, who find eating plants offensive. There are Vulcans who still are physically capable of eating meat and who act illogically and erratically (ENT: ”Fusion”). In this sense, they cannot be herbivores physically, since their systems would most likely object to meat**.** The traditional Vulcan dish, *Plomeek Soup*, a bland thick soup dish is mentioned various times in different series and is presumably vegan.

> *”You know, I never used to like Vulcans all that much myself. They always seemed so smug. … So what was it with you? The ears? The fact that they're vegetarian?*
>
> - **Tucker** (ENT: “Terra Prime”)

> *”For a bunch of vegetarians, you people [Vulcans] can be awfully trigger happy.”*
>
> - **Tucker** (ENT: “Shadows of P’Jem” – draft version)

Vulcan blood is based on copper, not iron, and they have a secondary set of eyelids. There are many other physiological differences like the arrangement of internal organs; the Vulcan heart is located where the human liver normally is. They were once a violent and emotionally driven species, until a Vulcan called Surak lead them to start living a emotionally controlled, logical life (*Okuda & Mirek, 1994. p. 370) (Erdmann & Block, 2008, p 11*).

Vulcans breathe, eat, sleep, choose mates and live by logic. Vulcans are also classified as strict vegetarians. There is a diagram and description about ancient Vulcan weaponry, which is made from ”sehlat gut” *(Erdmann & Block, 2008, p. 11)*. These weapons originate presumably from the time before Vulcans and Romulans separated. The Vulcan culture opposes violence in many ways, and veganism is the ultimate non-violent lifestyle. In this context, Vulcans are actually vegans, since they use logic and non-violence to justify their eating habits.

4.2.3 Omnivores

Humans are opportunistic omnivores in the sense that we can tolerate animal products, but thrive on plants. Throughout the Star Trek series, humans are shown to eat omnivorously. They have utilised animals for food, transport, help and company up until the 24th century *(Ruditis, 2013, p. 8)*. During space travels, no living animals are kept aboard for food, probably because it would be unwise when resources matter. The replicator is used to produce basically any food for ingestion. In Star Trek, the human race is described to behave omnivorously, but not necessarily during space travel.

Romulans are the cousin race of Vulcans – they branched off from Vulcan society when Surak started leading the rest toward a philosophy of logic over emotion (*Okuda & Mirek, 1994. p. 370*). They are a warrior race who most probably didn’t agree on Surak’s peace loving mission, and instead continued the ancient Vulcan ways *(Erdmann & Block, 2008, p.13).*

4.3 Chronological Progress of Food Technology and of Ethics

This section explores how plant-based space exploration and veganism is referred to in Star Trek canon. Technological and cultural advancements of the human race will be taken into consideration. Attitudes of the crew and the policies of Starfleet are laid out as a basis for the comic and its plotlines.

4.3.1 Star Trek: Enterprise

Star Trek: Enterprise (2001-2005) is chronologically the first series; its events take place in the **2150s.** Its function is to show how interstellar travel worked at the time when Starfleet was only starting, with a couple alien species had been contacted. After Zefram Cochrane built the first warp engine, the Vulcans started guiding humans on how to improve it. The warp drive engine is designed to take a starship forward in space at a velocity faster than light speed (*Okuda & Mirek, 1994, p. 371*).

The rest of the Starfleet’s technology is also relatively primitive during this series. Transporters are only used to transport cargo, because the crew members are still hesitant to get their molecules taken apart and put back together again, even after human testing (ENT: ”Vanishing Point”).

Replicators do not exist at this point in the chronology *(Erdmann & Block, 2008, p. 247).* The crew first comes into contact with such technology on an alien ship during repairs (ENT: ”Dead Stop”). There is an innovation called the ”protein resequencer”, a kind of primitive replicator, but the its functions aren’t discussed in detail. The raw materials may be or may not be from

actual animals, but during different episodes we can see different foods being produced; potatoes (ENT: “Fight or Flight”, “Singularity”), meatloaf (ENT: “Fortunate Son”), chicken (ENT: “Shadows of P’Jem” and “Singularity”), Rocky Road ice cream (ENT: “Oasis”). Resequenced foods apparently don’t taste quite true to the original (ENT: “Fortunate Son”, “Singularity”), and there does seem to be a limited amount of “real” meat in the ship’s stores (ENT: “Fortunate Son”). If plants can be used as a sort of fuel, then synthesized animal foods could be considered vegan.

”Vegetarian” is a term that the characters use to refer to alien cultural behaviour (like Vulcans), but also to people who have chosen not to eat animal products. In ENT: ”Detained” Tucker inquires if Colonel Grat is a vegetarian.

The clash between humans, Vulcans, Klingons and other species bring up the conversation of ethics and acceptance or opposition of cultural norms. The role of animals in food production is not elaborated. The characters discuss foods that look like animal products as if they’re the real thing, thus they attach problematic attitudes to the habit. For example, a scenario where Captain Jonathan Archer, Engineer Tucker, and Science Officer T’Pol (the only Vulcan on the ship) are having a conversation during dinner:

> ***T’Pol:*** *You humans claim to be enlightened, yet you still consume the flesh of animals.*
>
> ***Tucker:*** *Grandma taught me never judge a species by their eating habits!*
>
> ***Archer:*** *Human instinct is pretty strong . . . you can't expect us to change overnight.*
>
> - ENT: ”Broken Bow”

T’Pol is expressing being logical, enlightened and sensitive to the world around her; she is true to her values by not eating animals. She jabs at the humans for acting like the human race is on a peaceful mission, while actually killing other beings for their own pleasure. The tone of the accusation makes it seem that either the crew is utilising actual animal meat as food, or utilising lab-grown meat, which is still an animal product and upholds the ideology of it being ok to use others’ bodies’ for selfish purposes.

Odds are, if the subject had been anything else (child abuse, sexual abuse, human slaves), the reaction of the humans would have been radically different. Vulcans, who are more logical, more enlightened and more sensitive, do not eat the flesh of animals. Saying ”never judge a species by what it eats” is essentially the same as claiming that one should never judge a species by how they enslave or rape other sentient beings.

T’Pol’s grand relative and the rest of the shuttle crew, in total three Vulcans, crash land on Earth in the 1950s, far before the actual moment of First Contact between humans and Vulcans (ENT: “Carbon Creek”). While running out of food, the crashed team discuss the ethical problems of eating meat, specifically the hypotheticals of killing a deer. Eating meat is thus not an alien concept (pun not intended) for Vulcans, but they have evolved beyond it culturally and emotionally. In another episode T’Pol asks whether or not a fast-food dish contains animal products (ENT: “Carpenter Street”), which suggests avoidance of all animal products, not just meat.

Rogue Vulcan renegades form an exception. They have detached themselves more recently from the Vulcan culture than the Romulans. The group calls themselves the *v’tosh ka’tur*, they rebel against the purging of emotions and practice the taboo mind-meld technique (ENT:

“Fusion”). They also eat meat in front of T-Pol, which upsets her. By the end of the episode, their strong emotions lead to violence and aggression. Captain Archer admits that he sees the point of Vulcan culture now – strong emotions can lead to violence, and aggressive beings like animal flesh.

T’Pol’s disgust at the tradition-based ritual hunt of the Eska species is well placed. Starfleet’s policy in all this would first of all entail The Prime Directive of non-interference, and secondly of non-violence. Despite all this, Reed decides to join the hunt (although he promises “not to kill anything”).

> ***Burzaan:*** *That drayjin you're eating, we killed it yesterday.*
>
> ***T'Pol:*** *You're hunters.*
>
> ***Damrus:*** *Our people have been coming here for nine generations.*
>
> ***T’Pol:*** *To kill the indigenous species?*
>
> ***Damrus:*** *Taking wild animals is part of our tradition. There are higher primates here. We don't touch them.*
>
> ***Archer:*** *Hunting went out of style on earth over a hundred years ago. that doesn't mean we don't appreciate your hospitality.*
>
> - ENT: “Rogue Planet”

Captain Archer has a pet beagle named Porthos. Doctor Phlox keeps a whole zoo of small animals (osmotic eels, Pyrithian bats, and other creatures that help to cure ailments) *(Erdmann & Block, 2008, p. 251)*. With Starfleet and humanity, the mentions of animals not enslaved for food purposes and not used for science is still in the future, it seems.

4.3.2 Star Trek: The Original Series & The Animated Series

Star Trek: The Original Series (1966-1969) happens a century after *Enterprise,* during the years **2260-2263**. **Star Trek: The Animated Series** (1973-1974) depicts TOS through means of animation. Technological advancements mean that the transporters are used as the default logistics method for both humans and cargo.

> ***Kathryn Janeway:*** *It was a very different time, Mister Kim. Captain Sulu, Captain Kirk, Dr. McCoy … belonged to a different breed of Starfleet officer. Imagine the era they lived in. ... Even the technology we take for granted was still in its early stages. No plasma weapons, no multiphasic shields. Their ships were half as fast.*
> ***Harry Kim:*** *No replicators, no holodecks.*
>
> - VOY: “Flashback”

The existence of replicator prototypes is still arguable. TAS brought about “food synthesizers” *(Erdmann & Block, 2008, p. 48*). There is a chef aboard; Captain Kirk orders him to make the synthesized meat look like Turkey for Thanksgiving (TOS: “Charlie X”). Kirk is surprised when Charlie transforms the synthesized meat into real turkey meat. Assumed replicator food is

shown as colorful cubes, which seem more like supplements. The writers might have wanted the food to look futuristic, but the decision that later series did with more traditional-looking foods seems more sensible. Captain Kirk is apparently planning to eat a “chicken sandwich and coffee” (TOS: "The Trouble with Tribbles"), but there are Tribbles all over the meal. It is probably normal to call synthesized meats by the name of the actual dish. Taking this idea further, the crew members calling themselves vegetarians could be the ones avoiding resequenced or replicated meat.

Mister Spock, the half-human-half-Vulcan hybrid, is vegan. He was born and raised on Planet Vulcan *(Erdmann & Block, 2008, p. 247 & Okuda & Mirek, 1994, p. 308)* so he has the logical mindset of a Vulcan, which includes the non-violent and ethical side as well. In the TOS episode *“*The City on the Edge of Forever*”* Captain Kirk reports that he purchased “assorted vegetables” for Spock, and bologna and hard rolls for himself. In “All Our Yesterdays” Spock is stuck on a planet with a cold climate and finds that there is nothing to eat but animal flesh. Spock caves in and plans on building a greenhouse for further survival. His cultural upbringing and ethics cause him immense guilt and he and shames himself: *”I’m behaving disgracefully. I have eaten animal flesh and I have enjoyed it. What is wrong with me?!”*

In Earth colonies (and possibly Planet Earth) animals are still utilised for food and other purposes. In “This Side of Paradise” the people of Omicron Ceti III are forced to be plant-based after all the animals there died of radiation.

> ***McCoy:*** *No animals. That's peculiar.*
> ***Kirk:*** *Yes, especially in view of the fact that the records for this expedition indicate that they did have some for breeding and food purposes. Apparently, none of them survived.*
>
> - **TOS:** ”This Side of Paradise”

“We’re vegetarians”, their leader tells Captain Kirk, and as there were no other animals, no animal products could be used and this meant plant-based life by circumstance.

