JSP

JOURNAL of SPACE PHILOSOPHY

An Imagined Order: Connecting Ideas About Quality Education to Human Communities Living in Outer Space

by Barry Elsey and Amina Omarova

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DEDICATION

We dedicate this issue of the Journal of Space Philosophy to the critically important independent variable for the long-range improvement and survival of humanity – learning through education.

Five hundred years ago Leonardo de Vinci wrote: "Learning is one thing the mind will never exhaust, never fear, and never regret. It will never fail us."

That has been a truth throughout human history. It will remain the truth as humans influence the next episode of evolution accelerated by exploration, development, and settlement beyond Earth.

Bob Krone and Gordon Arthur

PREFACE

The feature article of this issue, "An Imagined Order: Connecting Ideas About Quality Education to Human Communities Living in Outer Space," by Dr. Barry Elsey and Dr. Amina Amarova, gives the fundamentals for our future Kepler Space Institute (KSI) education courses, programs, and research. Readers will find in that article paradigm shift thinking from much of Earth's historic approaches to education. Readers will also find that the career works of Dr. Yehezkel Dror, the co-founder of the Policy Sciences, prescribe merit advances for global decision-making to ensure that leadership will be part of future education. KSI's graduate curriculum includes courses to prepare individuals to fill leadership positions that prepare them for the next Space Epoch and the next evolution for the human species.

Note also the other articles in this issue focusing on Peace Solutions on the Korean Peninsula; Space Art for Society; Philosophy for Space; and Ethics, Values and Moral Leadership for Space Settlements. Creating good outcomes for those huge, diverse subjects will take time, which is blessed by dramatic changes in education for all ages, cultures, and societies. The Space Epoch, now in a dynamic beginning, will open doors for innovative thinking within Overview Effect environments. It will take new leadership and inspirational education to avoid lost opportunities if those doors remain closed.

Bob Krone and Gordon Arthur

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Access to the Journal of Space Philosophy and free downloading of its articles is available at www.keplerspaceinstitute.com/jsp. Anyone on Earth or in Space may submit an article or Letter to the Editor to BobKrone@aol.com.

Notes from the Chair

By Gordon Holder, VADM, US Navy (Ret),
Kepler Space Institute Chairman of the Board

The publication of this fourteenth issue of the *Journal of Space Philosophy* comes at an important transition time for the Kepler Space Institute (KSI), the United States, and the global Space community. KSI was awarded graduate-level academic licensing in 2019 by the State of Florida, the US Administration and NASA proclaimed an ambitious plan to return humans to the Moon by 2024 and on to Mars by 2033, and several nations along with the European Space Agency are joining with commercial Space companies to plan dramatic new Space exploration and development missions.

Note that this issue is dedicated to the critically important independent variable for the long-range improvement and survival of humanity – learning through education.

The feature article by Dr. Barry Elsey and Dr. Amina Amarova provides the foundations for KSI's academic programs launching in the Fall of 2019. The title is, "An Imagined Order: Connecting Ideas About Quality Education to Human Communities Living in Outer Space."

KSI takes great pride in planning to help prepare the needed leadership for humanity's next huge step into the universe for the improvement and survival of our species.
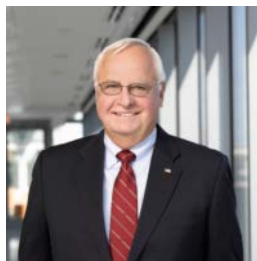
Letters to the Editor

We invite readers of the *Journal of Space Philosophy* to send us letters referencing any past publication, to suggest subjects for future publication, or to submit information from anywhere in the Global Space community. ***Bob Krone and Gordon Arthur***.

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From Barry Elsey, August 4, 2019

Dear Bob and KSI members,

It is gratifying to find that the JSP Summer edition will publish the formative thoughts of Amina and I in faraway Australia. We both regard our effort as a first instalment in what should become a long voyage of discovery about the depths of thinking required to make more sense of Space education. It is one thing to be inspired by the bold vision of KSI and another to take account of the many realities on the way to making Space education an imperative. We all need understanding of why and how human behaviour through learning and knowledge formation needs to be developed.

Let the new learning venture continue!

Barry

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Reply from Bob Krone, August 4, 2019

Dear Barry Elsey,

Thank you so much for these comments. I'm reflecting on your and my association as we shared doctoral supervision in Asia beginning in 1995. We took a concept that had developed in the world of doctoral education, and we called it the Elsey-Krone Model, which got expanded use, and which you and I have continued to find valid for doctoral candidates. The model had three components: (1) do in-depth research to find out what knowledge there is in the world on your selected subject, (2) identify what you feel is needed to expand that knowledge and which is missing, and (3) create your unique identification and prescription for how to achieve that new needed knowledge, and professionally write it into a dissertation that examiners will approve and endorse.

Candidates that you and I have supervised have used that model successfully for close to half a century. Now we are ready to take that model into KSI's academics on a much broader scale and with a much more ambitious vision. That vision comes under the Law of Space Abundance, which we formulated in 2009, which states that Space contains an abundance of resources to meet human needs. That is a law of the nature of the universe

beyond Earth, not legislated by any authority. How we capture those resources for humanity on Earth and as humans settle in Space will be the focus of our scholars who have ideas for improving Space exploration, Space development, and human societies.

At this point in human history, we cannot fully identify what those improvements will be; but we can identify the barriers that have prevented achieving them, and we can work on both removing the barriers and creating the science, technology, and policy making wisdom needed to capture that abundance.

We look forward to your, and Dr. Amina Omarova's design of our educational concepts and tools for those challenges.

The KSI Team

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Some Comments on Recursive Distinctioning and Recursive Patterning

From Joel Isaacson, Louis H. Kauffman, and Bernd Schmeikal, August 27, 2019

I. Recursive Distinctioning.

Recursive Distinctioning (RD),[1] means just what it says. A pattern of distinctions is given in a space based on a graphical structure (such as a line of print or a planar lattice or given graph). Each node of the graph is occupied by a letter from some arbitrary alphabet. A specialized alphabet is given that can indicate distinctions about neighbors of a given node. The neighbors of a node are all nodes that are connected to the given node by edges in the graph. The letters in the specialized alphabet (call it SA) are used to describe the states of the letters in the given graph, and at each stage in the recursion, letters in SA are written at all nodes in the graph, describing its previous state. The recursive structure that results from the iteration of descriptions is called RD. Here is an example. We use a line graph and represent it just as a finite row of letters. The SA = {=, [,], O} where "=" means that the letters to the left and to the right are equal to the letter in the middle. Thus, if we had AAA in the line, then the middle A would be replaced by =. The symbol "[" means that the letter to the LEFT is different. Thus, in ABB the middle letter would be replaced by [. The symbol "]" means that the letter to the right is different. And finally, the symbol "O" means that the letters both to the left and to the right are different. SA is a tiny language of elementary letter distinctions. Here is an example of this RD in operation, where we use the proverbial three dots to indicate a long string of letters in the same pattern.

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[1] Joel D. Isaacson, "Autonomic String-Manipulation System," US Patent 4,286,330, August 25, 1981, www.isss.org/2001meet/2001paper/4286330.pdf; Joel Isaacson and Louis H. Kauffman, "Recursive Distinctioning," *Journal of Space Philosophy* 5, no. 1 (Spring 2016): 9-64.

```
        ... AAAAAAAAAABAAAAAAAAAA ...
   is replaced by ... =========]O[========= ...
   is replaced by ... =======]OOO[======= ...
   is replaced by ... =======]O[=]O[======= ... .
```

Note that the element]O[appears, and it has replicated itself in a kind of mitosis. In our previous articles, we have pointed out relationships between this form of self-replication

It is a key problem to consider RD in this standard form where the basic alphabet is produced by the recursive process itself. We are in the process of examining patterns of RD in one and two dimensions in this framework.

