

Between science, science-fiction and COVID19 as a way to interpret the ontological realm of COVID19.

Humanity in the post-COVID19 and re-application of knowledge.

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Abstract

The current article is an attempt by the authors to present a bioethical case, or rather a search being undertaken to develop tools to interpret the novel ontological realm which has been created, and continues to be transformed in real time, by the COVID19 pandemic and its aftermath. The ontological realm is new, but the physical features of the world and the human in it are partially constants and identical to the previous realm parameters, the pre-COVID19 space-time. The question of existence in the new ontological realm is...how can the continuum of *Homo sapiens* and its existence be sustained in this new realm? The tools being developed use of previous information and knowledge of the members of *Homo sapiens* as a starting point and source of metaphors as tools to facilitate existence in the new realm. In this way, existing knowledge, which is held by individual members of *Homo sapiens*, and which exists and continues being created in the continuum of *Homo sapiens*, can be the foundation for the creation of new knowledge about the post-COVID19 realm and the individual and collective comprehension of humans of it and in it. Conceptual metaphors, the creation of compound metaphor and the prospective dialectic are suggested by authors as a possible epistemic implementation mechanisms in this context. The adaptation of humanity, its imagination and some professions are used to demonstrate the case for the 'new science of human existence' in the post-COVID19 world.

Keywords: compound metaphor; progressive dialectic; coronavirus

Introduction

The ongoing COVID19 pandemic has led to many changes in the functioning of human societies, the globe, and the overall characteristics of the existence of *Homo sapiens*. It cannot be said that some features of the coronavirus pandemic are new, rather some of the measures to curtail the spread of the COVID-19 virus have only been revived from the history of humanity. Examples include social distancing, which

played a critical role in the containment and management of the 1918 Spanish flu pandemic (Mineo, 2021) and the mask wearing which has in fact only 'spread across the globe' after being a standard measure in place during everyday life in Asian countries before the coronavirus pandemic (Jennings, 2020). Understanding the local cultural and social implications of these measures must be understood and must inform the implementation of these non-pharmaceutical measures to contain the COVID19 spread (Martinelli et al., 2021). One of the reasons could be the effects of these measures, which can be illustrated on the proxemics, or the study of the health and psychological effects of physical distance of a human being from the adjacent human beings (Szasz, 2020). During the COVID19 pandemic, social distancing of 2 to 3 metres from the neighbouring members of *Homo sapiens* places of the majority of the people a human being encounters on daily basis into the category of a stranger, as based on the notion of proxemics (Szasz, 2020). This isolation can lead to increased risk of death, e.g. by 29 % from "heart disease and depression", when compared to no separation from other members of *Homo sapiens* (Szasz, 2020). Even a hug at a proxemic distance of 0.5 m can be dangerous in the COVID19 space-time (Szasz, 2020). How does one deal with this conundrum and survive, how does one thrive in the ontological realm of human existence after the onset of COVID19?

There was experience and archival data from the Spanish flu of 1918 about the progression of the pandemic, its symptoms, etc. In 2017, a United Kingdom government report already predicted that a chance for a global influenza pandemic in the short-term was 1 in 2 (UK Government, 2017). Given the globalised and interconnected nature of the 21st century socio-ecological system(s), it could be expected that pandemic would have a wide range of impacts on the functioning of societies around the world and the complexity will be the result of the interconnected of the global human existence at present. There were also lessons learnt from the 2002-2003 SARS pandemic and the 2012 MERS pandemic (Yang et al., 2020). Nonetheless, the layperson was not used to it and members of *Homo sapiens* were not prepared nor used to work, live, and exist under the nature of the new reality...where the non-pharmaceutical measures and lockdowns limit their movement and everyday freedoms. One way to look at the reality is to look at abstract notions. An example of such as notion can be the metamorphosis of a human being into a new individual and a new level of existence. Practically, each human being needs to make it themselves and they could develop a metaphor which reflects the metamorphosis that a single human being must undergo, and which allows them to cope, adapt, learn, and exist in the COVID19 space-time. A human being could use a metaphor as a mental tool to deal with the new reality of challenging and potentially depressive/heart-disease risk proxemics. An example of a source of such metaphor can be sci-fi literatures and movies, e.g. the Star Trek Saga and more specifically the metamorphosis in the Transfiguration episode of one of the series (Gonzalez, 2017a). Two episode heroes from one planet, who interact with

the crew of the Starship Enterprise, are totally opposite each other in their approach to progress. One, whose name is John Doe, is found by the Enterprise crew and slowly regains his memories which move him towards transformation into the next stage of his humanoid species evolution (Gonzalez, 2017a). His opponent is Sunad, who is a representative of the government which is prosecuting and intending to kill John Doe (Gonzalez, 2017a). Sunad fears the transformation of John Doe's and thus progress. The episode revolves around a fight between the two heroes, namely Sunad and John Doe. The two characters are metaphors for how humans can find themselves in an unfamiliar setting, e.g. the COVID19 life of humanity. The Enterprise spaceship is a metaphor for this in the episode, and the two characters... Sunad and John Doe can be seen as metaphors for the two states of human existence, one before the onset of the COVID19 pandemic, and the second one for the new human after the implication of the pandemic started to impact human lives. The choice of elements is also strong in dealing with the transfiguration...as a metaphor for the pandemic transformation that humans should consider undergoing.