The Enterprise crew’s “five year mission to explore strange new worlds, seek out new life and new civilisations and boldly go where no man has gone before” needs a plan for feeding the crew of 430 men and women *(Erdmann & Block, 2008, p. 3)*. Furthermore, it has to be resource-wise and ethical. A diagram in the article “Star Trek at 50” *(Chiarella & Grierson, 2016)* features a section of the *USS Enterprise* labelled as “sustainable food store”. As transporter energy is used to generate dishes, and a chef is kept aboard to make dishes from synthesized meat, it can be deduced that at least Starfleet’s protocols are plant-based. The meat aboard could be laboratory-grown meat or it could be plant-based “mock meat”. The ethical treatment of our fellow animals might have progressed to this point during the century between *Star Trek: Enterprise* and *Star Trek: The Original Series*.

4.3.3 Star Trek: The Next Generation

Star Trek: The Next Generation (1987-1994) takes place 100 years after *The Original Series*, in **2364-2370.**

> *”Captain's personal log, supplemental. While it is quite unusual for a starship to return to Earth, we seem to be left with no other choice.”*
>
> - Captain Picard (**TNG:** ”Conspiracy”)

Like the *U.S.S. Enteprise NCC-1701* in TOS, it’s evident that also the *U.S.S. Enterprise NCC-1701-D* in TNG is designed for long space exploration journeys. The exploration would be on pause only during shore-leave or visits to space stations. Spending long periods of time with no physical contact to Planet Earth means there is a need for a viable solution to feed the 1,012 people aboard in this series as well *(Erdmann & Block, 2008, p.57).*

Until this point of the chronology it was unclear if protein resequencers of ENT worked like replicators, or if the colorful cubes on plates of TOS were some sort of replicated nutritional replacements or additives. Technological advancements in TNG are clearly brought up in dialogue and through actions of the characters, maybe to highlight the ethical progress that (at least Starfleet) had gone through since the last series.

> **“***Preserving life, all life, is very important to us … We believe everything in the universe has a right to exist.”*
>
> - **William Riker** (TNG: ”Skin of Evil”)

Gene Roddenberry admitted to wish for a future where meat could be eaten without the brutal use of our fellow animals. Some parts of TNG seem to suggest that all of Earth isn’t plant-based, or that some older generations still use animals. Replicators might be a commodity, but there are some people who prefer to use flesh from living beings. The quote below doesn’t challenge the thought of Starfleet protocols being plant-based.

> ***Miles****: ”I can still remember the aromas when my mother was cooking.”*
> ***Keiko****: ”She cooked?”*
> ***Miles****: ”She didn’t believe in a replicator. She thought real food was more nutritious.”*
> ***Keiko****: ”She handled real meat? She touched it and cut it?”*
> ***Miles****: ”Yeah, like a master chef. She was fantastic. Of course, I’ll have to use the replicator, but I’ll make something special for you tonight.”*
>
> - **TNG:** ”The Wounded”

> ”*The ship’s computer would be more efficient, but it wouldn’t allow for the subtlety neded for great cooking. It would give you all of the ingredients in pre-determined measurements; it wouldn’t allow for flair, or individuality. ”*
>
> - ***William Riker*** *(**TNG:** ”Time Squared”)*

Aboard the Enterprise-D, animal flesh is eaten in replicated form (*Erdmann & Block, 2008, p.57 & p.75*), but the actual detailed progress of how the meat gets generated by the replicator is left unexplained. This futuristic equipment is utilised for food production allows for more speculation upon the relationship between humans and other animals. Lines that the characters say even suggest a Planet Earth without animal exploitation and enslavement.

> ***Riker:*** *"Lieutenant Yar was confused. We no longer enslave animals for food purposes."*
>
> ***Antican Delegate:*** *"But we have seen humans eat meat!"*
>
> ***Riker:*** *"You've seen something as fresh and tasty as meat, but inorganically materialized out of patterns used by our transporters."*
>
> - **TNG:** "Lonely Among Us"

In this scenario, the Anticans have brought aboard a live animal, which they insist on slaughtering and eating fresh as their culture has taught them to do. The carnivorous species is allowed to do so on the Enterprise, out of respect for another alien culture's customs. It makes one wonder, how would the crew act if their customs entailed molestation, mutilation, torture or enslavement of another Antican, perhaps of a lower class? The differentiation between killing a sentient animal against its will and torturing another which maybe capable of communication with the crew speaks volumes about the speciesism going on.

4.3.4 Star Trek: Voyager

Star Trek: Voyager (1995-2001) overlaps chronologically with *The Next Generation*. It takes place during the years **2371-2378**, and characters and events from TNG are referenced often. The story of Voyager is unique when compared to other series; *USS Voyager* is stranded in the Delta Quadrant, 75 years away from home at maximum warp *(Erdmann & Block, 2008, p. 159 & 178)* – or 70,000 light-years. This course of events happened as a result of Captain Kathryn Janeway's decision to spare a species (humanoid in this case) from genocide (VOY: "The Caretaker"). This action of compassion towards another species causes the series' premise.

> *"Part of becoming a human is learning to have compassion for those who are suffering... even when they're your bitter enemies."*
>
> - **Captain Janeway** (VOY: "Prey")

The *USS Voyager* holds about 150 crew members, some of them Starfleet, others an outlawed group called the *Maquis*; basically an anti-governmental rebel unit *(Erdmann & Block, 2008, p. 178)*. Replicator and transporter technology is highly developed and the *USS Voyager* is at Starfleet's technological peak *(Erdmann & Block, 2008, p. 161).* Navigation back home, survival, and of course exploring planets, are the themes for the series. They all stir up some ethical discourse and questionable decision-making.

The replicator would ideally be used as much as possible for food production, but replicator use is rationed and the crew usually eats food cooked by Neelix *(Erdmann & Block, 2008, p. 161)*. Neelix uses the replicator, the food grown on the hydroponics-airponics bay and ingredients acquired from other alien races through trading (*Ruditis, 2013, p. 81*). Using animal products in cooking probably originates from the Talaxian culture. The (alien) animal products are either traded from species that customarily use other local species for their own benefit, or are scavenged from alien life forms by the ship's crew. Both of these methods are, essentially, just as lacking in compassion and thought.

The hydroponics/airponics bay is relevant to the theme of this thesis and the Voyager's situation because its existence solidifies the possibility of growing plant protein during space exploration missions. As mentioned earlier, it is a valid assumption that food production methods in the future make plant-growing even more efficient than it is today. Kes, an Ocampan humanoid, had learned to combine airponics and hydroponics in order to grow food underground. The lifestyle she had adapted to on her desert-like home planet enables her to help the crew on board Voyager (*Erdmann & Block, 2008, p 161 & Ruditis, 2013, p. 90*). The plant protein grown in the on-board-greenhouse can be either used directly by the crew, or possibly fed into the replicator in order to form animal-product-like outcomes.

It's safe to assume that any sentient being would overlook even their own morals in a self-defense situation, when their own life is at risk. When an alien race non-consensually boards *USS Voyager* and starts executing scientific testing on the crew, the alien representative uses just that as their excuse:

> **Alzen:** ”*Of course you would [kill for survival]. You take care of your own, just as we do. We're really more similar than you care to admit.”*
> **Janeway:** ”*What you're doing isn't self-defence. It's the exploitation of another species for your own benefit. My people decided a long time ago that was unacceptable, even in the name of scientific progress.”*
>
> - VOY: ”Scientific Method”

Scientific experiments on animals in the name of scientific progress are long gone at this point in the Trek chronology, as Kathryn Janeway expresses above. ”My people decided” could refer to humanity as a whole, or just Starfleet, but it still points to the recognition of animals as fellow sentient beings and thus defies the use of speciesism as an argument. This might mean that although Doctor Phlox of the *USS Enterprise* used lab animals as part of his medical practice, it has since been outlawed or become frowned upon by Starfleet. Then again his practices might have been just an exception in Starfleet's policy. Phlox was part of a medical exchange program, and Starfleet is in the questionable habit of allowing morally ambiguous practices if it's part of honoring another culture.

There still remains a differentiation between those who are called ”vegetarian” and those who do not identify as such. The difference is at least cultural and ethical in VOY. Commander Chakotay is originally from a colony that formed from Earth Native American emigrants (*Erdmann & Block, 2008, p. 162)*. Their spirituality and connectedness to nature probably stuck with him, although he rebelled against most of their customs. He openly calls himself vegetarian, e.g. as he converses with a fellow human when both of them are stranded on an M-class planet:

Riley: *We grow all our own food in the cooperative garden.*
Chakotay: *It's delicious.*
Riley: *Sorry there's no meat.*
Chakotay: *No problem. I'm a vegetarian.*
Riley: *Really? I have reoccurring dreams about my mother's famous Texas barbeque.*

- VOY: ”Unity”

Chief Tactical Officer Tuvok is a pure-blooded Vulcan and assumably vegetarian. In the VOY episode *Flashback,* Neelix has gotten his hands on unreplicated food matter which he calls ”Porakan eggs”. Neelix is making an omelette, and offering it to Tuvok who does not overtly reject the meal. The so-called breakfast gets burned before anyone has a chance to eat it though. While Neelix belongs to a culturally omnivorous species, Tuvok’s distaste towards Neelix’s story can be understood in many ways. As a Vulcan, he might be disgusted by the playful nature set on such barbaric practices. Or his logic might find anecdotes simply illogical in the process of ingesting nutrients.

Tuvok: Porakan?
Neelix: The most flavourful eggs in the sector. Scrambled with a little dill weed, a touch of rengazo, a galactic favourite. Now, these eggs were not easy to prepare. After we picked them up on Porakas Four, I had to sterilise them in a cryostatic chamber for three days. Then each and every one had to be parboiled --
Tuvok: Mister Neelix, I would prefer not to hear the life history of my breakfast.
Neelix: On Talax it's a tradition to share the history of a meal before you begin eating. It's a way of enhancing the culinary experience. My mother was brilliant. She could make every course, every garnish come alive by making it a character in a story. My favourite was the one about the crustacean who -

In the episode VOY: ”Future’s End, Part II” the landing party of *USS Voyager* is time-travelling to 20th century Earth. Tuvok ends up buying ”chili burritos, foot long hot dogs, and Goliath Gulps” (as Rain Robinson lists them). Tuvok then, ends up eating a burrito (it’s left unclear whether it includes animal products). Perhaps his survival instincts drove him to use his pure logic: he needed food, so he went to the nearest place that served food. It’s also valid to think Tuvok didn’t know what all the food was, and thus didn’t ask about it because he was trying to blend in in order to not corrupt the timeline or feel suspicious. Maybe asking isn’t customary any more in his mind, since he lives in a time when all food (in Starfleet at least) is plant-based unless one goes out of their way. In any case, Vulcans are driven by both ethics and logic.

Enterprise shows the beginnings of Starfleet and the starting point of food technology and policy, as different cultures collide while trying to adapt to space travel in lifestyle and ethics. The concept of vegetarianism/veganism and how it is expressed in a world of synthesized food processors starts to take more shape in *The Original Series* and *The Animated Series.* Characters in *The Next Generation* straight out claim to have abolished animal exploitation (at least from Starfleet’s policies), and it seems only logical with the technology of food synthesizers. The theme of survival in *Voyager* makes it the most interesting series for the case of plant-based space exploration. I will be using the representation of veganism and plant-based policies in these series as a basis for the next segment.

5 PLANT-BASED SPACE EXPLORATION

This segment ponders upon the sensibility of plant-based space travel and looks at it with a eye on resources, health, ethics and diplomacy. Speculation will heavily refer to the previous segment and will hopefully serve as background to the themes of the comics.

5.1 Onboard Greenhouse – The Hydroponics-Airponics Bay

Starships of the United Federation of Planets need to have found a way to produce necessities efficiently. The **replicator** is discussed later, but the greenhouse-type **hydroponics-airponics bay** shares some of its functions.