II. Recursive Patterning

It is also worthwhile to consider recursive patterning (RP) that is based on local distinctions, but not necessarily in this orthodox form. In this case, we look for significant RP that satisfies this more relaxed criterion. Here is an example. Consider strings of symbols with the alphabet {*, <, >} and recursive reduction rules

$$1.\ ** \rightarrow <*>$$
$$2.\ > < \rightarrow$$

Rule 2. means the two consecutive opposing brackets can be erased from the string.

Example a:

```
          ***** →
        <*>*** →
       <*><*>* →
        <**>* →
        <<*>>*
```

Example b:

```
          *****************************
 <*><*><*><*><*><*><*><*><*><*><*><*><*><*><*>*
           <***************>*
     <<*><*><*><*><*><*><*>*>*
         <<*******>*>*
       <<<*><*><*>*>*>*
         <<<***>*>*>*
        <<<<*>*>*>*>*
```

We also give a code for describing binary numbers using this alphabet.

Take a binary number such as 1101.

Rewrite it in the form <<<1>1>0>1 by first placing a right bracket > between each pair of digits as in 1>1>0>1, and then placing as many left brackets on the left, as in

<<<1>1>0>1. Call this the *bracketed binary number*. Now, in the bracketed binary number*, replace each 1 by a * and replace each 0 by a blan*k. Thus <<<1>1>0>1 is replaced by <<<*>*>>*. This *binary star form* of the binary number is now expressed in out string alphabet.

Theorem. If the RP described above is started with a row of N stars, then the final line of the recursion is a conversion of N into its unique binary star form.

The proof of this result can be found in Louis Kauffman's 1995 article, "Arithmetic in the Form."[2] For example, examine Examples a and b above. In Example a, we start with ***** (*N* = 5), and we arrive at <<*>>*, which is the binary star form of 101, and 101 is the binary form of 5. In Example b, we have *N* = 31 stars, and the process results in <<<<*>*>*>*>*, which is the binary star form of 11111, the binary form of 31.

This binary reductive RP depends for its operation on very simple local distinctions and operations upon them. It is, however, not directly descriptive of its previous rows. The simplicity of its rules allows further work, so that it can model ordinary arithmetic, and with other choices, it can work in other bases than Base 2. We see from this RP example and the basic RD structure that powerful computing methods are possible by using only recursive distinguishing and very little mathematical structure at the basic level. Significant mathematical structures, such as arithmetic, can then arise from the patterns of recursive distinguishing.

The purpose of this short letter has been to give an introduction to part of our present thinking about RD and its patterned relatives.

III. Commentary by Bernd Schmeikal

My gosh!

The electronic spacetime is crowded with uncountable lists of automata. Joel discovered RD (and later its relationship Wolfram 126) in the 1970s, which, indeed, was an excellent move. But Wolfram lived and worked later between Feynman and Gell-Mann, and the latter had introduced strangeness and all the rest of it. That requires Wolfram 16. Why? Because quarks and hadrons cannot be made by just left and right neighbours, OK? Kauffman avoided crashes like those, by concentrating on distinctions and turning the whole Fermion representation into iterant views. Why I am appreciating this? Because neighbourhoods in a real world are nonlocal, and they are nonlocally processed! And time is not iterant time! Therefore, until now, all the Wolfram circus has just been knitting patterns without any real life! Read Wolfram's attitude towards Feynman and Murray, and you will know what I mean. Are we sleeping or what? You cannot overrun the social pattern by force! Science remains false if we just explode our thoughts all the time. Thoughts must be tender, charming, and correct, open to that which is not a thing." What do I propose to think about? Where RD in Physics is concerned? Call it "Recursive

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[2] Louis H Kauffman, "Arithmetic in the Form," *Cybernetics and Systems* 26 (1995): 1-57.

Distinctioning in Strange Force Phenomena." Let me mind "Differentiation of Different Fields" and the triple *Physics – Artificial Physics – Mathematics*

Differentiation calls for integration. This is a matter of speaking. It is, perhaps, within some sort of objectifying science, even a fact of language. The ones who invented such fine tools as RD are the ones who at the same time are calling on the scene a series of possible mix ups. Therefore, I expanded the concept of RD with Antecursive Conflation (AC).[3] So it may become possible to avoid indefinable nebulous confusion on the transdisciplinary set.

The meaning of concepts having the same name varies from subject to subject. Consider the meaning of the word "cell." Explaining "the method of the most probable distribution" in *Statistical Thermodynamics,*[4] Erwin Schrödinger describes the classical scheme in which "states will have to be described as cells in phase space". Most physicists are familiar with such use of the word. But *cells in cellular automata* are something else. And in the intellector, a topological neighbor is not the same as the neighbor of a parton in a proton. These differences have to be investigated before constructing applications!

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Editors' Notes: We want to state to readers that this is an important communication from three of the world's most knowledgeable scientists on the discovery and research into the natural phenomenon of RD. There have been *Journal of Space Philosophy* publications on RD since 2012, including the Special Science Issue published in Spring 2016, which gave references extending back to the 1981 patent awarded to Dr. Joel Isaacson. These publications have documented RD as fundamental to human cognition, neurological and biological systems, mathematics, and computer sciences. KSI has sponsored four annual conferences on RD, commencing in 2014. Reports of those conferences have been published in several issues of the *Journal of Space Philosophy*. This letter to the editor points out continuing RD research. ***Bob Krone and Gordon Arthur.***

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[3] Bernd Schmeikal, "Four Forms Make a Universe," *Advances in Applied Clifford Algebras* 26, no. 3 (2016): 889-911.
[4] Erwin Schrödinger, *Statistical Thermodynamics* (London: Cambridge University Press, 1946).

An Imagined Order: Connecting Ideas About Quality Education to Human Communities Living in Outer Space

By Barry Elsey and Amina Omarova

Preface: Self-Directed Learning

At the outset of this learning project, two important points should be made. First, in keeping with the teachings of a great adult educator, the American Malcolm Knowles (1913-1997), we believe that people of mature age, usually with a wealth of lived experience and an abundance of knowledge, from the workplace and life generally, learn best when they can be largely self-directed.[1] Second, as program directors, we do little more than pose the questions that should concentrate your mind on the broad direction and framework of ideas that pave the way for your own exploratory learning.

We treat the first iteration of the learning program as a "work in progress." This is in expectation that adult learners like you are bound to make valuable contribution through your own insights and interpretation to what is truly an exploration of ideas at the frontier of what is known.

You may ask why we have adopted such an open-ended and non-directive approach. One good reason is that an important feature of doctoral research is that a glimmer of an idea is often the starting point for the long learning journey. It simply grows in the mind and becomes a building block for patient desk and field research, combined with inner-directed curiosity and the desire to create knowledge. Your engagement with this program may generate the spark for your own doctoral research topic in due course. Meanwhile, enjoy the learning process of using your curiosity and imagination for creative thinking and patient research.

In the context of this learning program, you are invited to approach knowledge as an "art of the possible" intellectual endeavour owing more to your creative thinking to produce insight and understanding than empirical evidence. Remember, there are no actual communities living like a comprehensive society as we know the concept on Earth. It is for you to create an ideal-type model using the power of reason and imagination. In our experience, the doctoral learning journey is just like that.