There are many more metaphors, which could be extracted from Star Trek and other sci-fi motion pictures. However, the point is that human imagination can create tools to deal with many philosophical, ontological, and scientific terms and notions. The last metaphor illustrates a mechanism by which a complicated shift in the fundamental nature of human existence could instill fear and excitement at the same time. Finding the balance between those two driving forces, fear and excitement, pain and pleasure might be difficult to find, and the process of finding it might be a difficult obstacle to overcome. Fear and excitement, pain and pleasure overwhelm human senses and the essence of one's actions, one could argue that this is the state of the utilitarian qubit (Iheanetu and Tandlich, 2022). The *utilitarian qubit* is defined in this context, "as a state of human existence where pain and pleasure are with each member of *Homo sapiens* at all times and it is uncertain to what extent pain, to what extent pleasure has a more pronounced influence on our status as individuals and as humanity (Iheanetu and Tandlich, 2022). The *utilitarian qubit* could be seen as a starting point of the human existence in the COVID19 pandemic space-time" (Iheanetu and Tandlich, 2022). To chart a way forward, humanity at individual and species level, at societal and community level must be able to find construct and mental tools to process the impacts of the COVID19 pandemic on the ontological realm of human existence. A metaphor and drawing on existing human experience can provide a way to facilitate human understanding of the situational reality of COVID19 and how this pandemic will, if at all, change the fundamental reality of human existence. One such tool is metaphors from various contexts of human knowledge and existence. The metaphor types, which will mostly apply here, are suggested in the next section of this article.

Overwhelming processes that take place in the COVID19 pandemic era can, sometimes and by some people...some members of *Homo sapiens*, only be grasped if they use a known entity to imagine and process the information from the coronavirus space-time...like the pharmacist using the indirect measurements to detect, examine and help treat heart pathophysiological conditions. This indirect detection and analysis might provide one avenue, while using a human imagination and the use of tools like metaphor can provide another (Pepper, 1982). Integration of the collective knowledge, perceptions, resources of the continuum of *Homo sapiens* across the COVID19 space-time will facilitate the identification of the best tools to deal with the disaster impacts and unit operations in the disaster management cycle of the coronavirus. The current article provides such a bioethical analysis and a minute contribution to the perceptions, resources of the continuum of *Homo sapiens* across the COVID19 space-time will facilitate the identification of the best tools to deal with the disaster impacts and unit operations in the disaster management cycle of the coronavirus.

Is there a correct metaphor or a correct type of metaphor for interpretation of the COVID19 space-time?

The COVID19 space-time and human existence in it are questioning the essence of who is in control of our reality and everyday activities during lockdowns and dealing with the coronavirus pandemic. Are limitations imposed on us? Are we still in charge of our existence or has something changed in our abilities to control and set, at least some of the boundaries of our existence, in comparison to before the pandemic onset? Is it possible for humanity to gauge the new reality and set, or rather understand and adapt to the parameters of it? One thing is for sure and that is the fact that humans have not entered in the COVID19 space-time without previous knowledge or without any understanding of the reality in which *Homo sapiens* exists. We have pre-existing knowledge which we need to use in the 'new normal' of the COVID19 space-time. However, it must be also stated that humanity needs to adapt this pre-existing knowledge, it is necessary to develop it further and to adapt to the new settings in the COVID19 continuum of *Homo sapiens*. This applies in both the knowledge and semiotic, as well as the physical, sense. There are many aspects that new knowledge needs to be developed for or grasped about but given the nature of SARS-CoV-2 as an infectious disease agent and so human wellness and health will play a critical role in the COVID19 space-time and the related continuum of *Homo sapiens*. Existing knowledge will have to be adapted to the 'new normal' of the COVID-19 space-time and the *Homo sapiens* continuum within it. In a sense, existing knowledge will be used as a source of information to create a metaphor that will serve as a yardstick for studying and living in the COVID-19 space-time. So, the question arises...what is a metaphor?

Pepper (1982, page 197) defines two types of metaphors, namely superficial metaphor, and the permeating metaphor. The first type is used to introduce a topic in a philosophical discussion, but later it disappears in the discourse which follows the introduction of such a metaphor. The second type of metaphor, which has a more lasting presence in the philosophical arguments and the discourse/discussion following the introduction of the metaphor, and this is the permeating metaphor (Pepper, 1982, page 197). Pepper (1982) continues to say that superficial metaphor is commonly found in the philosophical discourse when a new topic/phenomenon is initially presented and starts to be discussed in the field. That use of a metaphor is not going to constitute a deep representation of a metaphor. At the same time, the permeating metaphor is a recurring tool that binds an argument together, it is the thread that stitches an argument together, it is woven into the fabric of a philosophical essay, treatise, or an academic article that one writes (based on an interpretation of Pepper, 1982, page 197). What is the relevant of the metaphor in the current realm on human existence? Well, the COVID19 pandemic is underway globally. How is this going to unfold? The impacts of the pandemic will unfold on the individual and societal levels. Therefore a human being, and societies around the world, must imagine how to navigate the reality of their COVID19 existence and the post-COVID19 equivalent of it.