Resources

Food vegetables and herbs can be grown, harvested and prepared on their own for the crew. The plant protein can alternatively be fed into the replicator in order to form animal-food-like structures. Having extra non-human animals on board just to be eaten would make no sense. They would use up the plants, precious oxygen and water, and in return produce more waste (methane, carbon dioxide, excrement) *(Jamieson, 2010, p.23*).

> *”It can take anywhere from 3 to 16 pounds of grain to produce one pound of beef. According to the United States Department of Agriculture’s educational pamphlet fro children, cows eat up to 100 pounds of mixed feed a day and drink up to 30 to 50 gallons of fresh water a day.”*
>
> - Jamieson, A. 2010 (direct quote from ”Living Vegan for Dummies”)

According to hydroponics and airponics mechanics, manure is not necessary in order to fertilize the plants. In case it was needed, it would be wiser to utilise human waste. The plants use up water, but it can be sub-par quality, not fit for drinking.

Plants would also serve as oxygen producers for the crew, simultaneously getting rid of exhaled carbon dioxide and saving oxygen reserves on the ship. Everything that can be recycled, should be recycled, so that everything can be used as efficiently as possible during long journeys like the ones Starfleet initiates. NASA and other organizations have worked on developing so-called ”Closed-Environment Life Support Systems” which work like the Earth ecosystem *(Bormanis, 1998, p. 128).*

Health

In low-gravity situations, it’s important to keep healthy and fit. However, Starfleet vessels are often shown to imitate Earth’s gravity, and to have recreational spaces for working out those muscles. The space ships include recreational rooms (rec rooms) and holodecks for recreation, including exercise. It could be assumed that Starfleet designs the food types in order to keep the crew fit and healthy. Plant foods are the most optimal for human diets; experts say that a plant-based whole-foods diet lowers the risk of heart attack, chronic diseases and cancers (Jamieson, 2010, p. 337).

If the plants, fit for human consumption, were fed to animals, most of the calories and other nutrients would be lost by the time the animal is slaughtered. Humans would only gain unnecessary cholesterol and harmful animal protein from the meal *(Jamieson, 2010, p.24*) when compared to plants. This factors into the usefulness of plant-based diets for the whole crew. Vegetables grown in the Hydroponics Bay are mentioned to be the staple of the crew's diet in Voyager.

Growing plants for medical use isn't elaborated on in Star Trek, because their medical treatments are mostly chemical. The technology is so advanced that e.g. the common cold has been cured by the time that Starfleet starts out. Theoretically, medicinal plants can be grown in the hydroponics-airponics bay and utilized to maintain the crew's health.

Ethics

> *"As plants are living organisms, vegetarians and meat-eaters alike feed on death."*
>
> - Spock (TOS: "Wolf in the Fold")

The comparison above is really far from valid. Plants are living things, meaning that they grow, react to their surroundings and multiply, as do animals. But the biological and most of all, psychological, differences between flora and fauna are immense, and that's what matters. The definition of sentience is "responsive to or conscious of sense impressions", "aware" and "finely sensitive in perception or feeling" (*Merriam-Webster*). Basically any being that is self-aware and conscious of the world around them is "sentient". If animals and insects wouldn't be sentient, they would not survive, because survival necessitates adapting to one's environment, reacting to immediate threats and learning to look our for certain warning signs for a better chance to continue the bloodline. The existence of a nervous system tells us that the being is capable of feeling pain, and the reaction is necessary in order to avoid causes of the pain and favour causes of pleasure. These reactions are processed in the brain and they condition the being to act in a certain manner. Fear, as an emotion and reaction, is the most primitive thing in the brain (both human, and non-human), and it has a main role in helping us survive as well.

There is no such thing as a non-sentient animal. The fact that plants do not have a nervous systems or brains should be a big enough reason to differentiate them from animals on a biological and ethical level. Humans are not minerals or plants, so we too belong in the animal bracket. Yet, we see killing a human as worse than cutting a carrot. It is logically and ethically sound to thus differentiate between non-human animals and plants as well. The intelligence factor does not play a part here, it is discussed with further detail in a later segment. Killing a being who avoids death at all costs and suffers in a way we can validate just simply does not win over growing and eating plants. The ethics involved in maintaining a hydroponics-airponics bay are heavily stacked in favour of eating plants that have been grown on board the space ship. Especially if the alternative would be breeding, imprisoning and sentencing fellow sentient beings to death arbitrarily.

5.2 Synthesized Nutrition – The Replicator

Resources

The replicator uses transporter energy as fuel, and based on the decisions of Captain Janeway of USS Voyager, it uses up more energy relative to preparing food from organic sources. The crew of the stranded starship is given replicator rations. As a backup, they have a chef who prepares the food mainly from organic sources. TOS and ENT featured chefs on their ships as well, but this was less due to energy conservation and more to technological limits.

The replicator can theoretically be fed any kinds of carbon-based raw materials, and the outcome can be in the form of anything that has been programmed into the machine. Foods need building blocks like protein, so the needed materials are filtered out and utilized. Other inedible objects need other types of materials. The replicator cannot replicate living tissue (e.g.) a living animal or human (Erdmann & Block, 2008, p. 75). It can, however, be fed plant protein so that it gives out animal-food-like items.

Basically one can harvest a bunch of broccoli that has been grown in the hydroponics-airponics bay and you can eat that. The slightly more energy-consuming option is to feed it into the replicator, which will then use up some transporter energy to dematerialize and rematerialize the molecules in the broccoli (or waste, or other materials) to form it into something that looks, feels and tastes like a steak. This all is presumably still better than raising animals on board, which would be a huge strain on resources.

Health

There is nothing stopping the replicator engineers from making every food taste and feel as close to the original as possible, while also replacing the harmful, unhealthy parts with something healthier. What if a rich bacon dish could be rid of the unhealthy bits and have the impact of broccoli on one's system? Ice cream that tastes like ice cream but behaves like oatmeal. Pasta with the impact of salad. The list goes on. If a tasty rich plant dish can be healthier than it really is (let's face it, not all vegan food is healthy), it benefits the well-being of the crew. When we get to replicated foods, there really is no limit to what one can achieve with programming during the technological age that Star Trek represents.

Ethics

The coexistence of replicators and differentiations such as ”vegetarian” and ”omnivore” on the same starship begs the question – what might make replicated meat not vegan? As the more detailed processes of replicated food production are under wraps, we can speculate.

- In terms of pure raw materials, replicated meat can be cruelty-free, i.e. vegan, and plant-based, depending what you use as fuel. On a Starship, the materials range from waste to food leftovers, but as long as retrieving those materials harmed no one, it can be considered okay to eat replicated meat as a plant-based person or vegan.
- The thought of eating any kind of meat (even resequenced) is personally troubling for an ethical vegan. It supports the idea that animals exist for human use, while humans could just eat plants. A plant-based person would be okay with this food option.

- If the replicated meat has the texture down to the finest detail (the veins and muscles, the molecular structure) with the nutritional value and all, but the process involves no living animals (derived from lab meat, see more below), the choice would lie on the basis of personal preference instead of a common ideology.
- Before the replicator knows what to produce, the food has to be programmed into it. Here's where more questions come in; how did the programming form?
    - If the original sentient animal has to be slaughtered, processed and prepared as part of the meal, then scanned in, the dish is not made with vegan methods. On the other hand, replicating more of the dish does not harm more animals, fund more cruelty or create more demand.
    - Another option: the original animal was used to extract DNA in a non-harmful manner, which was programmed into the computer along with other ingredients, ”prepared” digitally, then programmed into the replicator. This would make the dish plant-based, but again the vegan-ness is debatable, since an animal was used originally. Also in this instance no more animals are harmed in the replication process.
    - If we presume that Earth gave up animal exploitation and lab meat became the norm for carnists, then the DNA extracted from a single animal could create tonnes of lab-grown meat. This could be prepared manually or digitally and programmed. Again, an animal was originally used. It is plant-based, but not vegan. No more animals are hurt during replication.

The differentiation between those crew members that call themselves omnivores and those who call themselves vegetarians (vegans) becomes multifaceted during space exploration. Replication enables all the food on board to be plant-based, and this type of nutrition is the most ethically sensible choice for the crew. The difference between plant-based eaters and vegans depends upon ideology in this case. The finer factors of personal ethics divide those who will chow down on replicated meat with no care in the world, and those who answer to separate moral questions about it. It becomes a question of principle instead of more or less harm caused, thus creating the line between ”omnivores” (plant-based during exploration missions) and ”vegetarians” (in this context, vegans).

5.3 Breaks and Maintenance – Space Stations & Trading

Starships are designed to go on long exploration journeys and are equipped with this intention in mind. The different measures taken to ensure the needed resources are widely discussed in this chapter. Sometimes ships are called to visit a space bay or feel the need to do so in Federation Space. These space docks offer services, a little like gas stations in space; repairs, refueling, restocking. USS Starships don't usually land on planets so they need space-dwelling stations. Known space stations in Star Trek are *Regula I, Spacedock, Lysian Central Command, Earth Station McKinley, Deep Space 4, Deep Space 9* and *Deep Space Station K-7* (*Okuda & Mirek, 1994, p. 70, 84,187, 272, 307*).

Resources

Because space stations have permanent residents and crew just like star ships do, they need to be similarly equipped for nutrition, life maintenance, living space and recreation. Inherently, the same rules for resource-wise choices apply. It can be assumed that space stations have replicators, greenhouses (hydroponics-airponics bays), recycling systems, kitchens and emergency rations as well. The difference is that all of it doesn't need to be lugged around at warp speed. There are probably cargo ships that regularly bring in supplies from planets due to trading agreements and the like. There still is zero reason to grow animal products on space stations.

> *"[The] animal agribusiness has created systems of raising, slaughtering, and transporting animals so that the production ... can reach ever higher quantities to satisfy the growing appetite for meat, poultry, fish and eggs. Together with rising animal production comes the rising impact of these industries. Massive swaths of land are required to raise ... food animals. Countless tons of clean water are needed for these animals to drink, bathe in, and wash away their waste. Air quality is degraded."*
>
> - direct quote from Jamieson, A. 2010: *Living Vegan for Dummies* (p. 20)

The mechanics of the hydroponics-airponics bay's resource benefits have been discussed above. A bigger space would yield more produce to ship to passing space crafts, and there really is no reason why the microecological aspect would not be used on a Spacedock for oxygen production as well.

In the case of space ship resources, space docks are a good way of acquiring necessary materials and stocks, since the technology of producing them should be quite close to that on a craft. If a station acquires animal products e.g. by means of trading from other species, it's a usable resource and doesn't put a strain on the station or the ship.

Ethics & Diplomacy

The space station is like a trading outpost and a gas station, which houses a community of residents. The residents, visitors and others may vary culturally and by species. While some species in Star Trek might be omnivores, catering to that specific life form would abuse another life form. While the Federation space stations need the approval of Starfleet and the other members, their safest bet is to keep everything plant-based in order to avoid conflict. An accurate comparison for a starship acquiring animal products from space stations just because it's possible, would be to do the same with humanoid slaves. The traded products would likely not be of any Earth mammal in deeper sections of outer space, so the use of alien species for their bodies would bring up other diplomatic problems. We get further into this in the "First contact" section.

5.4 Unexpected Situations – Emergency Rations from Starfleet

When departing the space station that orbits Planet Earth, the starships are stocked with rations of food for emergency purposes. While humans on Earth may not be 100% plant-based even by the time that most homes and Starfleet's ships are equipped with highly functioning replicators, Starfleet's protocols are probably all plant-based for various reasons.