Introduction

We are encouraging you not only to explore a feasible design for living community in outer space, but also to devise an ideal-type construction that can inspire others to follow your mind steps. This is the stuff of a grand narrative that engages others in a long conversation. We believe that the Kepler Space Institute (KSI) is a visionary pioneer,

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[1] Malcolm S. Knowles, Elwood F. Horton, and Richard A. Swanson, *The Adult Learner* (Oxford: Butterworth-Heinemann, 1998).

which is made more powerful through the contributions of those who follow its learning programs. The notes that follow are written from a lay perspective. We are genuinely curious about the social aspects of living in outer space, but not very technically informed. These general musings are intended to get you starting to think about two big philosophical questions. First, what kind of moral and sustainable living community is possible as a long-term, ordered, and established society in the alien environment of outer space? Second, how can the leading ideas of quality education (QE) play an important role in ensuring that humans can adapt through an educational and learning system designed to enable community living in an extreme environmental context?

We provide no "off the shelf" answers, but instead we challenge you to think, write, and produce an imaginative blueprint for understanding and practical action, to use an old image. Our questions are big, difficult to answer, and undoubtedly challenging to an inquiring mind. The authors know little about the wonders and mysteries of space exploration and permanent human settlement, although one was trained in aerospace engineering in a top Russian university in Moscow several years ago. However, that high level of science and technical knowledge does not go far enough to understand the visionary and bold idea of actual communities of people permanently living in outer space. Our leaning is toward the social aspect of living communities and psychological existence in a completely different environment most of us have not experienced before.

To focus your thoughts, we have produced a simple framework. First, we invite you to consider what "rules for living" should underpin any kind of society that is capable of long-term survival. KSI emphasises the need for a moral order and a social structure that is sustainable. How should these worthy principles be converted into everyday values and norms of behaviour that any living community should follow? Second, we go further to ask how it is possible to live at the individual, inner-psychological level, in enclosed proximity and essential collaboration with others in a strange physical environment, with a huge emphasis on survival and large group behaviour? Almost certainly, such a social order is bound to challenge our notions of personal autonomy and freedom. We elaborate further on these thought lines.

Thinking About Social Systems

Problem Statement. For any human community to exist in outer space, it is necessary to design an integrated social and technical system that is fit for purpose and that can not only survive in an alien environment, but also function as a complete society on a long-term basis.

Finding an Answer. We invite you to write your ideas about how this should be constructed and maintained. We encourage you to be imaginative and bold in your thinking, while keeping close to and informed by those who have written on the subject, whether in the realm of science-fiction or scholarly discourse.

Our thinking, like most others, is influenced by what we know and understand about human society, usually drawing on our lived experiences. In that way, we make simple

assumptions about the general nature of society. We do this by focusing attention on structure and function, such as:

- the economy (the production and exchange of goods and services);
- polity (governance and the making of decisions that affects everyone);
- social order (an underpinning system of law, normative rules, and values for living communities, preferably on some basis of democratic consensus);
- socio-culture (for social cohesion and integration, maintaining the continuities of everyday life, the special roles of family and kin, beliefs, and religious practices, education, leisure, and so on).

Our core assumption is that something like what we know as society will be transferred to outer space, and a new habitat will be formed on a similar basis, at least at the beginning of settlement. What happens next is for us all to wonder about. Indeed, if we are to honour a grand narrative and an imagined order, it is quite possible that the construction of society in outer space will be of a very different kind. That is for you to imagine.

It is a big ask, as the ideal-type model must be more than a specialised space station. It will need a highly skilled workforce dedicated to scheduled tasks as a disciplined team for set periods of time. Any living community would need such a technically competent workforce to maintain the physical system. A whole society, however, is more than that. Somehow, all that we know about living communities on Earth will be transported and relocated in the environment of outer space, and it will need to continue as a whole society.

As many know from lived experience, human society is a messy social construction, seemingly given to dysfunction and discord rather than a smoothly working social system. We may dream of a cohesive and integrated society based on consensus, but we know the realities of social division and conflict. These typically arise through inequities and other divisions by economic class, cultural identity (such as race, gender, religion), and differences in access to and possession of political power to change the course of events and to make things happen. Can they be overcome in a social system that by necessity must live together in harmony or else disintegrate and be destroyed? We briefly return to this theme shortly.

Thinking About Individual Needs
We focus on individual human needs and how they fit in with a social system that must be designed to survive in an alien environment.

The Australian social researcher Hugh Mackay wrote a book entitled *What Makes Us Tick?* which neatly identifies some core psychological drivers that make us what we are:

- the need for love and affection;
- the need to have a sense of place and belonging;
- the need to connect with others and to be taken seriously;

- something to believe in and live for, to improve and achieve, and so on.[2]
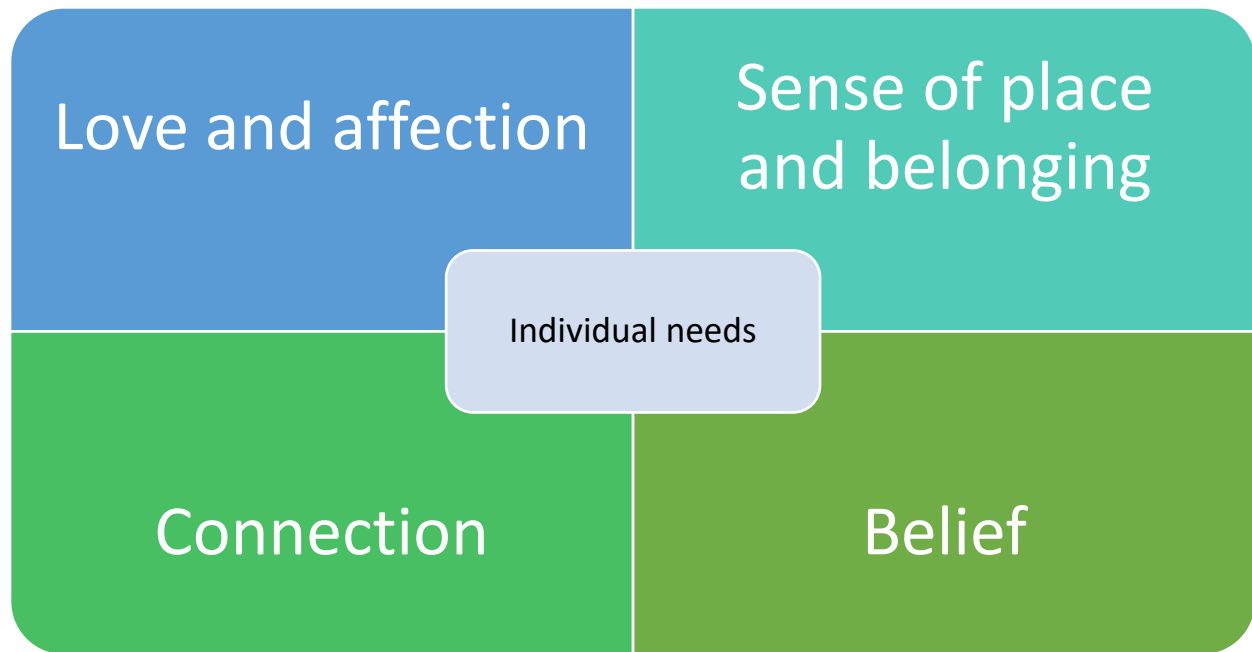
These are the essential emotional experiences of being human, and they cannot be ignored in favour of a cognitive model of humankind.

The KSI Assumption
Whenever the dream of permanent human settlement becomes reality, human beings will be able to transfer the complete package of individual wants and needs to community living in outer space. By necessity, for the sake of survival, there may well be a collective normative requirement for an extraordinary form of individual self-discipline. It is to be imagined how much the norms of social order will intrude on personal freedom. This is another open question.

What is clear is that whatever design emerges for living communities in the context of outer space, it will be a complex and adaptive social system comprising structures and functions that is likely to be more than we know through lived experience and call human society. Moreover, because of the special adaptive behaviour requirements (an elaborate kind of health and safety mindset), it is necessary to devise ways and means of accommodating our individual psyche, the complex bundle of moving parts we like to call wants and needs that drive behaviour and that give us individual identity. How can they be met in an environment far away from Earth and with no relationship with nature to provide existential comfort?