Dealing with the new post-COVID19 space-time in the personal and humanity's perspective, will require adaptation of the pre-COVID19 knowledge ontologically at the level of societies and individual humans alike. Reference points will have to be identified as starting points by each human and all of the humanity as well. Van der Waldt (2013) stated that the development of a new field, such as the human existence science in the ontological realm of the COVID19 pandemic space-time and beyond, are drawing on the knowledge from the reference disciplines, i.e. build on the knowledge body which has existed before the development of the new scientific field. Principles and practices from the reference disciplines, which are relevant to the new scientific field, are adopted and further developed in the scope of the new field (van der Walt, 2013). Next, research is conducted in the ontological realm of the new scientific discipline and serves as the source of new knowledge, new principles and methodologies, the new way of understanding of the new paradigm that the growing scientific field is interested in and aims to provide comprehension about (van der Walt, 2013). Finally, the new knowledge is shared through the education of new professionals, through communication of the knowledge generated and the methodologies that have been adopted in the course of the new scientific field development (van der Walt, 2013). So, how is metaphor linked to the COVID19 pandemic? Is there a new human scientific field developing here? It is posited here that it is based on the following reasoning.

Interpretation of the ontological realm of human existence in the COVID19 space-time requires metaphors, as the world after the onset of the COVID19 pandemic has entered

a new era, where the human existence and the overall functioning of the human society is redefined drastically. Human mind and society need a way to interpret, deal with and develop disaster risk management tools for the survival and existence beyond this ontological realm. A metaphor of the human existence from the pre-COVID19 space-time is a logical starting point for the humans to develop an understanding and science of existing in the COVID19 ontological realm. The metaphor will be a representation of the knowledge of humanity as a whole...of the continuum of *Homo sapiens* and of the individual members of humanity as a species. The metaphor will be a combination of the superficial metaphor and the permeating one in the creation of a new scientific field of human existence in the COVID19 space-time and its the post-pandemic analogue. In other words, the metaphor of the pre-COVID19 existence and its imposition to start developing of the understanding in the COVID19 and post-COVID19 space-time. The pre-COVID19 knowledge and views of the ontological realm of human existence, as based on the continuum of *Homo sapiens* and of the individual members of humanity as a species, can be the starting points and will likely be modified and can also be proven not to be applicable to the post-COVID19 space-time. The knowledge and the methods of the new science of the human existence in the ontological realm of the COVID19 and its aftermath will develop, be shared in the continuum of *Homo sapiens* and of the individual members of humanity as a species, it will be discussed, evaluated, and then will be continuously updated to allow for more optimised. In this way, the superficial metaphor from the pre-COVID19 life and scientific knowledge will be updated to create a permeating metaphor to ascertain the common human understanding of the new ontological realm (based on the interpretation of metaphors in the text by Pepper, 1982). Human experiences are multi-fold and therefore which experiences/metaphors should be used as the starting point of the development of the science of the human existence in the COVID19 pandemic and its aftermath?

The aim of the human existence is multi-fold, but one of its main aspects could be summarised, as the need to ensure the continuum of *Homo sapiens* in the COVID19 space-time and the post-COVID19 ontological realm. This will practically mean that humanity must be able to figure out a way to continue existing in a state of forward movement, always adapting to and dealing with the challenges and impacts of the coronavirus pandemic, its cascading effects and aftermath. The existing and relevant information about infectious diseases, the impacts of various versions of quarantine such as lockdowns/cordone sanitaires, economic disruption and the business continuity principles, etc. Overall, the metaphor to be used as the starting point in the development of the post-COVID19 existence of humanity will be linked to the development of knowledge on resilience and adaptation to the 'new normal' of the coronavirus existence of individual and the continuum of *Homo sapiens*. Thus the 'new science of human existence in the COVID19 ontological realm and its aftermath' will require the formation a world hypothesis, i.e. a hypothesis which will not be linked

to one academic field of human endeavour, but to all scientific and academic field... we are looking for a universal hypothesis of human existence (Pepper, 1982, page 198). Such a hypothesis should be centred around answering of the question: 'How should humanity adapt, how should it exist in a forward and better way in the space-time of increased uncertainty and new threat/limitation, which are placed on the continuum of *Homo sapiens*, at a moment's notice? How can the superficial metaphor that is pre-existing human knowledge and understanding of self, of the existence of *Homo sapiens* at the individual and at the species-level, to be transformed into a permeating and ever-evolving metaphor of humanity's going on and moving forward?

Pepper (1982) goes on to present the definition of a root metaphor, i.e. a metaphor humanity is familiar with, and which can then be redefined to fit the need of the new science of human existence in the COVID19 space-time and the post-COVID19 ontological realm, i.e. the root cause metaphor (Pepper, 1982, page 198-199). The search for such a metaphor will be starting point of the development of the new science of human existence. However, is the root metaphor not premature yet? Should we not take a step back first and start smaller, before getting the root of a new world hypothesis? Do we not need another type of metaphor? The conceptual metaphor theory has gained traction in various academic fields (Kövecses, 2017). Kövecses (2017) provides the following definition:

"A conceptual metaphor is understanding one domain of experience (that is typically abstract) in terms of another (that is typically concrete)".

The human knowledge from one domain and its application to another could represent the translation of the pre-COVID19 knowledge of humanity onto the existence throughout the coronavirus pandemic and its aftermath. Kövecses (2017) further discusses the consequence of the application of the conceptual metaphor in understanding the reality, namely

"A major consequence of the idea that metaphors are conceptual in nature, i.e., that we conceive of certain things in metaphorical ways, is that, since our conceptual system governs how we act in the world, we often act metaphorically".