Resources

The resource-intensity discussed earlier in the course of this thesis would make the practice of factory farming sentient beings highly unsustainable. The product would have to be highly processed to preserve it like a canned or dried sustenance, adding to the carbon footprint and resource needs. Raising crops to feed to the non-human, sentient animal while breeding, raising, feeding, watering, transporting, slaughtering and processing their remains takes multiple times more water, food and energy than it would just to utilise the plants *(Jamieson, 2010, p.19-23, p. 328-330*). Forests are constantly being cut down to make room for grazing areas, contributing to deforestation and loss of natural habitat for wildlife. The waste problem is a whole chapter of its own; factory farms utilise pools to store away feces from the animals they raise, and when the cesspools get connected to local waterways, the water gets polluted with salts, heavy metals, phosphorus and nitrogen. Overfishing is problematic in more ways than one; first of all, it contributes to species extinction and messing up ocean ecology. Enormous amounts of by-catch are fished up in nets – including sharks, dolphins and turtles. Fish farms also require fish as feed, so the problem doesn't get solved that way *(Jamieson, 2010, p.20-21).*

The high demand on resources doesn't presently show up on price tags because factory farming is subsidised by governments using tax money. Nonetheless, the amount of nutrition, fiber and healthiness you can get is always more when you buy plant-based whole foods *(Jamieson, 2010, p.331*).

Health

The reasons for why Starfleet would wish their crew to remain healthy with plant-based foods is discussed in an earlier segment. Like with the food produced and replicated aboard a starship, also the emergency rations should reflect these aims.

Ethics & Diplomacy

Factory farming on Earth in order to process rations for space exploring starships is ethically questionable in more ways than one, and some of these will be discussed in further detail during the last two segments. The replicated meat and potatoes of the issue is: funding unnecessary cruelty to sentient beings doesn't scream "we wish to meet new species and life forms" - it's straight out speciesism, and an open-minded science organization should be wiser than to fund it. The following are some practices that arbitrarily appointed animal species are going through as they are bred, raised and slaughtered for the sake of taste:

- **Broiler hens** are bred to be so big they lose the ability to stand up on their own.
- **Chicken males** get ground up, suffocated, or otherwise discarded and left to die at the age of 1-3 days because by not laying eggs, they are worthless to the egg industry. These hatcheries also supply so-called backyard hens to people.

- **Laying hens** spend their short lives in either cramped cages, or crowded floor spaces. Their beaks are mutilated so they cannot peck themselves or others out of stress. They're genetically modified to produce multiple times more eggs than in nature (where 15 annually is the norm).

- **Pig males** are castrated, tail-docked and get their teeth removed without anesthesia. This is done because otherwise they would injure each other while living in tight spaces.

- **Pig females** spend their life in a gestation crate, not being able to move one step, while being artificially inseminated again and again for pig litters.

- **Beef calves** are dehorned, castrated, branded, stun, cut and bled to death, skinned and chopped up.

- **Dairy cows** are artificially inseminated in what is called a "rape rack" (industry term), because like any mammal, they do not lactate without pregnancy. After 9 months, the newborn calf is separated from its mother. The males become veal, females continue as dairy cows. The mother bellows after her baby. They're genetically modified and drugged with hormones to produce milk. Staying in cramped conditions, they're forcibly impregnated continuously before being sold at a cheap price and killed for hamburgers at age 4-5.

  (Jamieson, A. 2010 p. 24-25)

Some people still claim that this all can be done with more humane practices. The truth is that while these beings are used for profit, their well-being is not an issue. Sentient beings should not be in cages, not matter how comfortable; they should not be in cages at all. No matter how one puts it, humane slaughter is an oxymoron since there is not kind way to end someone's life when they wish to continue living. Replacing any of the above animals with species like cats, dogs, bunnies or parrots speaks volumes and really reveals how the standard practices of today could be stigmatized by a significant amount of people in 200-300 years from now.

5.5 Far Beyond Help – Scavenging Off Planets

The USS Starships usually attempt to make trade deals with local dwellers in order to acquire materials, while making diplomatic contacts with new societies. Especially deuterium (impulse engine reactor fuel), dilithium (warp propulsion regulator) would be mined on planets and traded (*Okuda & Mirek, 1994, p. 75-77*). Colonised planets could be traded with in order to receive sustenance. However, *USS Voyager* got stranded in an unexplored, part of deep space, where humans had not reached for alliances. The situation might necessitate visiting planets in order to find food, in addition to the usual scientific exploration on its surface. This entails sending a "Landing Party" down, usually including someone from science, security and medical *(Erdmann & Block, 2008, p.23).* Below are speculations about why this is and isn't a good choice to make in terms of animal products.

Resources

Resource-wise, scavenging off planets is 100% efficient, since it does not put strain on the starship or demand goods in return. There is a certain uncertainty in using up resources that have not been studied in the long run. Tricorders (super-powered pocket computers) can only tell the landing party so much about the plants and animals that they encounter *(Erdmann & Block, 2008, p. 22)*. The thing with encountering alien life (plants, animals, humanoids) is that away from Earth, the science can be drastically different. If the procedures were carried out in order to study the flora and fauna of a planet that would possibly be uninhabited by humanoids, it would demand notably more resources.

Ethics & Diplomacy

TNG was the first series to have a crew member from a species with mind-reading capabilities on board. Deanna Troi was hired as a counsellor to the Enterprise crew, since as a hybrid she can actually sense what others are feeling *(Erdmann & Block, 2008. p. 61)*. Her mother belongs to a humanoid species called the Betazoids, who can actually become powerful telepaths through training (*Okuda & Mirek, 1994. p. 28*). Telepaths, or even hybrids, would be very useful as part of the landing party and in making First Contact with new species (discussed in more detail in the next segment). The makeup of the mind scape of alien life could be so different that it simply makes no sense, even to a telepath. Emotions might be universal, since at least all Earthlings experience them, no matter the established level of intelligence. *USS Voyager* took drastic measures in order to survive, but below we'll discuss the policies that Starfleet would have for utilising resources from M-class planets.

- **Hunting and fishing** should be strictly off-limits. Planets that have evolved wildlife usually have a ecological system in place, just like on Earth, that sustains itself. The mission to explore strange new worlds, and seek out new life and civilizations hardly includes the means of ending such life. Life on planets should be primarily studied, not annihilated. If killing alien lifeforms is allowed, it will quickly become a slippery slope (once shooting less-intelligent aliens in the face becomes accepted, how long will it take that humans become acceptable to murder for pleasure?).
- **Foraging for eggs** should be discouraged – it is directly comparable to intervening in breeding patterns that you do not know anything about.
- **Intelligence** should not be a factor when classifying and **respecting sentient life**, since Commander Riker expressed one of Starfleet's ideological guidelines as: "We believe everything in the universe has a right to exist".
    - Let's pretend intelligence could be used as an excuse to treat non-humanoid alien lifeforms differently; how would the crew know about the intelligence level of a species, after having just arrived? Should the relative factor be human intelligence and the ability to communicate with humans? Should tests be run? What kinds of tests? Is this really necessary from a survival viewpoint?
    - There are many instances in Star Trek where super-intelligent lifeforms have interacted with humans. These entities usually all have a superiority complex, which to me feels like an analogy to how humans see non-humans. A species called the Pandronians tend to see themselves as superior to humans due to their ability to split into various parts (*Erdmann & Block, 2008, p. 46)*. A species called

the *Q* are capable of manipulating time and space by will. This contributes to their belief that they have the right to do anything to lesser species *(Ruditis, 2013, p.55)*.

- **Plant life** (or rather, life that seems visually like flora) should be approached with caution. Scanners/tricorders should be able to pick up basic organic information for the ship's database without the need to take cuttings. The fear here isn't that plants would have feelings like something with an actual nervous system. There just really isn't a way to prepare to the endless ways a life form can have evolved on a distant planet. Once the non-sentience of an indigenous alien plant is confirmed, tests for usefulness in terms of nutrition or other use can be started. Perhaps seeds could be sampled for tests.
- The above can be also applied to apparent **fruit and nuts**.
- An M-Class planet has the basic needs for humanoid life to survive, so some **type of water** should be present. Filling up water reserves after examining the chemical makeup would be legitimate.

5.6 New Lifeforms – Making First Contact

First contact is a term referring to the first meeting of two (alien) cultures, usually before allyship with the United Federation of Planets is forged. When it takes place, planned or not, there are always protocols to be considered (*Okuda & Mirek, 1994, p. 102*). **The Prime Directive**, dissected at the terminology section, limits interaction and usually refers to first contact as an exchange between similarly intelligent, humanoid species who can communicate together by some means. The Universal Translator is capable of analysing patterns in language and "learning" a new language relatively quickly *(Erdmann & Block, 2008, p. 23)*. For self-defense, the "phasers" (essentially ray guns) that the crew uses in all series of Star Trek, can be set on stun to not do irreparable damage *(Erdmann & Block, 2008, p. 19)*. This segment of the thesis deals with how the customs of each party can warp the extraterrestrials' view on humanity. It is also an issue that we don't always respect the unknown as an equal entity.

Ethics & Diplomacy

Doctor McCoy brought up a good point in the first Star Trek feature-length movie *The Motion Picture*: "Why is any object we don't understand always a 'thing'?". It could be argued that in the TOS episode "The Devil in the Dark" exactly this happens. A mining colony has been harassed by an unidentifiable entity called the "Horta", and the Enterprise crew investigate. As the creature, humans at least think they can grasp at possible reasons for its behaviour. It could be territorial and dislike that the miners are in it's area. The creature might be an individual gone bad, or it might be in the habit of killing absolutely everything. The miners unanimously seem to agree that killing the being, ending its life, is the way to go. Because the Horta is so different, a slug-like beast, it seems like an easy thing to do.

Then Spock, the half-Vulcan, decides to attempt a mind-meld with the creature. A mind-meld is essentially an intimate form of connecting two minds, thinking the same thoughts and feeling the same feelings. Turns out that the Horta is a sentient, rational creature which was just trying to protect the silicon-based eggs from miners, who were destroying them. The rationality of the

creature made all the difference; suddenly killing it felt wrong. The claim that something has lesser rights than us simply for the reason that it doesn't look like us is completely false.

> *"[Star Trek implies that] our greatest humanity is to be found in our recognition of that same dignity in the stranger."*
>
> - McCormic "Final Frontier Covers Old Ground" (U.S. Catholic 61:3, 46-49)

Part of Star Trek's lore is that all humanoids have the same ancient ancestry; a species that visited different planets and spread their genes to them (*Bormanis, 1998, p. 195 & Erdmann & Block, 2008, p.67*). While this is the case, a relative ideology of **Us vs. Them** can be maintained as **Earthlings vs. non-Earthlings** (aliens). Weighing differences between species leads to a hierarchy which is based solely upon an arbitrary, made-up set of logic. If we say "they cannot communicate with us, solve mathematical problems, or paint masterpieces", a whole other ideology comes up: **Humanoids vs. Non-Humanoids** (animals). Humanity could also be seen as inferior in the eyes of beings who simply decide so based on their own set of logic: **Telepaths vs. Earthlings**.

"Earthlings cannot read minds, so we can enslave them."

When we have categories, it leads to a set of rules and a false sense of justification, e.g. "non-human animals don't have our language so we can eat them". In a situation where humans themselves can be deemed as inferior, as useless unless they are used as tools or objects, made-up words show that the structure can be adapted to anything as wanted. The intellectual framework that science fiction gives us provides us with a lot of fresh ways in which to think about our relationship with animals via handling communication with other species and other types of consciousness.