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[2] Hugh Mackay, *What Makes Us Tick?* (Sydney: Hachette Australia, 2010).

Where to Start? As an important starting point for considering the inner life of living in outer space, without doubt, NASA and other national space exploration agencies will have examined in detail the psychological effects of being on space stations and all other extreme environments to test and appraise the limits of human endurance. Please examine the NASA website for access to such studies.

Taking the social system and individual human needs together, any living community in outer space must attend to how things will function in human terms. It is one thing to achieve technical mastery of outer space and quite another to create and maintain living communities in a context where everything that sustains human life is transported and embedded as a continuous life-support system. While that feat of technical mastery is being achieved and maintained, ordinary life should carry on, the countless everyday interactions and social relations that hold together, like a seamless web, our experience of living community. We invite you to explore these open-ended ideas and to give us your thinking. There are no right and wrong answers, but your ideas should pass the common-sense test of being plausible to reasoning minds.

Research Questions: Thinking Further About Human Society as Living Community in Outer Space

The KSI Vision
There is a long history of literary and science fiction imaginative writing about human beings living in the alien environment of outer space. We can all marvel at the scientific and technical mastery of spaceship travel and exploration, together with the disciplined team-based work of those living in space stations. We are reaching the stage of human accomplishment where it now seems feasible to consider the practical possibility of non-specialist living communities, ideally in sustainable and ordered permanent settlement in outer space. Driven by a passion to ensure that whatever form human society takes it is founded on shared values and core rules for living all can voluntarily embrace.

Undoubtedly, there is a long road ahead in perfecting the complex and technical aspects of building a sustainable infrastructure as a platform for human life for whole communities in outer space. That is not the primary focus of this learning program. Instead attention is concentrated on the *social aspects* of a complex technical system to support human life. We need to think about transferring what is presently known and understood about living communities on Earth and creating sustainable human settlement in the alien environment of outer space. This process may well entail revisiting the designs for living communities to assist their capability for adaptation for living in outer space.

Q1. How much change to what we know, value, and believe about living communities will be required?
While the technical mastery of that process is achieved, big questions arise about how such human communities should function; what we commonly refer to as a whole society.

More specifically, we need to pay extra attention to the role of education as a system, designed to produce a quality learning environment from early childhood through to continuing and lifelong provision into old age. More about these matters follows later.

As a general observation, the fictional social construction of human communities in outer space is hardly a recommendation for the kind of society most people would want to live in. As seen on TV and movie screens and read in science fiction, human society is typically run as authoritarian, military-style dictatorships, modelled on a dystopian society or like an imperial or feudal colony. Such images are most unattractive and nothing like the liberal social democracies many have lived in.

Q2. Is there anything of value to be learned from sci-fi literature that would help us to comprehend how humans should live, ideally as free-thinking citizens carrying forward what might be called the best of civilisation on Earth?
This is a different kind of New Frontier thinking, and imaginative thinking from literature sources may not be much help. This is for you to decide, based on what you have read and what has inspired you.

Q3. Is there anything of value to be learned from real-life experience that would help us?
At the same time there are real life examples of specialist and continuous communities, typically managed as impressive team-based organisations, to be found in the harsh environment of Antarctica and in working space stations. By they are just that, communities of highly trained and disciplined workers undertaking specialist tasks with fixed-term contracts to perform set roles and responsibilities. They are extraordinary communities, and they are certainly not the everyday ones we are all familiar with wherever we live on Earth.

Before engaging in further leaps of human imagination of an idealised society, we should pause to contemplate the reality of living community on Earth. Even a cursory reading of Yuval Noah Harari's latest book, *21 Lessons for the 21st Century* alerts us to the manifold challenges of human societies.[3] The book explores the big themes of technology disruption, environmental degradation, and extreme capitalism forcing human adaptability to constant and threatening changes that few are adequately prepared to embrace. The mass uncertainty that follows impacts everyone, notably in securing the core essentials of everyday life, such as having a decent work future and a healthy life balance. Moreover, growing disillusionment with the nature of the political process and governance has disrupted faith in finding *democratic solutions to the quest for social fairness and justice. Political populism fosters the myopia of inward-looking nationalism, and the spread of global terrorism creates an unease that these and other issues are barely manageable. As we are propelled forward, we collectively lack confidence in long-standing traditions and institutions to meet the challenge of change.* This dark and dismal scenario, the future the author claims we are in now, is hardly a secure foundation for contemplating, planning, and implementing a bold design for establishing living communities in the alien

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[3] Yuval Noah Harari, *21 Lessons for the 21st Century* (London: Jonathan Cape, 2018).

environment of outer space. At least the writings of Harari and others on the threats to societies as we know them warn against being naïve and simplistic.

Q4. Maybe the extreme nature of the environment is the kind of collective challenge that humans need to construct an ideal-type society?
At the same time, the vision of KSI is of a future that may be both technically and socially realisable. The vision is one of hope and passionate belief that human beings have the capability to create and maintain new societies, even in the alien environment of outer space.

Assignments
Assignment 1: Your First Thinking and Writing Task
At this juncture, we pause from our musings and pay attention to yours. We invite you to trawl selectively through the *fictional* literature (commonly called sci-fi) on outer space exploration and human settlement, and to identify examples that you consider worthy of recognition for the quality of imagination and the elegance of writing. Travel back as far as you like, when science-fiction writing made an appearance and took hold of the popular imagination. Bring your reading into the present, and taking all that you have read (and seen), describe how human settlement in outer space, what we call society and living community, is imagined and created:

- What kind of society is depicted?
- Is it like what we know on Earth or something else?
- Could ordinary people live in such a society, without becoming like robots and having no individual identity?
- Explain what you have found, then compare it with the vision of KSI.
- Can we seriously learn from fictional imagination?
- Where is "reality" in the fictional literature?

Task: Write between 1,000 and 2,000 words summarising your findings and analysis. Ensure that you have cited the sources you drew upon to create your own interpretation. Please submit your assignment as a portfolio at the conclusion of the program. Regard everything you write as a work in progress.

If possible, share your thoughts as they take shape through your reading and thinking with fellow students. Remember, we are all on a journey of discovery.

Assignment 2: Investigating the "Serious" Scholarly Literature on Human Settlement in Outer Space.
This is a challenging academic task. You need to identify the *scholarly*, research-based and philosophical literature that has gone beyond science fiction to examine how humans live in alien environments:

- A useful starting point might be the communities from many nations that live for long periods of time in Antarctica. They must have deep and extensive experience of how such isolated communities live with each other.
- Going a step further, what is known about human life on space stations?

- What holds these specialised communities together?
- What can be learned from such actual experience and incorporated into your ideal-type model for living community in outer space?
- Has anyone, in the KSI network or beyond, written about the possibilities of human settlement in outer space?
- How plausible is their thinking and their designs for living?

Our advice in starting to explore this aspect of living communities in outer space is to search for authors who have paved the way with their own ideas, and who have taken the long journey into public scrutiny through publication. The KSI in-house *Journal of Space Philosophy* is an excellent starting point, for it expresses the core vision and values, and it seeks to apply them in meaningful ways and means. One author to take special note of is Yehezkel Dror, for he has left a trail of leading ideas that might well provide a foundation for your own explorations. There are bound to be others reaching out with their ideas that might ignite your own.

Task: *Write between 1,000 and 2,000 (or more) words summarising your findings and analysis. Ensure that you have cited the sources you drew upon to create your own interpretation. Please submit your assignment as a portfolio at the conclusion of the program. Regard everything you write as a work in progress.*

Again, if possible, share your thoughts as they take shape through your reading and thinking with fellow students. Remember, we are all on a journey of discovery.