Therefore the metaphor can be seen as building blocks of the human understanding of new reality in the COVID19 space-time and the post-coronavirus equivalent. The COVID19 space-time and its post-coronavirus equivalent constitute a new and at least partially unknown ontological realm for *Homo sapiens*. Through studying it, humans at the species and at individual level probe this realm, they gather data and adapt the pre-existing knowledge to the new ontological realm. In a way, navigating this new ontological realm is conceptualised according to the next quote from Kövecses (2017), namely

“When we conceptualize an intangible or less tangible domain metaphorically as, and from the perspective of, a more tangible domain, we create a certain metaphorical reality”.

This metaphorical reality is an overlap between an interpretation of the new ontological realm and the real nature of this COVID19 space-time and its post-coronavirus equivalent. The metaphor could be based on the similarity between the parent domain and the translational domain, more specifically a similarity in generic-level structure of both domains (Kövecses, 2017). This similarity would be the presence of many physical features of the space-time before and after the onset of the COVID19 pandemic, the same space-time is being transformed. By the same token, the members of *Homo sapiens*, at the species level and at the level of its individual members are also similar and actually common between the pre-COVID19 space-time, the ontological realm of the coronavirus pandemic and its post-coronavirus equivalent. This indicates that there is the pre-COVID, COVID19 and post-coronavirus space-time do have general-level structural commonalities. At the same time, the human perceptions about it can be seen as complying with the next statement of Kövecses (2017), namely

“The generic-level conceptual metaphor INTENSITY IS HEAT can then be regarded as grounded in a correlation in experience between a sensory-motor experience and an abstract subjective one. Conceptual metaphors of this kind are called “primary metaphors””.

Combinations of primary metaphors can lead to the creation of so-called compound metaphors, or integrated metaphor which members of *Homo sapiens*, at individual and species level, can use to gain understanding and develop a new science of the human existence in the COVID19 space-time and its post-coronavirus counterparts. The conceptual metaphor can be seen as the starting point of the human learning in the COVID19 space-time and its comprehension, adaptation and development of new mental states and the paradigm of human existence in it. Such a starting metaphor can be seen as being superficial and needs to be transformed throughout the human experience and study of the COVID19 space-time and its comprehension, adaptation to it. The starting and conceptual metaphor should be transformed from a superficial into a permeating one and it should become a part of the living experiences of each member of *Homo sapiens* and the continuum of *Homo sapiens*.

The starting metaphor

A starting metaphor will be influenced by personal choices, culture, and society where an individual resides or exists throughout the COVID19 space-time and beyond. A scientific metaphor, based on a simple scientific instrument...a three-beam scale, is used here to illustrate what a starting metaphor could look like. The three beam scale is a scientific instrument that can be used to measure mass of an object (University of

Hawaii, undated). Its operating principle is based on the presence of a weighing pan, to place the measured object on, on the left-hand side of the scale. There is a dial on the right-hand side of the three-beam scale. Finally, there are three runners or counterweights that slide on beam with notches between the pan and the dial. If the runners are all the way closest to the pan, then the scale is levelled, and no object is placed on the pan to weigh. In this case, the dial is at zero. When an object with a finite mass is placed on the pan on the right-hand side, then the dial moves down and drops to touch the metal body of the instrument. To determine the mass of the weighed object, the dial position at zero must be re-established. To achieve this, the runners are moved from left to right by anchoring them inside notches on the beams of the three-beam scale. First, the middle runner or the runner on the middle beam is moved from left to right until the dial moves up above the zero mark. Then the middle runner is moved one notch to the left. The runner at the back beam is moved next analogically until the dial is above zero and then one notch to the left. Finally, the front beam runner is moved until the dial is aligned with the zero position. The mass of the object is then added up by counting the notches on the central beam from left to right, giving multiples of 100 g increments. The process is then repeated for the back beam as multiples of 10 g and the front beam as multiples of 1g and 0.1 g. The total mass of the object is added by summing up the values, which corresponding to the notches each runner is at, from individual scale beams. The maximum mass, that can be measured using a three-beam scale, equals 600 g. How can a three-beam scale be used as a metaphor for the humanity's reality during the COVID19 pandemic?

When the COVID19 virus was declared a pandemic by the World Health Organisation (WHO) in March 2020, the humanity went into a shift in its everyday existence and the nature of human to human interactions. Cordone sanitaires were imposed on a large part of human population globally, along with other non-pharmaceutical interventions such as social distancing and wearing of cloth masks. On the three-beam scale, this pandemic impact can be equalled to placing a mass between 499 and 500 g on the pan of the scale. The dial drops and immediately touches the body of the scale below the zero mark. The middle runner must be pushed all the way to the far right, i.e. all the way to the last notch of 500 g. Then the dial rises above the zero mark. The middle runner is then pushed one notch to the left to 400 g, and the dial drops below zero again. The back runner is then pushed to the right until the dial starts rising towards the zero mark. However, it does not reach zero all the way. For reaching the zero mark, the front runner must be moved to the right to between 9 and 10 g marks. The zero mark is reached, and the exact mass of the object can be determined. The mass of 499 to 500 g being placed on the three-beam scale is equivalent to approximately 83 % of the total measuring range of the instrument. In the context of the COVID19 pandemic, the mass of 83 % of the three-beam scale measuring range can be used as a metaphor for the fact that the impact of the coronavirus came close to overwhelming the capacity of humanity to

function throughout or in spite of the pandemic. The movement of the middle runner to 500 g notch, or the maximum value of the middle beam, represents the speed and severity of the pandemic impact on human society. It also can be seen as a metaphor for the effort needed to stabilise the societies functioning during the pandemic, e.g. implementation of the non-pharmaceutical interventions during the first wave of the COVID19 pandemic and ever since to varying degree. The movement towards these measures was not easy, but they were easy to implement due to their fundamental simplicity and their use in previous epidemics such the 2013-2015/2014-2016 Ebola Virus Disease in West Africa, and the 1918 Spanish flu throughout the world. These measures, however, only bought time for further measures to kick in.