Animals do use communicative language and tools, but not similarly to us. They are just seen as lower in hierarchy so the acts they are subjected to do not feel horrible. When roles are reversed (aliens harvesting humans), similarities come up more easily. If animals started suddenly talking in a way accessible to us, that would be enough to shift the perspective.

The significant encounters in different Star Trek series seem to revolve around highly intelligent humanoids. If The Prime Directive commands that First Contact not be made before the society evolves warp technology, this is understandable. But even in this case, the attitudes we have on other species that we already know will reflect upon the attitudes that our new alien ally will have about us. If the crew meets an intelligent alien race that shares e.g. features with the birds of our Planet Earth, what would they think of us when they found out we mutilate, torture, slaughter and eat similar-looking beings back home? What if we ran into a more intelligent race that just so happens to farm humanoids like us and treat them like factory farmed animals for pleasure. It might be the best bet of Starfleet personnel to live a plant-based life on exploration journeys in order to no promote any questionable, primitive traditions.

6 PROCESS: VEGAN TREK

6.1 Planning the Setting, Characters and Style

The brainstorming process happened simultaneously with my research. While I read up on Star Trek trivia, encyclopedia facts, episode synopses, and watched the episodes I got ideas of how to turn the displayed ideas into punch lines. Mostly the presented points and events triggered an opinionated thought process in me, and thus a need to respond to ethical plot holes. Internet articles on the subject of Star Trek and veganism inspired me as well. The same happened when I researched facts about a plant-based diet and veganism – the arguments on their own shaped some of the ideas for the comics. Most themes for the comic strip plots are elaborated upon in the previous chapter, titled “Plant-Based Space Exploration”.

The theme lends itself to many kinds of interpretations. It all came together quite organically as I wrote treatments and scripts. The comedy type is punching up, since we still live in a carnist society. Placing the characters in a plant-based environment (where killing and eating other living beings is stigmatized) causes a role reversal. The crew became quite snarky, especially the half-human Neo, who nags the only behavioural/ideological omnivore quite a bit.

With the main characters being in space, in a vessel, it was easier to set rules based on resources, and then imagine what would be a feasible way to handle food production. Science fiction offers many possibilities to the way that society might have become in three decades, so there was a lot of space (no pun intended) for creativity. I made the feel, used terminology, the premise and the references point straight to the comic being a spin-off of Star Trek, although no references are made to specific characters that we see in the actual series, and Starfleet per se doesn’t exist.

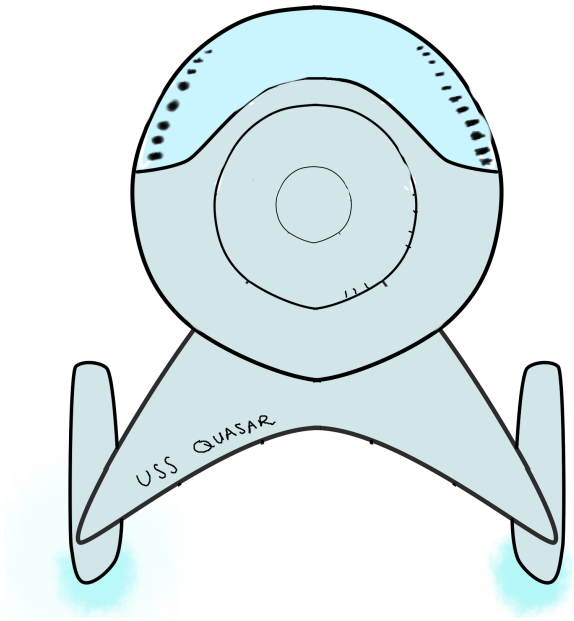
At first the idea was to make a series of comic strips about random crew members, basically anonymous and throwaway. This would allow me to explore a wide range of issues and situations. For example, if an outcome of one comic strip is that the crew gets taken hostage by an alien culture, killed and eaten, I still need to set another scene for the next comic strip. The next one might make them become slaves to intelligent pigs; and I still need to continue. As I came up with treatments for the scripts, reoccurring characters popped up and settled into certain roles or attitudes. The main characters of the strip comic series then started to take shape. I still decided I could make some individual strips end in any way, while others would have more of a continuity to them.

6.2 Setting

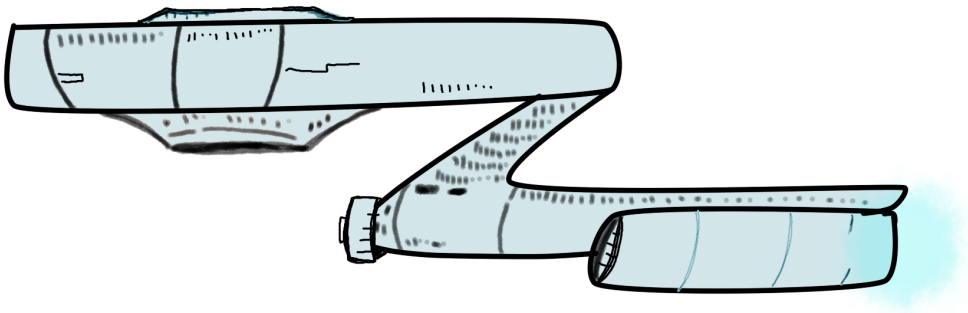
The comic is set in a utopian future, some 300 years from the present. Planet Earth has a reached a relative calm after a history of death due to starvation, waves of wildlife extinction, environmental pollution and the subsequent wars for water resources. Human rights reached a new level when the need to survive became priority. Governments started to subsidise all sectors of food production equally, and enslaving animals for food purposes rippled towards an

end. The event had been just a matter of time, as non-human animal rights had already taken to the rise among people. When humanity was contacted by an alien race for the first time, an enlightenment happened. It became consensus that the murder or non-humans is just as bad as the murder of fellow humans. A unit called the “Interstellar Explorations” launched its space program to explore new star systems, meet other species, and possibly terraform planets for colonisation purposes.

The characters we follow are the crew of the *Starship Quasar*, a vessel designed to host about 400 people. Multiple decks are designated to crew quarters, there is an extensive engine room and fuel reserves, recreational spaces and weaponry. The architecture of the ship is similar to that of a Starfleet vessel, including appointed spaces for all necessities; a bridge, science labs, life support, crew quarters, Sickbay, transporter room, briefing room, computer core, impulse engines, recreational deck (fitness), holodeck, laundry, freight and cargo, phaser controls, observation deck, engineering support, water storage, deuterium fuel storage, power distribution, main Engineering, hangar, shuttlecraft maintenance, cargo bays, antimatter storage pods, photon torpedo lauchers, hydroponics-airponics bay and botanical section *(Okuda & Mirek, 1994, p. 91)*.



Starship Quasar as seen from above



Starship Quasar as seen from the side

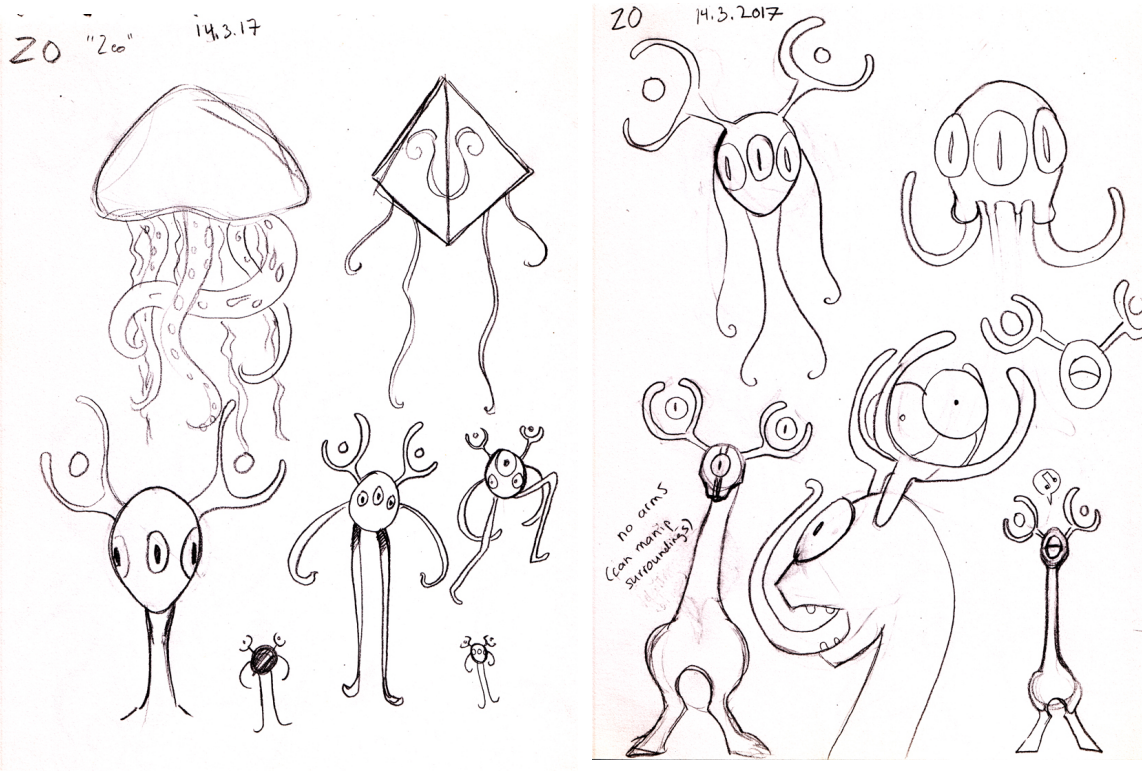
The Bridge is the location with most of the action, and the main characters' posts are there as well. Engineering personnel shows up when events take place in the Transporter room or Engine Room. Some events are set in the Mess Hall (dining space) and the Hydroponics-Airponics Bay. Both are significant places on board due to the comic's theme, and they are under much discussion in the comics.The Hydroponics-Airponics Bay of course provides the crew with nutrition through accelerated growth and highly-engineered surroundings, and Replicator use is mostly shown in the Mess Hall, even though each crew member's quarters is equipped with one.

Like in Star Trek, this comic also utilises different "Quadrants" of space. These sectors are named due to their distance away from Earth: *Alpha, Beta, Gamma, Delta.* The explorationQua vessels usually navigate the Alpha and Beta sectors, but an exception can take place if permanent worm holes (shortcuts in space) are found. The premise of the comic: the Quasar Crew gets stranded in the Gamma sector as a result of an angry omnipotent cloud-like being. Additionally, an individual (Quill) appears among the futuristic crew. The conflict of ideologies and the shortage of resources gives a perfect stage where ethics of resource management is thrown into discourse.