Assignment 3. Thinking About Quality Education

Thinking about the social aspects of living communities in outer space leads to the special focus of this learning program, which is with leading ideas about QE. If communities are to live in outer space, there is surely an imperative need for a system of education and training to transfer knowledge and to develop special competencies to make everyday living possible. Moreover, as living in outer space will be regarded as a new learning experience, it is a challenge to design an education system that is a best practice model for human development. This is where QE makes an entrance into our thinking.

Before attending to QE as a concept, it is useful to be reminded of the key feature of formal education as an organised system. This usually means a whole society system, typically directed and controlled by government, and often incorporating private-sector institutions, in democratic societies for sure.

Use your imagination to create an educational system designed for living communities in outer space. It should start at birth and continue as a lifelong learning process, and it should be available to all regardless of social position in an imagined outer space community.

> *In the most general terms, the purpose of an educational system is to transfer knowledge and learned culture from one generation to the next and between all strata and groups of society (social classes, racial and ethnic groups, and so forth). The intention is that such a system of cultural transmission serves to integrate all kinds of people and subcultures into the recognisable form of a cohesive whole society unified under the banner of a nation state.*

In the most general terms, the purpose of an educational system is to transfer knowledge and learned culture from one generation to the next and between all strata and groups of society (social classes, racial and ethnic groups, and so forth). The intention is that such a system of cultural transmission serves to integrate all kinds of people and subcultures into the recognisable form of a cohesive whole society unified under the banner of a nation state. All that the society knows, the accumulated knowledge and skills that enables it to function in economic, political, and many other ways, must be passed on and learned to maintain continuity and to adapt to a changing world. This process is not only about transferring selected and valued knowledge and skills, but also about socialising new generations into the values and normative order of society.

With increasingly complex economies, with high-order knowledge and skill requirements, the educational system must also devise ways and means of selecting by ability to supply capable human resources. Selection by merit often competes with other forms of self-selection by wealth and social advantage. Expressed another way, it is well known that there is not equal access and opportunity in educational systems, whether by social class, race and ethnic identity, or especially in poor countries and regions within rich ones. One safe assumption is that any living community in outer space must ensure that the competencies for survival and maintenance of a complex social-technical system are selected and developed through well-designed education and training.

Problematically, merit selection by ability is not an exact science, and it is often characterised by relative failure to identify and nurture the kinds of intelligence that schools and education generally are intended to foster. These matters truly worry educators and policy makers; hence, the emergence of QE to identify and address them.

The concept of QE is both aspirational and inspirational. It has emerged as one of the big ideas that international bodies like to embrace and promote as a universal strategy for improving all aspects of education as a system of provision for all ages. However, it is more than strategic thinking about access and equity to educational provision and a fair system of resource allocation. The idea of QE has clearly inspired educators to think about and design improved ways and means of making teaching and learning more effective, with outcomes that meet both societal and individual needs. We shall concentrate more attention on teaching and learning matters than on system improvement, as they reach to the core of our lived experience of education in our early years and beyond into adulthood and old age.

It is useful to highlight the leading ideas of QE as a prompt for your own thinking. These should be linked to what QE would mean in conceptual and practical terms within the special context of living communities in outer space. We continue our musings about this theme.

In the imagined context of living communities in outer space, both survival and adaptation are imperatives to ensure that all members of society learn to live in an alien environment. There is much to learn from the accumulated knowledge and skills of those who have lived on space stations and in isolated communities on Earth. This kind of learning must begin at birth and continue as a lifelong process. There is need for a system of lifelong education designed to ensure that everyone knows how to survive and possess the skills to adapt to everyday living, quite possibly under conditions of constant threat of disaster.

Q. The question to ask is whether educational systems on Earth are fit for purpose for such extreme conditions.

In such an environment learning must surely be concentrated on:

(1) functional knowledge for survival and adaptation;
(2) learning to live together under very challenging social and individual psychological conditions;
(3) acquiring and continuously supporting social attitudes and behaviour that poses no serious threat to the social order; and
(4) developing intellectual, creative, and other human talents that enable individuals to experience self-actualisation, that is, to be the best one is capable of being.

Any education system that can perform to such a high level of expectation is what quality means. It is a tall order, and most education systems on Earth fall short. It is better to assume that there is at least room for improvement, which is why QE is a useful cue to think afresh about what an ideal-type educational system should be like.

Concentrating attention not on a total system, but on the core activities of teaching and learning, whether in a traditional classroom, the workplace, or other settings where knowledge and skill transfer is undertaken, some leading thinkers have emerged to point the way forward. There are scores of ways and means of making teaching and learning effective, and there are many advocates. Those of us who have faced a group of learners, typically of mixed ability, motivation, and attention span, know how difficult it is to be an effective teacher or learning facilitator, to use a fashionable term in adult learning. Our choice is limited to one educator who articulates the aspirations of QE in the complex process of enabling the learning of others through a best practice approach to teaching. We refer to the work of Robert Marzano, especially his book *The New Art and Science of Teaching*.[4]

There will be countless numbers of good teachers who follow Marzano in setting goals for learners, give feedback, and assist students to deal with new knowledge and new learning experiences so that they develop a conceptual grasp and a sense of ownership,

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[4] Robert Marzano, *The New Art and Science of Teaching* (Bloomington, IN: Solution Tree Press, 2019).

actively engage with students in the learning process, maintain good working relationships, and generally inspire them to aim high through hard work and application. It requires a high level of awareness by the teacher or facilitator to ensure that learning follows a developmental pathway, as it is easy to lose momentum and to stray off track. For both learners and their helpers, it is well known that gaining new knowledge is mostly hard work, but it is often inspired by the motivation to succeed. In that sense, Marzano reminds us that the conditions and process for good teaching and learning are accessible and manageable.

At this juncture, it is important that the educational system design incorporates an institutional framework that is based on and adequately supports the various expressions of QE. The emphasis should be on teaching and learning and the variety of forms it can take in the complex process of knowledge and skill transfer. The idea of QE should not be confined to what is often called the school age years, but it should begin earlier and continue as a system of lifelong education. There is nothing unreasonable about a comprehensive education and training system available and accessible to all, except for gaining traction politically and economically, as a universal human right.

We know of the long road ahead in establishing an ideal-type model of QE on Earth; therefore, the question arises, is it any more achievable in living communities in outer space? What spirit and form would QE take in such an extreme environment? These two open questions should be addressed in your third assignment.

Task: Write between 1,000 and 2,000 (or more) words summarising your thoughts. Ensure that you have cited the sources you drew upon to create your own interpretation. Please submit your assignment as a portfolio at the conclusion of the program. Regard everything you write as a work in progress. Share your ideas with fellow students as they take shape.

Summary

We have deliberately adopted a non-technical approach to what are open questions that any layperson might ask about the possibilities of creating moral and sustainable living communities in outer space. Our musings have also indulged some repetition, in a natural desire to emphasise the thought lines we consider important. Sorry.

We have assumed that sometime in the future, the dream of living communities in outer space will become an everyday reality. No doubt we shall marvel at the science and technical mastery that has created the dreams of science fiction writers and countless experts in a concerted multi-national endeavour. KSI has rightly identified the imperative to ensure that such a bold vision is framed by principles and practices that provide a moral and sustainable social order. This must be to enhance the immense technical requirements for survival in an alien environment, but also to prevent social chaos and disintegration through conflict and division. Moral principles and sustainable values exist for a purpose, and in outer space, there may be little room to deviate from a well-constructed social order.