The back runner being moved, or smaller changes being done during stabilization of the human existence by non-pharmaceutical measures, was easier or movement of smaller mass as humanity bought itself time. The smaller mass was a metaphor for the rapid adaptation of certain platforms to develop vaccines against COVID19, the continuous gathering of data about the multitude of unending aspects of the symptomatology of coronavirus. The back runner being moved also represented the development and the start of administration of vaccines and drug candidates to treat the infection with SARS-CoV-2. The more minute changes needed to get the dial closer to zero and/or to the right position on the back runner indicate that it took a while longer, than the velocity of middle runner to get to the dial closer to zero on the right side if the three-beam scale. Finally, to get a perfect zero and/or to the right position the front runner must be moved slowly to achieve a perfectly levelled scale for accurate mass measurement. The exact number between 499 and 500 g must be known....in this metaphor reaching it represents humanity reaching a new normal, a state from which it can move forward with the situational reality beyond one man's lifetime. To achieve it, the correct position of the front runner is essential. It requires the fine tuning of the distribution of the vaccines against coronavirus across the globe, all human beings must get the necessary number of the correct vaccines. The economic inequality and unbalanced access/availability of resources must be eliminated across all economic strata and GPS coordinates.

Humanity as a whole has managed to move the middle and the back runners on the three-beam scale of its existence during the COVID19 space-time. Its survival is not immediately at stake, but the burden of the pandemic still continues to impact the existence of *Homo sapiens* at the individual level of a single human and at the level of members of the species, i.e. in the continuum of *Homo sapiens*. The three-beam scale analogy is a metaphor for the human existence in the coronavirus pandemic space-time and the basis for the redefinition of the human knowledge and approaches that humanity needs to be productive and to move forward in the COVID19 space-time. What is another way to create a metaphor to describe the COVID19

pandemic, the coinciding *utilitarian qubit* of human existence? How does this notion serve as vehicle for human comprehension of the COVID19 space-time and post-COVID19 counterpart? A next generation metaphor is listed in the next section as a way to re-imagine the COVID19 pandemic impacts. The starting metaphor provides a way to describe the way that the COVID19 is different from its pre-COVID19 equivalent. However, it also indicates that more study and information must be collected to understand the complexities of the post-COVID19 space-time. The next-generation metaphor, as the logical evolution in the development of the human understanding of the post-COVID19 space-time, should reflect this.

The next-generation metaphor

The personal nature of metaphor is going to play a role in the formation of knowledge, it will shape the nature of the attitudes, formation of new mental constructs and acceptance of equilibrium of societal knowledge in a 'new ontological realm', for example the COVID19 pandemic space-time and the aftermath of the pandemic. Humanity has just entered a new ontological realm...the nature of the space and time has been reshaped, rather continues to be re-moulded at speed of minute human experiences. Imagination and re-application/re-imagination knowledge and one's self will play a crucial role in finding solutions to the pandemic. An argument is made here that a combination of the abstract and real tangible way to interpret reality. Science and science-fiction are mixed in a time of COVID19...we use our knowledge from another ontological realm to examine a new realm. We are generating knowledge from new scientific discipline, i.e. existence in the realm of COVID19, through the *utilitarian qubit*. Science fiction can provide a way to find trans-national metaphor for COVID19. An example of Star Trek is provided below, as a basis for the next-generation metaphor of the coronavirus pandemic and the human existence in it.

A Star trek equivalent could be the episode of 'the Outcast' or episode 17 in season five of the Next Generation instalment of Star Trek (CBS Entertainment, 2021). Enterprise assists J'anii...a species of extra-terrestrials who only recognise one gender in all individuals of their species. The purpose of the Enterprise-J'anii interaction is to rescue several J'anii from a pocket of null space. It is a hypothetical form of space which immediately absorbs of all available energy from its vicinity. This makes extremely difficult to escape from the null space once humanoid beings such as J'anii are trapped inside. Riker from Enterprise and Soren, who is a J'anii, practise and run scenarios in the Enterprise's holodeck to figure out the best way to get into the null space, rescue the stranded J'anii scientists and get out. After multiple practical simulations and scenarios, Riker and Soren come up with a procedure to perform an extremely exact energy balance calculation, and mission scenario and get out everybody. The plan is successful and the J'anii scientists, Riker and Soren make it out via a transporter beam. Throughout the

episode Riker develops feelings for Soren, who identifies as a female and not through a gender less identity, that forms a fundamental part of the J'anii societal doctrine of an androgynous identity of each individual in the J'anii species. Soren is identified as a female and taken for medical treatment to remove traces of gender in them. Riker organises a rescue mission and gets to the J'anii homeworld. Once he finds Soren her treatment is over and any traces of the previous female identity, Riker's advances are rebuffed by Soren. Riker is forced to return to Enterprise after a failed rescue attempt. The 'Outcast' episode is a metaphor, but what for in relation to the COVID19 pandemic space-time?