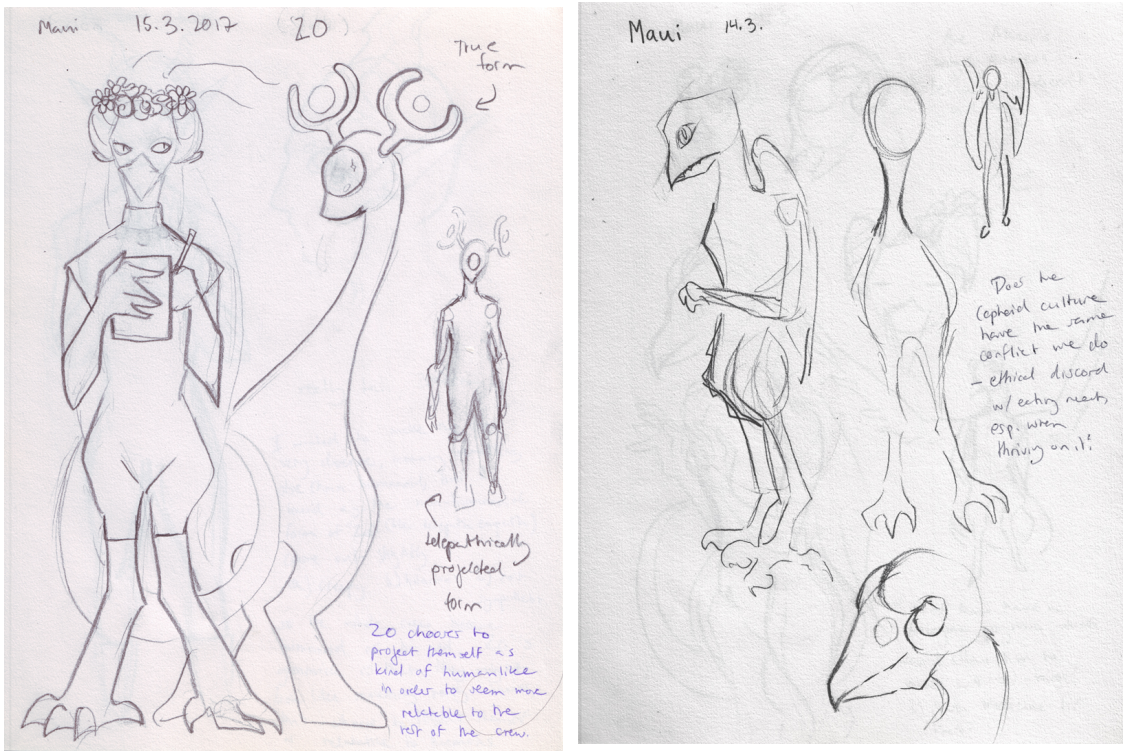
6.3 Characters: The Crew

The creation of the characters had three major steps. First I created a crew based on the Starfleet ideals of diplomacy and making first contact, exchanging information and integrating with alien species. I wanted to have variation within the characters; the main characters of the Bridge crew would vary in species, identity expression and of course ethics and diet. An omnivorous human captain would represent Earth, and provoke the others into ethical discourse with her rather primitive views. An ethically vegan humanoid Science Officer would have know-how about both alien and human technologies. A medusa-like telepathic Communications Officer could hear other beings' thoughts. A bird-like pilot, who's lived by the rules of aerodynamics all his life, would be perfect. A hybrid child of an interspecies couple who worked on a cargo ship would be the navigator. I might have gone overboard when making the chief engineer a cyborg, but who would be more iconic for the job? The comic is supposed to borderline satire.

The I begun to draw the characters. One aspect that really changed was the physical diversity of the crew.The less-than-humanoid characters were hard to relate to than the rest. ZO came out as too humorous, creepy or non-relatable, so I gave them the ability to project themselves as having four limbs, but just one eye and a set of antennae. The bird-pilot Maui looks most out of place, but he still resembles a gryphon, which might be familiar enough for the reader. The challenge was to make everyone different enough, but not too out-of-place.



There was constantly a conflict in my head about the Captain's attitude not being fit for the role on the ship. The mental atmosphere I wanted Earth to have became much more animal friendly and utopian. The Captain could not be "The Carnist" and the crew needed to be plant-based, with some ethical vegans. The idea of a time traveller came up, and this basically solved all my problems. An omniscient, omnipotent arrogant alien entity would want to teach the crew a lesson. A 21st century human (Quill) would act as the audience's eyes and simultaneously stir up conflict within the crew.



Early character drafts

Rei Artemis

Role: Captain

Species: Human

Gender: Female

Age: 30 years, seems like 30 years

Height: 165 cm

Place of Birth: Planet Earth

Philosophy/Ethics: Agnostic, optimistic, open-minded, plant-based, humanitarian, opportunistic

Bio: A strategically and tactically gifted captain, who sometimes cuts corners with rules and gives in to her more impulsive urges. Starts some conflicts by not viewing new lifeforms and politics in the same way as her Science and Communications Officers. Graduated top of her class at the Intergalactic Explorations Institute. Would go down with the ship.

Seen/Known as: The leader, ambitious, always has objectives in check

Erion Nyoti

Role: Science Officer/First Officer

Species: Crearian (Humanoid)

Gender: Genderfluid

Age: 100 years, seems like 40 years

Height: 190 cm + horns

Place of Birth: Planet Lithios VII

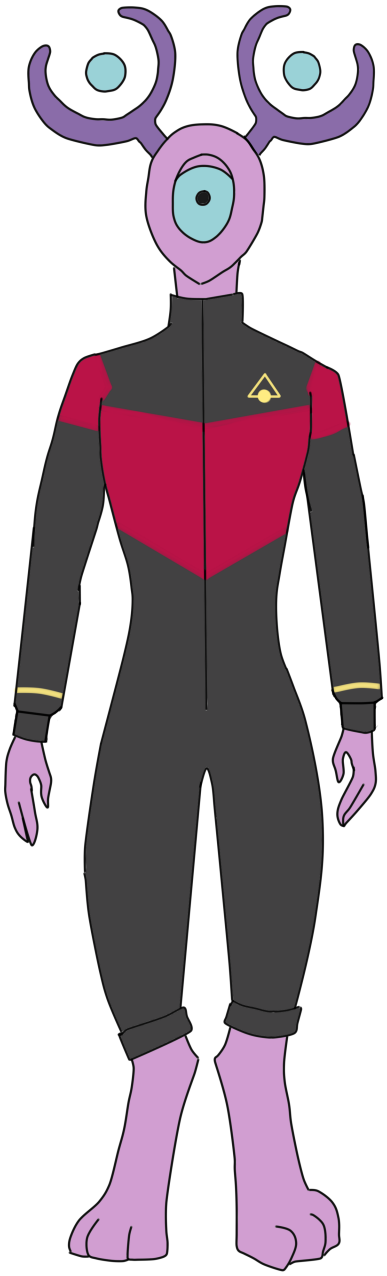
Philosophy/Ethics: Atheist, ethical vegan, pacifist, sceptical, logic-first, science-driven

Bio: The Crearian culture holds scientific advancement and logic at the highest degree. Questions of gender identity, age and class are secondary and have never affected e.g. legislation. Ranking someone by the aforementioned

characteristics is seen similar to racism. Everything exists on a spectrum, and the culture holds this as advantageous. Erion is the trusted officer and old friend of the Captain and does not hesitate to offer unwanted consultation. Erion is punctual and precise and expects nothing less from others.

Seen/Known as: The humourless one, the logical scientist, the Captain's right hand

ZO "Zeo"



Role: Communications Officer

Species: Yasxian

Gender: Genderless

Age: unknown, seems like 20 years

Height: 190 cm + horns

Place of Birth: Planet Yasxia

Philosophy/Ethics: Agnostic, open-minded, ethical vegan, philosophical

Bio: A multi-linguist graduate – Intergalactic Explorations is diligent about qualifications. Yet, language means little when this Yasxian is a telepath, capable of reading minds and feeling feelings inside a certain radius. This ability being inherent in the Yasxians, their race is culturally vegan and great diplomats. Going through a crippling depression is so normal in their development that everyone is required to take counselling at a certain age.

ZO's real form has a long neck, is bipedal and has no hands, but these creatures may manipulate their surroundings. ZO chooses to project themself as a more humanoid life form to fit in better with the crew.

Seen/Known as: The curious one, the telepath, the creepily cheery one, made of sass

Neo Malak

Role: Navigation / Weapons

Species: Human/Tokoan

Gender: FtM transgendered (male)

Age: 25, seems like 25

Height: 170 cm

Place of Birth: Cargo ship “Albedo”, Alpha Quadrant

Philosophy/Ethics: Nihilist-atheist, ethical militant vegan, sceptic

Bio: Neo was born on a cargo ship called Albedo, a child between a Tokoan mother and a Human father. Tokoans lay and hatch eggs, but hybrids are sterile. He primarily grew up on Planet Earth. Acts really cool and confident, throws jokes around to cover up his anxiety. Boasts and comes off snarky and loud to compensate for being rather small framed.

Seen/Known as: emo/aggressive, activist, self-confident, brave, sassy

Quill

Role: “Acting Ensign”

Species: Human

Gender: Male

Age: 30, seems like 30

Height: 180 cm

Place of Birth: Planet Earth

Philosophy/Ethics: Omnivore, carnist, agnostic, practical

Bio: Kind of the protagonist. Worked as an IT specialist on Earth in 2017, was transported through time and space aboard *Quasar* by an omnipotent entity.

Seen/Known as: “The Omnivore”, “Time Traveller”, “Newbie”, the controversial one

Maui

Role: Pilot

Species: Cepheidian (Bird-like anthro)

Gender: ”Male-3” (Cepheidians have 10 sexes)

Age: 20, seems like 40

Height: 195 cm

Place of Birth: Planet Cepheid

Philosophy/Ethics: ”The strongest survives”, lately turned plant-based, biologically carnivorous, spiritual

Bio: Maui comes from a species and culture of carnivorous birds. After his home planet was destroyed when he was a child, he applied to Intergalactic Explorations academy and graduated with Neo. Cepheidians age twice as fast as humans. Has nerves of steel on the wheel and separates his work self from his free-time self. Cepheids have integrated into other cultures and come to ponder: is it okay to eat meat, now that we have established the sentience of the victims?

Seen/Known as: The stoic and calm one, trustworthy

Zan

Role: Chief Engineer

Species: gynoid

Gender: sexless, appears feminine

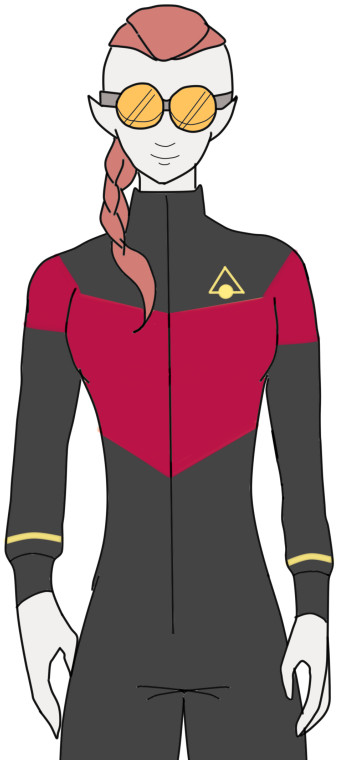
Age: 3 (functioning), seems like 30

Height: 180 cm

Place of Manufacturing: Planet Minia

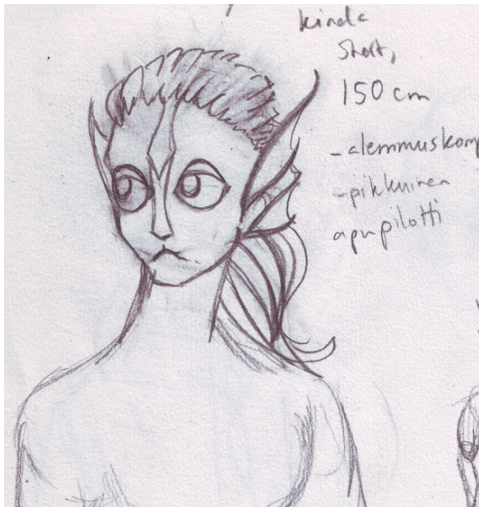
Philosophy/Ethics: open-minded, logical

Bio: This gynoid has been programmed with all the subroutines needed to work as the Chief



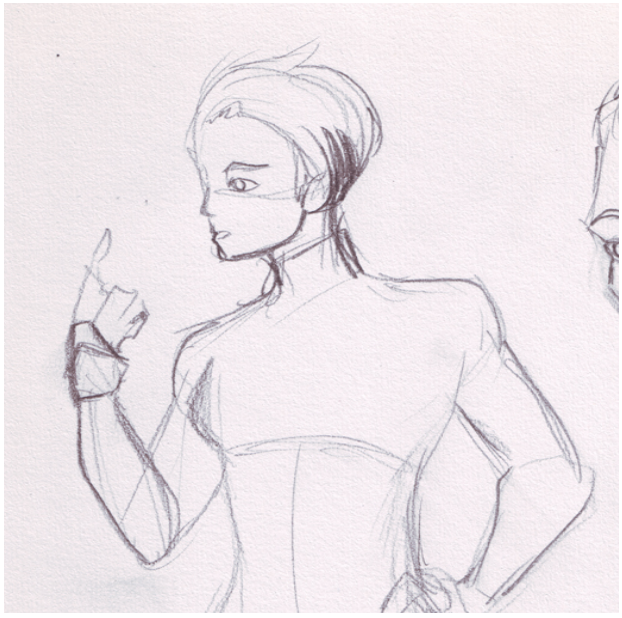
Engineer of Quasar. Their main goal is to learn more about humans and how to be human. Does not need sleep or food, functions on transporter energy and solar power. Was built on Minia, a planet that specializes in metal refining and artificial intelligence engineering.