To be a little more specific, your imagined order must surely address what rules for living should be made explicit and form a continuous awareness of the imperative for survival on terms and conditions that avoid destruction. This implies a social order based on consensus, but what kind of form should it take? Is it what many of us know as liberal democracy? That is, where the people have some say in who governs and how they are governed, or should it take a different form?

Without ignoring such broad-ranging questions of political philosophy, we must also attend to severely practical matters. A big issue of sustainable principle is how to manage waste. There will be scores of other sustainability type matters to be raised and resolved. Choose one or two, and then explain how they should be managed. Leaping to another level, how are humans to be sustained in a spiritual way? It is not essential to believe in God, but the effect of an absence of the comforts of nature and the wild on our spiritual lives must be considered a problem to be addressed. These and other matters underscore what we mean by an imagined social order and how things should work at all levels of human consciousness in a challenging and alien environment.

In your blueprint, we invited you to consider the important role of education and training, with special reference to how such a system would operate in an outer space community and environment. Just like our thinking about an ideal-type social order as well as an educational one, we are painfully aware of the shortcomings of the systems on Earth. This prompts the question whether in creating living communities in outer space it is necessary to think afresh and to produce a completely different social and educational order, not a copy of the Earthly ones?

Into such a complex setting, we invite you to think about the nature of such a social and educational order and to provide your own interpretive blueprint. Freely use your creative imagination, but also connect with those who have also thought about these matters, and engage in a discourse with their writings.

That is what we are asking you to do in the three linked assignments, which should give expression to your thinking and provide an annotated bibliography of the works of other authors you found useful. Consider yourselves pioneers in the KSI learning community, for others may well seek to learn from you.

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Editors' Notes: We want readers to be aware of the education originality of this essay by Drs. Barry Elsey and Amina Omarova. Dr. Elsey is the Dean of the Kepler Space Institute (KSI) Education Department. They are both faculty members within that department. They have taken the lead on the challenge of creating the theory and designing the graduate curricula for humanity's unprecedented evolution to the settlement of communities and societies in Space. All the reality of those human settlements remains in the future. We know it will happen. We also know that how it happens will be the critically important success variable for the future improvement, and survival, of humanity.

KSI has included that challenge in its academic vision for its future courses, programs, and degrees. The KSI leadership invites readers to read the academic catalog on our website (www.keplerspaceinstitute.com) and to consider the portions of it relevant to their own educational goals. ***Bob Krone and Gordon Arthur.***

Peacebuilding in the Korean Peninsula and Its Contribution to Space Governance: How Can the United States and the Two Koreas Promote Peace, Prosperity, and Humanity During Denuclearization?

By Seokdong Kim

Abstract

The great powers' policy failures on North Korean denuclearization are mainly due to their ignorance of its domestic politics. My project reflects North Korean perceptions to identify cross-cultural variables in systems analysis. Democratic peace solutions considering domestic politics can enhance the feasibility of North Korean denuclearization beyond power-centric approaches, such as balance-of-power and power-transition theories. Peaceful democratization in North Korea will be accompanied by North Korea's regime maintenance, national security, economic development, and economic liberalization. North Korea's economic liberalization will transform its policy from nuclear development to peaceful coexistence. Pareto-optimal outcomes are likely to enable North Korea to develop its economy like China and Vietnam in the short term, or like Singapore in the long term. If ruling elites in North Korea gain political legitimacy, popularity, and support from their citizens, they will provide citizens with more freedom and a higher standard of human rights in the development path from economic development to economic liberalization, and eventually to political liberalization. If North Korea successfully evolves from a military state to a normal state with economic prosperity, it will voluntarily accept denuclearization. Democratic peace will promote global governance on interstate peace and humanity for the long-term goals of human space development.

Keywords: North Korea, Foreign Policy, Denuclearization, Democratic Peace Theory, Global Governance, Humanity.

Introduction: Denuclearization Through Economic Development and Political Liberalization

The United States and East Asian countries face conundrums on how to proceed with North Korea's denuclearization and, by extension, peacebuilding in the Korean Peninsula and East Asia. Regarding systems analysis, Robert M. Krone defines a *Pareto optimum* (emphasis added) as a "policy strategy conceived to produce results beneficial to all parties concerned and harmful to none."[1] Krone[2] and Yehezkel Dror[3] advise policy makers to pay attention to cross-cultural variables to deal with extrarational ones (terrorist groups or aggressive nation states), which are largely subjective and nonquantifiable in systems analysis. In this vein, I propose that the tendency to see others (e.g., North Korea) as mirror images of oneself is a major fallacy in the policymaking of the West (e.g.,

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[1] Robert M. Krone, *Systems Analysis and Policy Sciences: Theory and Practice (with an Introduction by Yehezkel Dror)* (New York: John Wiley & Sons, 1980), 26.

[2] Krone, *Systems Analysis*, 32.

[3] Quoted in Krone, *Systems Analysis*, x.

the United States). For North Korea's denuclearization, my project proposes feasible solutions to denuclearization reflecting North Korea's perceptions. It suggests Pareto-optimal solutions, which are mutually beneficial for North Korea and relevant countries to achieve peacebuilding and economic prosperity.

Due to the bias of the cultural variables, Western policymakers have exaggerated North Korea as an anti-American or pro-Chinese nation. Neither is correct. As a result, conventional policies on North Korean denuclearization have failed not only in denuclearization, but also in peacebuilding in the Korean Peninsula and East Asia. For several decades since North Korea's nuclear experiments, beginning in the 1990s, economic sanctions and diplomatic repressions from the United States and the international community have been ineffective in changing North Korea's ambitions on nuclear development. Meanwhile, military attacks have been considered almost impossible due to neighboring countries' needs for regional stability and peace.

Pacific nations have failed to establish a common goal for peacebuilding and humanity during the negotiations on North Korean denuclearization. Peacebuilding will promote a common market for economic prosperity, as exemplified by the European Union. Since North Korea's nuclear development, dialogues between the United States and North Korea, as well as between the two Koreas, have been short lived. North and South Korea have led an agreement on peacebuilding in the Korean Peninsula, as these countries held summit meetings between South Korean President Moon Jae-in (문재인) and North Korean Chairman Kim Jong-un (김정은) in spring 2018. However, in the summit meeting in Vietnam in late February 2019, the United States and North Korea failed to reach consensus on the procedure and degree of denuclearization. Relevant countries, such as South Korea, the United States, China, Russia, and Japan, need to reach a broad consensus on North Korea's denuclearization for humanitarian needs.

My project examines why North Korea's democratic peace solutions focusing on domestic politics can be the most feasible way for its denuclearization beyond power-centric approaches, such as balance-of-power (BoP) and power-transition (PT) theories. Its aim is to find roadmaps not only for denuclearization, but also for peacebuilding and economic prosperity in the Korean Peninsula. Without peacebuilding in the Korean Peninsula, it is hard to make a peace regime in East Asia. Because regime competition between the two Koreas and diplomatic repressions against North Korea have made North Korea evolve into a military state, I argue that mutual trust and economic cooperation will transform North Korea from a military state to a normal state with economic prosperity. My analysis proposes ways to denuclearize North Korea effectively for Pareto-optimal goals, which can be shared by all relevant countries. Focusing on cross-cultural variables in systems analysis will promote North Korea's regime maintenance, national security, economic development, and economic liberalization.

To enhance the feasibility of North Korean denuclearization, in Section I, I review conventional theories of international relations, commonly called power-centric approaches. By extension, this section provides my approaches of democratic peace theory in the context of systems analysis. Section II describes the previous failures of

relevant countries' denuclearization policies, and it further examines the diplomatic turn between North Korea and the United States, as well as that between North and South Korea. Section III explains North Korea's desire for economic development and its ongoing process of marketization, despite long-lasting economic sanctions. Section IV proposes North Korean economic development and liberalization as feasible steps for democratic peace. Section V considers global governance to promote peace and humanity during the era of space development. The Conclusion prospects East Asia's new international relations after summit meetings between the United States and the two Koreas, and it then summarizes the entire analysis.