It can be argued that three elements stand out. Firstly, the null space is a notion of a kernel in the real-world computer science. However, the null space in the 'Outcast' is a metaphor which needs to be seen from the position of the individuals that interact with null space, a space which is unknown and all-consuming. More specifically, the J'anii scientists, who are trapped on the null space, can be viewed as the individual members of *Homo sapiens*, who became trapped in the COVID19 space-time lockdown and non-pharmaceutical measures. The inability of the J'anii scientists to escape the null space on their own could be a metaphor for a single individual trapped at home during a COVID19 lockdown. They might get a feeling that nothing is possible to get out of the null space, a metaphor for the personal COVID19 pandemic space-time of one's existence. This is where the second metaphor comes in, namely Riker and Soren. They are the outside force who enters the null space and rescue the trapped scientists. They only manage to carry out the rescue mission after extensive planning and counting "every microjoule" of energy (CBS Entertainment, 2021). The Riker and Soren metaphor represents the outside assistance to the J'anii scientists trapped inside the null space...and the single individuals or families, who are trapped inside the COVID19 space-time of a lockdown or non-pharmaceutical interventions of the COVID19 containment. In the real world, the outside assistance would be synonymous with the government assistance with salary shortfalls, etc...during the COVID19 pandemic. In addition, the outside assistance of Riker and Soren would be scientists, who developed the COVID19 vaccines and now the first drug candidates against COVID19...such as molnupiravir and remdesivir. Third and final application of the Riker and Soren metaphor to COVID19 would be the burden in places on society. The Riker and Soren metaphor, namely the part where they attempt the designed an extraction of the J'anii scientists trapped inside in null space, is analogical to the 499-500 g metaphor on a three-beam scale....in other words, the need to demonstrate the rescue mission scenario can be used as a metaphor for the complex nature of the humanity existence in the COVID19 space-time and going forward after it. The planning of the rescue attempt of the J'anii scientists is a metaphor, in the understanding based on the reasoning so far and in the context of the COVID19 pandemic, for the scientists to apply their knowledge and capabilities from before the coronavirus pandemic, to

deal with the pandemic impacts on members of *Homo sapiens*, as a species and as individuals.

The rescue attempt is a transcended representation of the need to solve complicated problem in the space-time of one's human existence and the existence of other members of *Homo sapiens* shared the space-time with. The interests of such different individuals can overlap in the most primal plain....in terms of survival, i.e. survival of the trapped J'anii scientists from the null space. At the same, the discovery of the null space is a unique scientific discovery, as stated by Data at the beginning of the 'Outcast' episode (CBS Entertainment, 2021). COVID19 is a survival moment for humanity, and it poses complex challenges, on the societal and scientific front, to ensure survival. Thus the null space metaphor is justified. At the same time, the androgynous nature of the J'anii society, the forced treatment of Soren after the rescue attempt is a metaphor for rigid societal norms...no one, not even an elite scientist is spared the rigidity. The inflexibility of the J'anii government leaders and the loss of Soren's gender identity poses a question whether Riker should intervene to challenge the norms of a society, he is not part of? There are challenges and different societal norms that humanity is facing daily, before, during and after the coronavirus pandemic. Once the pandemic is over, just like the rescue attempt of the J'anii scientists, there will still be challenges each society on Earth will have to face, just like Riker had with the medical treatment of Soren after the successful rescue.

The way that humanity chooses to exit the null space, a metaphor for the COVID19 space-time, and face global problems and injustices that COVID19 has exacerbated will define the future of *Homo sapiens* and its continuum. The Star Trek continuum, or the set of Star Trek series and movies, provides multiple metaphors to look at the exit from the null space of COVID19. It could be the alliance between the United Federation of Planets and the Klingon Empire, as a stabilisation of the Alpha and Beta Quadrants. This would mean a metaphor and suggest a collaborative way for the continuum of *Homo sapiens* to exist in the post-COVID19 space-time by addressing previous imbalances between for example the Global North and Global South. The new collaborative relationship should not be seen as end to a war, but rather as shaping a new ontological realm where progressive dialectic drives human endeavour (Gonzalez, 2017b). In other words, science, reason, and quest for personal improvement...outside of primary economic drivers could be a realisation of such a metaphor. This implies that humanity could use the fundamental shift in the equality in geographic terms and in terms equality of opportunity throughout the continuum of *Homo sapiens*. Humanity needs to pay homage to itself for past transgressions and mistakes, acknowledge them and find a way to right the wrongs. Star Trek provides a metaphor for this through the leader of the Dominion taking responsibility for the Alpha-Gamma quadrant war in Deep Space Nine. At the same time, a new era starts when Odo, a shape-shifter,

who was not part of the Dominion, travels to the Dominion homeworld to take over the leadership of the shape-shifter continuum, to start a new era in the Dominion existence...one of cooperation and productive exchange with other nations in the Alpha and Gamma Quadrants and beyond (see <https://intl.startrek.com/> for the details on all episode details from this paragraph). Pre-COVID19 world had inequalities and these have been highlighted in some instances during the COVID19 pandemic. For example, the unequal access to vaccines in the Global South. At the same time, the individual human beings were faced with personal challenges and circumstances. These are part of the human experience in the post-COVID19 space-time, but also form the basis for reshaping one's existence to fit the new circumstances. The society and the individual humans must work together to reshape the post-COVID19, while taking the pre- and post-COVID19 challenges/transformations into account. This is of fundamental importance, so that humans can work towards realising the metaphors of themselves in the post-COVID19 human ontological realm.