Seen/Known as: The happy and sincere one, seems to never be in a bad mood, sometimes too straightforward and without tact



(Early Neo concept on the right)

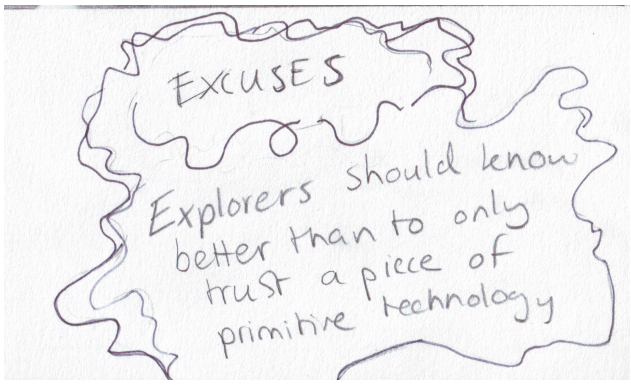
(Early Erion concept below) (Rei on the right)



6.4 Places & Aliens

Species: The Nebula

The omniscient, omnipotent and arrogant cloud-like entity that decides to tech the *Quasar* crew a lesson by swinging in a 21st century male. Nebula gets fed up of humans calculating the worthiness of other species based on human intelligence and hopes this will teach them a lesson



M-Class Planet: Gekkio VI

Species: Gekkians

Gekkio VI is an M-Class planet suitable for human habitation. It hosts green thick forests and a temperate climate that give the small planet its green features. The planet is home to many carbon-based lifeforms, e.g. Gekkians; they somewhat resemble Terran pigs. In the ENT episode “Rogue Planet” Reed takes part in a hunting ritual with the locals, and the hunting species claimed “sentience” as a variable that somehow made the ritual, traditional hunting right. However, non-sentinence only applies to plants, not animals. The Gekkians are a reverse flip on the situation; how is the assumed role changed once the the presumable prey is able to communicate with the visiting crew?

Species: Ackaians

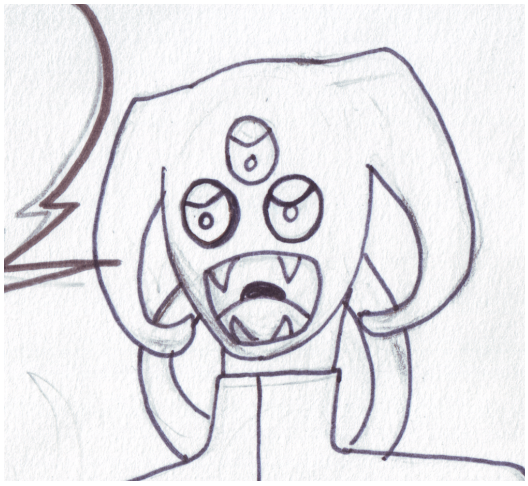
Ackaians are the apex hunters of deep space. They are ten times the size of average humans. Ackaians lure prey into nebulas with distress signals, then tractor them in, with their space ships and all. Everything and everyone is used for food and parts. They treat ships and their crews like primitive and useless lifeforms and refuse to understand their

sentience or ways of communication.They can just as well survive by using less violent means, and the Ambassador featured in the particular comic (“Don’t Judge, Part 2”) is attempting to bring this up. The inspiration for the species is the so-called Hirogen hunter race in Star Trek.

Species: Farla

Home-World: Bellataine V

Description: A race of aliens who still keep lesser species (relatively animals) as slaves and food. They appear in ”Translation error”.



6.5 Scripting

I started scripting by picking out ideas from my brainstorm pile which had morphed into a bunch of treatments. It was time to use that fuel to bring the characters to life. The crew would be living the plant-based lifestyle of Intergalactic Explorations. I utilised similar language, terminology, hierarchy and references as seen on Star Trek. Because I needed certain personalities for certain roles on the bridge, character dynamics started forming.

I had to ask myself; would this character act this way, and why is the character not interchangeable with another one. Scripting short comics was in it’s own way care-free. The story needed to span only a few panels and then the tension could reset. The strips could be episodic and form a bigger whole, but they needed to work on their own on some comedic level. I tried to keep this in mind while scripting, but also let myself jump into a totally new scenario if I was hitting a block. I picked out ones that would cover a range of subjects of plant-based space travel. These included the food-processing, resources, ethics and other technicalities.

During the scripting, I thought of adopting a new “point of view” policy. When the crew would be the oppressors, I use the Quasar crew, but when a space ship crew is the subject of the oppression, I’d use another anonymous space ship. But then I thought – the story doesn’t need to be linear, and there can be many timelines and alternative universes. The best option would be to make the crew relatable to the audience, and then put them in gruesome situations for the full impact of the event to hit the audience. Later on I needed to integrate the new character, Quill, into the story as I decided it would be the best way for the audience to relate to the setting. I scripted prequel strips to show how Quill arrives, and tried to make them also handle the wanted themes.

Scripts were developed far enough so I would know the punch line, the number of panels, the number of speech bubbles, the characters involved, and what they would say. The speech text would be filled in digitally, so there was still plenty of room to change sentence structures and words if needed. I scripted about 20 strips before starting to draft them, but I returned to scripting anytime I got a new idea during the rest of the process.

05 Broccoli talk part 2

1 - Quill runs to Erion and ZO with a sack.

Quill: Officers

Erion is confused, Neo sighs.

2 - Quill sets the bag down. Erion and ZO watch as Quill takes an alien out of the bag. The alien resembles Earth's pig species.
I would like to fill in my end of the deal now.

3 - Quill lifts the alien up.
quill I will eat you now. Your suffering and will to live mean less to me than my own taste buds.

4. Same panel, no one say anything.

5. Same panel. quill looks dumbfounded.
Alien replies, offended: excuse me, that's quite rude.

6 - Bonus panel: The crew is running back towards their ship while being plummeted with projectiles by the aliens.
Neo: A time and a place, ensign!

32 Dying

1 - Quill lying on the patient bed.

Medical hologram (Meri): Contrary to what you believe, you are not dying, Mr. Quill
Quill: You sure?

2 - Meri: I am the makeup of the information from 400 doctors of 30 different species and a sophisticated manipulative holographic technology, sweetheart.
Quill: …

3. Meri: I'm 100% sure you won't die without eating carcasses.
(Looks like your health has improved since you boarded.)

35 Eggs are gross

1 - Quill is eating eggs. Maui and Neo look sick to their stomachs

2 - Maui and Neo leave. Quill is puzzled.
Quill: What's wrong with them?

3 - Quill pushes the tray away from himself
Another crew member (whispers): They both hatched. So you know it's like consuming a uterus or a va -
Quill: Kay I'mmm done….

34 Abilities

Neo and Quill are finishing a quarrel.

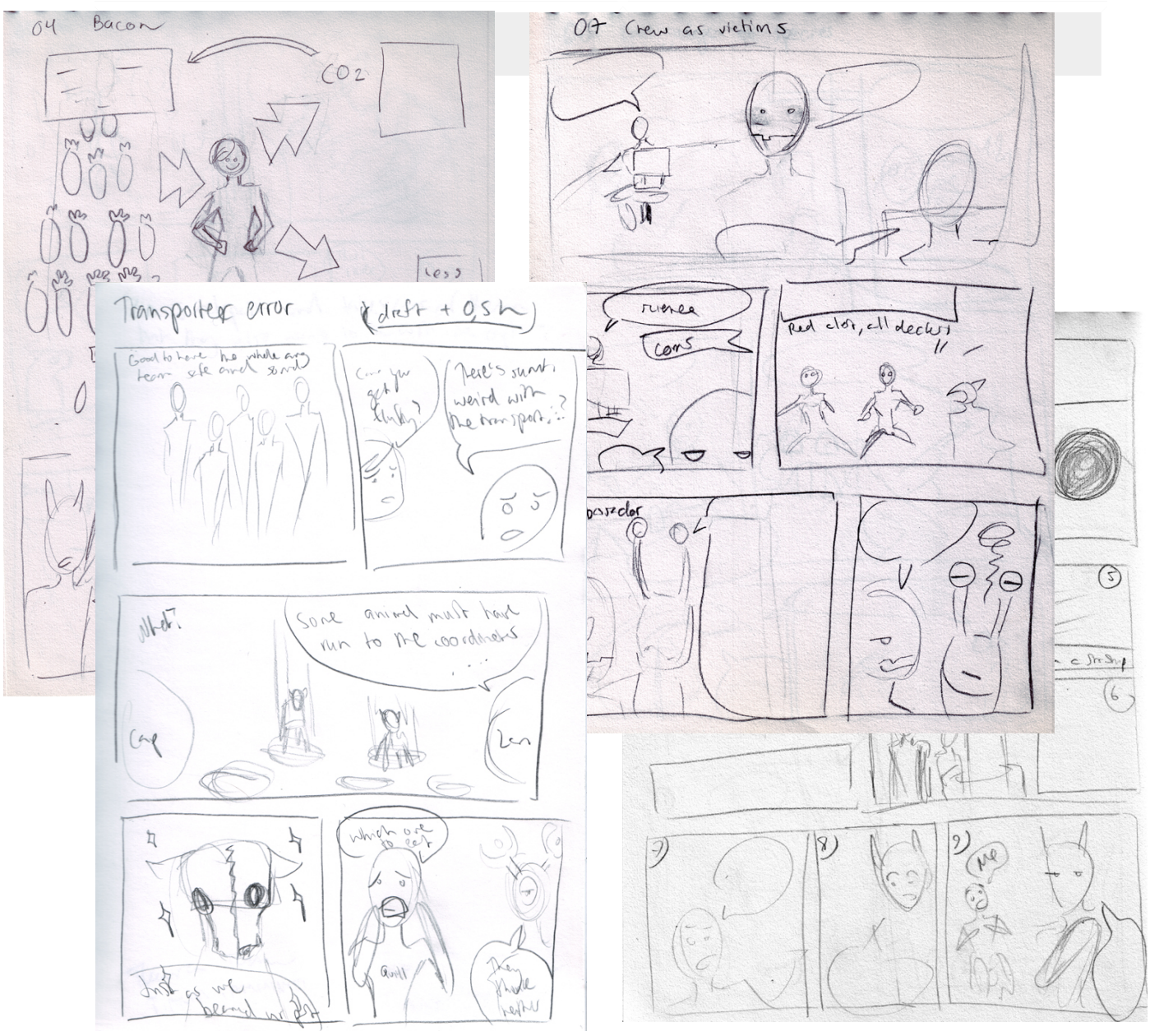
Quill: But animals don't make paintings.