I. Theoretical Reviews of Systems Analysis for Peacebuilding
Democratic Peace Solutions as Alternatives to Power-Centric Approaches

North Korea as a *rational* state-actor has maximized its profits through seemingly *irrational* behavior in foreign policies. In this regard, it is useful to analyze North Korea's diplomatic patterns by employing Dror's concept of crazy states. Dror classifies the dimensions of craziness into (a) goal contents, (b) goal commitments, (c) risk propensity, (d) means-goals relations, and (e) style, regarding the degrees of craziness, such as (1) reasonable (low), (2) unreasonable (medium), and (3) counterreasonable (high).[4] For Dror, crazy states are identified by crazy behaviors in security and international perspectives.[5] Dror's concept can further provide Western policymakers with policy prescriptions on North Korean denuclearization. Western policymakers failed to predict North Korea's diplomatic patterns, or to control North Korea's ambitions on nuclear development. Of course, North Korea's view is that it is simply maximizing its national interests and trying to maintain its national security. Thus, it is necessary to share goals in national development between North Korea and relevant countries to reduce risks in regional stability and peacebuilding in East Asia.

In conventional theories of international relations, two meta theories—BoP theory and PT theory—focus mainly on states' power maximization in the international structure regardless of their assumptions: anarchy (to BoP theory) or hierarchy (to PT theory). BoP theory postulates that equal power distribution among great powers or members of major alliances—for example, the balance of power between the United States and the Soviet Union during the Cold War era—will promote peace. However, asymmetries in the distribution of power resources increase the probability of war.[6]

Meanwhile, PT theory postulates that an even distribution of political, economic, and military capabilities between contending states, such as the United States and China, is likely to increase the probability of war. The small number of nuclear-armed countries is stable. Peace is preserved best if great powers maintain an imbalance of national

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[4] Yehezkel Dror, *Crazy States: A Counterconventional Strategic Problem* (Lexington, MA: Heath Lexington Books, 1971), 27.

[5] Dror, *Crazy States*, xiii.

[6] Hans J. Morgenthau, *Politics Among Nations: The Struggle for Power and Peace* (5th ed., revised) (New York: Alfred A. Knopf, 1978); Kenneth N. Waltz, *Theory of International Politics* (Reading, MA: Addison-Wesley, 1979).

capabilities between disadvantaged and advantaged nations, or if challengers—generally disadvantaged nations—are satisfied with the status quo.[7]

Neither the vision of a balance of power between the United States and China nor that of a power transition by the United States (or by China) can lead to North Korean satisfaction with East Asia's international order, because neither meets its top priority of national security and regime guarantee. Relevant countries must think of ways to induce North Korea's agreement to fulfill its denuclearization for humanitarian reasons and for global governance.

Democratic peace theory is applicable to North Korea's denuclearization to promote humanity for global governance and space governance. My democratic peace approach provides an alternative for feasible denuclearization to deterrence and disarmament solutions as extensions of power-centric approaches. Michael W. Doyle argues that democracies do not fight each other because of democratic norms and public opinions.[8] International relations theorists need to devise ways to peaceful denuclearization with North Korean elites' agreement. A paradigmatic shift in North Korea's denuclearization process must come from the analysis of North Korea's domestic politics. In conventional international relations theories, a normative argument is whether the concentration of nuclear power or its dispersion leads to world peace. The dichotomous visions of BoP and PT theories will not lead effectively to North Korea's agreement on denuclearization.

Beyond power distribution, North Korea's satisfaction with East Asia's international order will lead to its voluntary denuclearization. According to PT theory, the satisfaction of challengers and the peaceful power transition from the previous dominator to the new superpower (the previous challenger) leads to peace.[9] Its satisfaction will be accompanied not only by a regime guarantee by relevant countries, but also by its economic development. The regime guarantee and economic development will be accompanied by regime stability in North Korea's domestic politics and by economic assistance from relevant countries in global governance. Meanwhile, PT theory postulates that the challenger's dissatisfaction will be a potential cause of conflict and war. Thus, it will also be effective to incorporate North Korea's satisfaction into a power transition perspective for peacebuilding in the Korean Peninsula.

An Approach of Systems Analysis: The Promotion of Peace, Prosperity, and Humanity
a) A Systems Analysis for North Korea's Denuclearization: Concepts and Evaluation
North Korean policy makers' priorities are, in order of significance, regime guarantee, state sovereignty (with national security), and economic development. Although

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[7] Jacek Kugler and A. F. K. Organski, "The Power Transition: A Retrospective and Prospective Evaluation," in *Handbook of War Studies*, ed. Manus I. Midlarsky (Boston, MA: Unwin Hyman, 1989), 171-94.

[8] Michael W. Doyle, "Kant: Liberalism and World Politics," *American Political Science Review* 80, no. 4 (1986): 1151-69.

[9] A. F. K. Organski and Jacek Kugler, *The War Ledger* (Chicago: University of Chicago Press, 1980); Ronald Tammen et al., *Power Transitions: Strategies for the 21st Century* (New York: CQ Press, 2000).

Chairman Kim Jong-un emphasizes economic development for a national strategy, North Korea's top priorities are political conditions rather than economic considerations. Krone points out that, in systems analysis, policy makers should consider the three feasibilities—economic, technological, and political.[10] Economic feasibility is defined as the probability that resources are available. Technological feasibility is the probability that the technological and scientific goals for the system will be met. Last, political feasibility is the probability that the policy alternative will be acceptable to the decision-makers. In Krone's prism, policy makers need to meet political feasibility for North Korea's denuclearization by understanding North Korean power elites' processes of decision making. By extension, economic feasibility is promising, because North Korea has immense potential for economic development from its human resources and from South Korea's robust and consistent economic aid and the expected technological support during denuclearization. A Pareto optimum in economic cooperation between Pacific nations—in the context of economic feasibility—will reduce the risks from North Korea's regime durability and from the difficulty in its denuclearization process—in the context of political and technological feasibilities. North Korean power elites are sensitive to regime breakdown. However, economic development will enhance their political legitimacy during denuclearization.

To enhance policy feasibilities, I propose that unbiased dialogue and communications between North Korea and the international community—including the United States—can overcome the conventional fallacy in Western policymaking. Communications with mutual trust can lead to peacebuilding with economic prosperity. Concomitantly, these processes provide freedom to North Koreans. These communications and exchanges under political elites' leadership can promote national integration between the two Koreas. Dror points out that the widespread weakness of Western thinking is Western bias, which has proposed inadequate prescriptions to developing countries.[11] From Dror's perspective, my project elucidates that Western policymakers have mistakenly applied Western theories and concepts to very different realities, such as North Korea's diplomacy. In particular, the United States' policy failures have brought about an unexpected consequence: North Korea has exerted strong diplomatic autonomy despite its weak national power. Machiavellianly, this country has repressed its citizens through its elaborate mobilization system, and it has mobilized its resources for nuclear development; meanwhile, relevant countries have no substantial measures to control this country regarding nuclear development. How does one resolve this quasi-impossibility of North Korea's denuclearization?

The feasibility of North Korea's denuclearization can be enhanced through promoting mutual trust and by understanding North Korea's domestic politics. To incorporate North Koreans' perspective into systems analysis, my project discusses global governance for peacebuilding. Dror argues that the development of public governance practices, scientific and human knowledge, and technology needs a paradigmatic shift in philosophy from "raison d'état" to "raison d'humanité."[12] Dror's vision is to improve the capacity of

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[10] Krone, *Systems Analysis*, 42.

[11] Yehezkel Dror, *Policymaking under Adversity* (New York: Routledge, 1986).