What is the right metaphor?

So, is science fiction or the three-beam scale metaphor a justified way to imagine or to provide a guiding imagination, interpretation of the COVID19 space-time for individual humans or the continuum of *Homo sapiens*? Is this section misplaced here or a way to start the development of new science on the foundation of existing human knowledge and the collective perception of the continuum *Homo sapiens*? Pain and pleasure, the existence in the form of *utilitarian qubit* is a function of the immediate impacts of the COVID19 pandemic, i.e. the disaster perturbations case by the coronavirus (Iheanetu and Tandlich, 2022). At the same time, the *utilitarian qubit* is an outcome of the way that human society and the continuum of *Homo sapiens* got to the point of the onset of the COVID19 pandemic. The solutions to the impact of the pandemic cannot just follow the utopian principles of progressive dialectic of Star Trek. However, the shift in the nature of the way that whole of humanity exists, practices the new science of its existence in the COVID19 pandemic space-time, in the new post-COVID19 ontological realm. The three-beam scale metaphor indicates the size of the impact, and it could be argued that the re-balancing of society and undoing of the impacts in an equitable fashion would allow for the recovery of all of humanity and more balanced/just existence going forward. If the COVID19 pandemic is used to reset the balance of power and the resources, e.g. vaccines and the manufacturing capacity of it, across the globe could be used to achieve the situational reality, where the impacts of the next pandemic would only result in the disruption to the human existence and the continuum of *Homo sapiens*, would only require the shifts of the front runner.

The lived experiences of the continuum of *Homo sapiens*, biomedical knowledge of the scientific community and other necessary knowledge, which relates to the COVID19

pandemic, need to be merged into a living and permeating metaphor. This will be a living and ever-evolving permeating metaphor which will summarise the cumulative and collective knowledge of humanity and would be an element of the new science of human existence in the post-COVID19 space-time. Thus the metaphors would be a way to integrate and apply the pre-COVID19 knowledge in the post-COVID19 space-time. The metaphor would be permeating, compound and also be at the border between the lived experiences of the continuum of *Homo sapiens*, scientific discoveries and the ever-evolving knowledge in the science of human existence in the post-COVID19 realm. It would help humanity to deal with the *utilitarian qubit* of COVID19 by facilitating the comprehension of the situational reality of the post-COVID19 space-time. The coexistence of the virus, namely SARS-CoV-2, and the humanity, the very nature of reality and the nature of reality and possible links to the human actions, as well as the created burdens humanity had created and continues to suffer from, must be considered in the way forward.

The ongoing pandemic of the coronavirus has exposed major disaster gaps in preparedness, public awareness, early warning systems, existing burdens on the environment and human history. There have been pandemics, actually one could argue that various concurrent pandemics are unfolding as we speak such as HIV/AIDS. However, the COVID19 one has caused more disruptions to the life of a single human being and humanity as a species, than any other pandemic since the 1918 Spanish flu. Understanding pandemic, what caused it, how it affected humanity will take a long time for the complete picture to present itself. A change in the thinking, in the use of resources and the re-imagining of human existence will be required. Human wellbeing is redefined on a daily basis during the COVID19 pandemic, in a way one could say metaphors are thrown around between the pre-COVID19 knowledge humanity possessed and in-COVID19 space-time and the post-COVID19 existence. The integration of the knowledge and the metaphor that can be used will be demonstrated on the education and the professional knowledge application of a pharmacist before, during and after the COVID19 pandemic.

Healthcare professionals and humanity at large have had to rethink what it means to be a professional, how to use their knowledge and how to improve patients' quality of life. Let's use an example of a pharmacist's development of anatomy understanding here and this will be the education of pharmacists about the essence of human anatomy. Anatomy and physiology are critical basic sciences in the development of the ability of the pharmacists to carry their professional mandate as custodians of medicines or 'guardian of safe medicine use' (Vaillancourt, 2014). Pharmacists are the quality control link between the prescriber such a medical doctor or a nurse, and the patient, i.e. "pharmacy services required to provide pharmaceutical care should include timely and accurate drug distribution, timely and complete patient data,

comprehensive and current drug information, and documentation of pharmacists' decisions and interventions" (Vaillancourt, 2014).