Neo: Do you?

6.6 Drafting

The drafting process was probably the most relaxing part; making all the panels free hand, drawing messy characters and speech bubbles. My tools were A4 drawing paper, random pencils, ballpoint pens, ink pens and an eraser. Drawing sketchy characters and panel compositions with ink helped with creative expression, because there was little point of erasing anything anyway. I experimented with perspective and camera movement, so that I would have a solid foundation when I started drawing the actual panel lines onto the final format (A3).

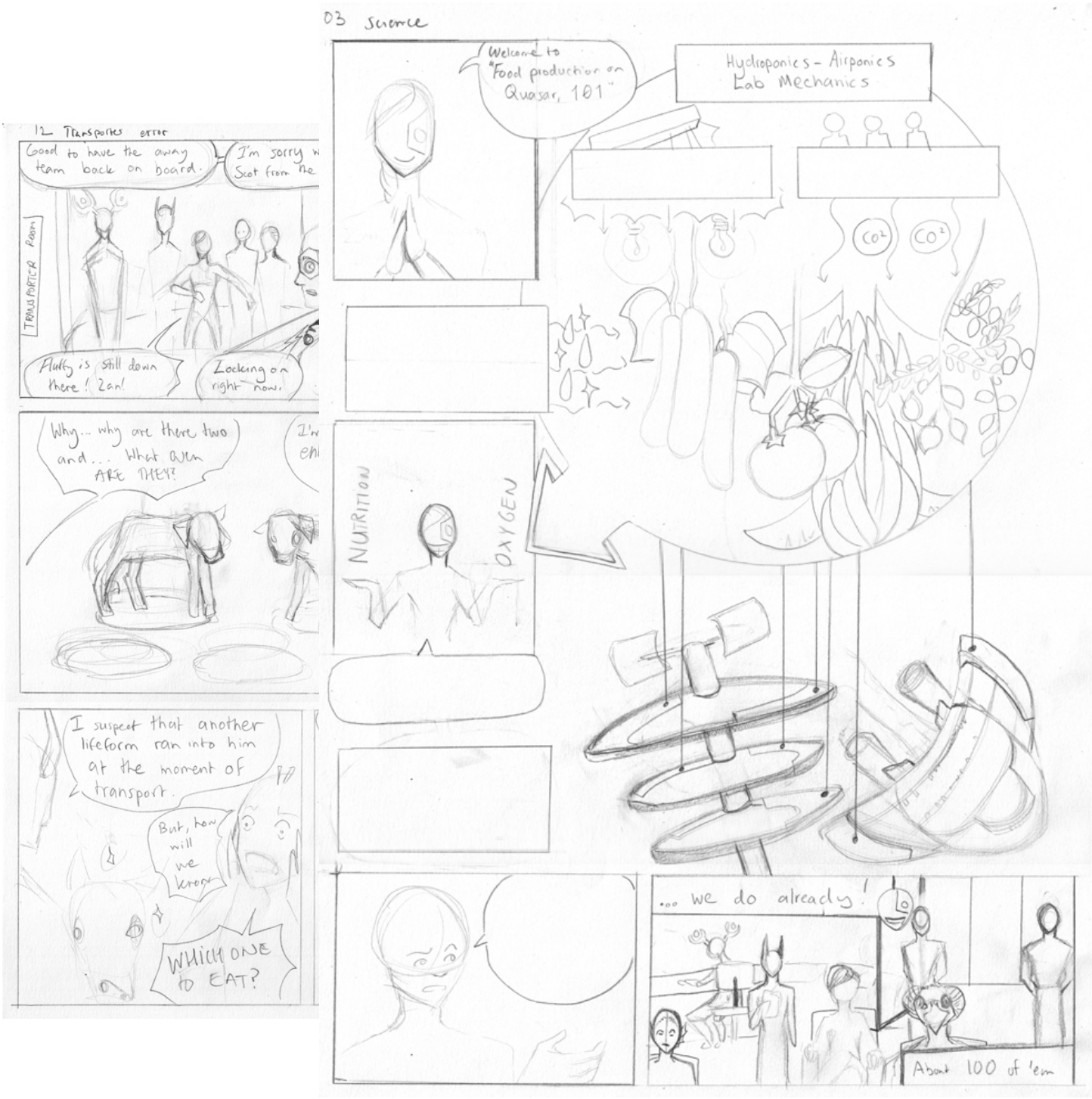
It was important to fit panels onto the page in a manner where the reading would flow naturally and the whole would be dynamic. Drafting on A4 also gave me a good impression of the final product, so nothing would be too small or big by accident. The final format would be shrunk into A4 to retain details. In most cases, the drafts influenced the original scripts as the action, cameras, and locations of speech bubbles found their more natural flow. Scripts still continued to be edited through this phase. The most drafts I drew for a single strip was two at any given time; the wanted feel was found fairly quickly.



6.7 Drawing and Inking

I divided drafts into piles of ten. Once ten had been completed, I prioritized them; the preferences had to do with joke quality and variety of themes. It was important to present at least a surface-deep look into the different aspects and dilemmas of the theme “veganism and space travel”. Time constraints always come up, so there had to be an order. The obvious starting point was when Quill joins the crew as a man-out-of-time, who could be the audience’s eyes. Next came all the tutorial-type comics where the basics of food production and ethics were explained in the context of space travel. After that it was simply a matter of subjective joke quality. While I was drawing, I was still scripting and drafting whenever a new idea came up. Instead of the process being perfectly linear, it became more of a controlled creative chaos. I had the table-based scripts in front of me at all times so I could keep track of the development of each idea carefully. I avoided blocks because I could execute multiple expressive methods at one time.

I did the final drawings and inks on A3-sized drawing paper (Canson 120g/m2), which offered the optimal thickness and smoothness for ink. I used basic HB pencils and 0.5 mechanical pencils for the initial drawings, panel lines and speech bubbles. Panel lines were kept straight with a rectangular graph ruler. The speech bubbles were left empty, except for ones that drastically changed from the existing scripts. I had to keep in mind that everything would be minimized to fit half the size, so it was okay if things in the foreground felt massive.



This first phase of drawing consisted of vague characters and backgrounds. After I had finished 15 pages, I started the second phase that of details and inks. I continued with the mechanical pencil. Ink pens that I used included a simple brush tip (speech bubbles, accents) and 0.4 and 0.3 ink pens for everything else. I worked one page at a time, so prioritizing was important again. I would add details in a third run for selected pages if necessary.


WE APOLOGISE!
Our scanners didn't pick you up at all—
EXCUSES
Explorers should know better than to only trust a piece of primitive technology
Our teleporter was preoccupied!
Hey—!
You claim to have evolved but your own intelligence is still the basis of life's wrath?
Captain, we are passing through some sort of temporal anomaly!
I'll remind you—
—of your own ignorance
Shields are failing!
Navigational systems are disoriented!
Reconfiguring
Oh, for...
RED ALERT
?!
Captain, the nebula disappeared!
Transporter room reports an intruder!
Mister, you have illegally transported onto our vessel, Explain yourself!
Where am I???
You are currently on the Starship "Quest" in the Alpha Quadrant of Space—
Ok... Uh... And what do you guys eat?
Odd question...
Plants...?
WHAT?!
NO
You're kidding!
plants can be scanned as ingredients in the same way.

6.8 Scanning, Editing & Text Input

Scanning the pages was tedious but relaxing – each were to be scanned in three parts and put together in Photoshop CS6, where all the cleaning up and editing happened as well. Cleaning up consisted of emptying speech bubbles (painting on an above layer), sharpening the overall contrast and removing any dirt. Text was input into speech bubbles with a dark grey hue on their respective layers and grouped together. After all this, I applied large background colours upon large surfaces if it helped the depth of the panel.

6.9 Designing Layout Chronology & Formatting

The chronology came together in the drawing and inking phases, because I had to prioritize the most important pages. It ultimately became a story of how Quill ends up on the *Quasar* and how everything goes from there. Of course subsequently he (and the audience) is introduced to the practicalities, ethics and benefits of exploring space with a plant-based system. Once the varieties of this lifestyle had been explained through (hopefully funny and insightful) strips the context started mattering less. The rest of the strips were ordered in a way that suited their panel composition on an A4 format. This meant that rather than having three panels on a page, I tried to combine two strips per page if possible, simply out of aesthetic and practical value. The chronologically first explanatory stories were mostly one-page long, so they didn't need much thought in this area.

7 CONCLUSION

7.1 Review of the Process

The thesis was, frankly, a controlled chaos from start to finish. There was never a point in which the process was linear, because even when I did the research I was jotting down punch line ideas and premises for the strips. Following the schedule felt impossible, and prioritizing didn't work – I spent way too much time on the background research. The finalized character outlooks came together very late, right before the second drawing phase. I bit off more than I could chew with the subject matter, but I still didn't give up.

Some aspects went better than expected. Integrating a new character (Quill) into the story was a surprisingly smooth process, although I had already written some scripts and drafts. The episodic nature of the pages meant that I could simply change the chronology and switch character roles around. I didn't stress about continuity, yet some type of continuity naturally formed. Even though I did everything simultaneously and it started to feel overwhelming, the ideas kept on coming and intertwining into each other. I have plenty of leftovers, so I had a chance to pick out the best ideas.

Next time I know to experiment more with the style beforehand, to make test pages, and more optional drafts. Only the fourth schedule that I made for myself worked in a way that motivated me, so I learned a time management style that works for me. I found an appropriate scripting and drafting flow and got into the groove of drawing the final comics easily. Prioritizing what pages to finish first worked well. Obviously I also learned more about the canon of Star Trek. I'm really happy with the subject matter and the type of expression which I chose, because they made the whole process more pleasant.

7.2 Review of the Product

I had a lot of trouble finding the style, and then finding it comfortable. The "camp" nature of Star Trek and the ridiculous, sometimes embarrassing humor made me feel like I was the only one laughing at my own jokes until I just didn't react to them anymore. When I showed the hand-drawn, unedited pages to a fellow vegan and Trek-fan, they at least chuckled at the punch lines. Positive feedback was also given about being able to summarize my points into a handful of panels. The concepts, of course, were familiar to that audience, so the reactions of people outside the vegan Trekkie bubble are still a mystery. I had made plans of distributing pages to carnist friends, who are not Star Trek fans, but time betrayed me.

Overall, I am very content with the outcome of the comic, and the episodic nature of it fortunately means that it doesn't need to be over yet. The premise and characters have reuse value and I did end up producing what I had originally envisioned. Granted, in a less voluminous extent, but as they say, "it can be fixed in post".

I grew attached to the characters and what they represent during the coerced process of having to flesh them out. As it often happens, they took on a life of their own and only really came to life during the drafting process. I really do see myself taking this concept further and drawing more adventures of these characters as they traverse deep space and argue about the fundamentals of speciesism, individual rights and ethics.

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