In order for this mandate to be carried out correctly, the pharmacist must understand the anatomy and physiology of the human body. One of the main systems in the human body is the cardio-vascular system and so the future and practising pharmacists must learn, understand, and continuously update the vocabulary and recent findings about the cardio-vascular system. Pharmacists must understand and know how medicines affect the cardio-vascular system, even if the site of the pharmacological effect is invisible to them and they must imagine it, i.e. the pharmacy students must in a way picture a heart and imagine how the drugs would affect it. A metaphor of sort is used here to gain understanding of human anatomy. Therefore, the pharmacy students take a course on anatomy and physiology in their undergraduate studies (Finn et al., 2018). As health is a holistic term describing the overall well-being, teaching about heart function must be based on the communication of anatomy of the heart, the cultural perception of the heart function and the role of the heart in the culture of the patients that the pharmacist will help treat. Thus the instruction about cardio-vascular system should be based on the introduction to anatomy of heart and its biological function, as well on space being provided to the students to describe the cultural background about how they view the heart in the body, to stimulate the student visualization of the heart function at the interface of the science and the cultural role of the heart. In this way, existing perception and understanding of the heart and cardio-vascular system function can be built on at the beginning of the teaching process. However, it is still difficult to imagine a beating heart as a living organ, not unless one uses a simulator of a heart, 3D prints or uses another source of knowledge to create a metaphor for it...no comprehension will be complete until the existing way imagine a heart is transformed into a new understanding of an imaginary object...the living and beating heart. Is there another way to work with a heart or confirm its presence?

One could measure the presence of the heart by using the knowledge of the vascular system and find pressure points on the human skin, which allow one to measure a pulse. In addition, to visualisation of the heart can be accomplished by measuring the blood pressure using a sphygmomanometer, i.e. the machine which measure blood pressure. To teach a pharmacist or pharmacy students to measure blood pressure of a patient, is a skill that boils down to the transmissionist demonstration on how to operate a sphygmomanometer. This is a simple exercise, and the aim is to get the students to ask a patient to roll up their sleeve, then to wrap the tourniquet around the non-dominant arm, the turn a knob and pump the tourniquet. Then the pharmacy student, who carries out blood pressure measurement, is shown how to actually take a blood pressure reading. For this, they are shown that a stethoscope is pressed against the tourniquet on the patients arm and the knob on the sphygmomanometer

is used to release the pressure. The student, who is being trained to measure the blood pressure, is then shown to listen with a stethoscope to two pings in the patient's arm. These pings represent the diastolic and systolic pressures. This measurement of the patient's blood pressure is a skill which can be demonstrated by a competent instructor to a pharmacy student. There is a clear set of steps that need to be demonstrated and mastered by the pharmacy student in order for them to become competent in the blood pressure measurement. The transmissionist essence of the competence training in blood pressure measurement is based on ensuring that the sphygmomanometer is working at the time of the measurement and that a demonstration of the correct measurement procedure is provided to the students before the training and correctly demonstrated during the training. Thus the competence training for the measurement of the blood pressure will follow focus on the teacher's competence in blood pressure measure, in order for them to train the pharmacy students. Secondly, the clear procedure demonstration can provide a knowledge/competence development among the pharmacy students. Student needs to, however, understand also what the pressure reading means. They need to comprehend that is the diastolic or the systolic pressure are elevated, then certain medicines must be administered to bring the blood pressure down, to prevent a stroke or a heart attack. They, however, do so indirectly and so the maintenance or improvement of patient's health is based on the use of knowledge and imagination to interpret the real health status of the patient and the metaphor of the knowledge that a pharmacist has about the functioning and anatomy of the cardio-vascular system. The imagination of the student allows for the picturing of the heart and its signals...indications of the heart's presence in the body, the sound which is capturing during the heart pressure measurement. The functioning of the heart and the ability to interpret its presence in the human body through the sounds of the systolic and diastolic pressure signals. The signals could be seen as metaphors for the presence of the heart in the human/patient's body. Those metaphors allow the pharmacist to get understanding about the functioning of the human body, and to carry out their professional mandate. The imagination can be useful in the acquiring of the knowledge about human health and about the realm of the pharmacy profession. Similar need for continuously acquiring knowledge will be facing the pharmacist, like every human in the COVID19 ontological realm. Using principles and interpretation of the signals from the human body, like with the heart pressure measurement, can help use the gained knowledge and the obtaining of new knowledge to deal with post-COVID19 ontological realm.

Before any such medicines are administered or dispensed by the pharmacist, a complete medical examination of the patient's health must be conducted by a medical doctor. This is to inform the choice of medicines for the pharmacist to dispense to prevent side effects of any medications, any detrimental influence on the human health is a complex manifestation of the intricate functioning of a human body...and a pharmacist must

understand the entire bodily physiology and the impacts that surroundings such as environment can help as triggers or compounding factors on the health of the treated patient. Similar principles to the education of a pharmacist, so they can practice their profession and contribute to the improvement of patient's health, is similar to the way that humanity must approach the education of themselves in the COVID19 space-time. Van der Walt (2013) provided an early analysis of a development of knowledge and the formation of methodology to achieve the knowledge generation, the overall concepts inside the new field of disaster risk management. Pre-existing knowledge and methods from other fields, provide a starting point for the learning and understanding of the coronavirus pandemic space-time and the human existence in it/beyond it, as COVID19 is a novel disaster, which humanity has not faced before. The management of the non-pharmaceutical interventions and their impacts on society, the re-writing of the procedures for the performance of routine unit operations in disaster risk management systems are needed and have been underway, public administration and beyond have caused major problems to healthcare professional such as pharmacists, but also to humanity as a whole...to the continuum of *Homo sapiens*. The space-time is defined here as the geographical presence of the coronavirus on the whole of Earth as a planet and the time...can have many meanings, which are analysed in the thesis chapters to follow, but which can also have a meaning of the compression of time as it is perceived by members of *Homo sapiens*, i.e. individual human beings.

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