[12] Yehezkel Dror, *Capacity to Govern: A Report to the Club of Rome* (London: Frank Cass, 2002), 25.

states, supra-state structures, and global governance institutions. Dror emphasizes global governance to resolve growing disparities in material quality of life between countries in terms of human development,[13] and, by extension, he highlights humanity in "global commons."[14] Dror further claims that if the perspective is broadened from "statecraft" to "humancraft,"[15] directed at advancing raison d'humanité[16] instead of raison d'état, statecraft becomes an even more important domain for study, such as global governance and peacebuilding. Regarding values analysis for moral leadership, Downing, Krone, and Maguad highlight that the overwhelming majority of humanity aims to proceed in constructive ways to improve the quality of life for human civilization in global governance.[17] Leaders in North Korea and relevant countries need to exert moral leadership to establish the peace regime for economic prosperity and global equity, which promote humanity in global governance, by switching the previous mistrust to mutual trust.

During peacebuilding, economic cooperation between South and North Korea and relevant countries will create a political community and a common market in East Asia for mutual trust, peace, and economic prosperity. According to Karl W. Deutsch, the political community has been created through the evolution from confederalism to federalism, as a federal state has evolved through amalgamation and integration between individual states.[18] His example is the United States and, by extension, another successful case at present is the European Union. Deutsch's model of the political community, like Dror's global governance, can be realized effectively through democratic peace solutions through systems analysis.

b) The Application to North Korea's Domestic Politics Through Game Theory
East Asian and relevant countries must help North Korea to transform from a military to a normal state not only for peacebuilding, but also for economic prosperity. Krone points out that deterrence relies on subjective factors, like uncertainty, threats, ideas, intentions, and intuition.[19] All these factors are non-quantifiable and difficult to build into war gaming scenarios. To reduce uncertainty in North Korea's nuclear crisis and to avoid mutual threats between North Korea and relevant countries, it is necessary to share mutual trusts between these countries. Downing, Krone, and Maguad elucidate that theories consist of three categories: (1) *descriptive* theory to explain "what exists"; (2) *values* theory to defend "what is preferred"; and (3) *normative* theory to identify "what should be" (italics

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[13] Dror, *Capacity to Govern*, 12.

[14] Dror, *Capacity to Govern*, 25-26.

[15] Yehezkel Dror, *Israeli Statecraft: National Security Challenges and Responses* (London: Routledge, 2011), 201.

[16] Dror, *Capacity to Govern*, 83-93.

[17] Lawrence G. Downing, Robert M. Krone, and Ben A. Maguad, *Values Analysis for Moral Leadership* (1st ed.) (London: Bookboon, 2016), bookboon.com/en/values-analysis-for-moral-leadership-ebook.

[18] Karl W. Deutsch, *Political Community and the North Atlantic Area* (Princeton, NJ: Princeton University Press, 1957).

[19] Robert M. Krone, "A Pacific Nuclear Information Group: Prospects and Guidelines," *Journal of East Asian Affairs* 3, no. 2 (1983): 440.

added by author).[20] To contribute to values theory, my game-theoretic analysis identifies North Korea's preference for reaching a consensus between itself and relevant countries, as illustrated in Figure 1.
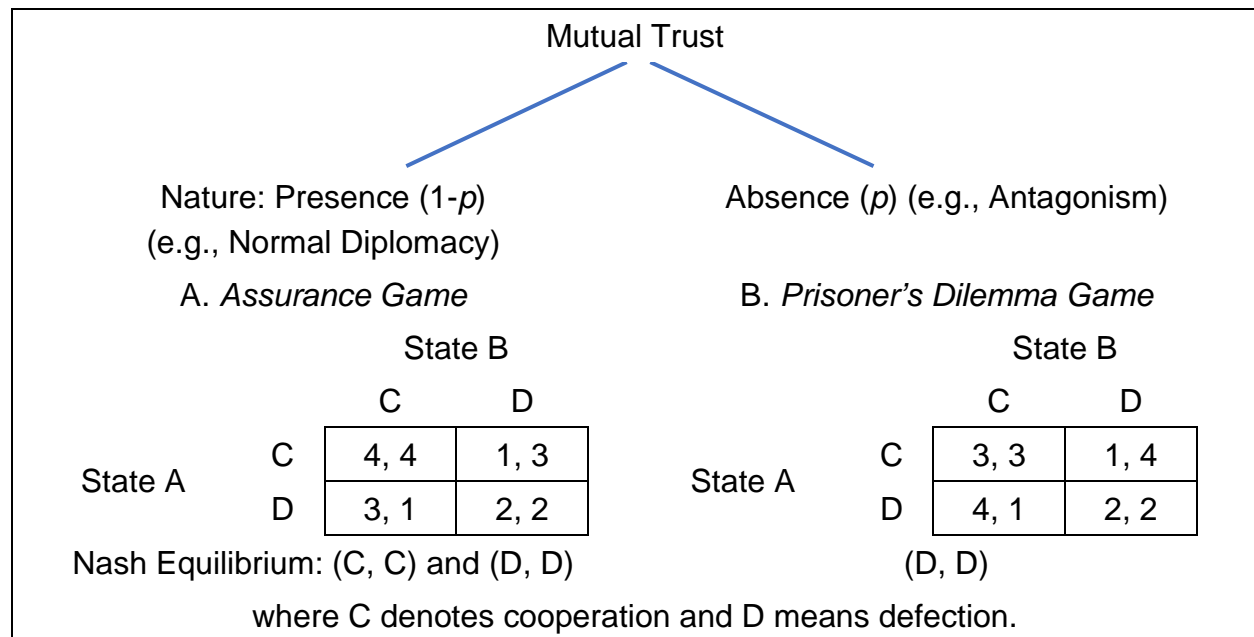
Mutual Trust

Nature: Presence (1-p)   Absence (p) (e.g., Antagonism)
(e.g., Normal Diplomacy)

A. *Assurance Game*   B. *Prisoner's Dilemma Game*

State B   State B

		C	D
	C	4, 4	1, 3
State A	D	3, 1	2, 2

Nash Equilibrium: (C, C) and (D, D)

		C	D
	C	3, 3	1, 4
State A	D	4, 1	2, 2

(D, D)

where C denotes cooperation and D means defection.

Figure 1. National Security Game during North Korea's Denuclearization.

My game-theoretic models discuss how to enhance mutual trust, because mutual trust is a preliminary step to applying democratic peace solutions to North Korea's denuclearization. As illustrated in the assurance game in Figure 1A, mutual trust is a precondition for peacebuilding: in normal diplomacy, the United States regards North Korea as a *normal* state, excluding the previous perception as a *rogue state* (불량 국가) or an *axis of evil* (악의 축). In the logic of assurance game, North Korea's top priority is state sovereignty and a regime guarantee, with economic prosperity as Payoff 4. The second preferred scenario is to receive economic compensation despite North Korea's armed provocation as Payoff 3. The third scenario is antagonistic coexistence as Payoff 2. The worst scenario is to face external threats despite its voluntary commitment to denuclearization and peacebuilding as Payoff 1. Meanwhile, in the prisoner's dilemma (PD) game in Figure 1B, antagonistic coexistence between North Korea and the United States is accompanied by mistrust. The best scenario is that North Korea gains the maximum of economic aid or compensation from relevant countries despite the failure of its promise of denuclearization as Payoff 4. In the assurance game, this situation is Payoff 3. Under antagonism, mutual cooperation has not led to mutual gains for either North Korea or the United States, and it is identified as Payoff 3. In the PD game, the situations of Payoffs 1 and 2 are as same as those in assurance game. By understanding North

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[20] Downing, Krone, and Maguad, *Values Analysis for Moral Leadership*, 13.

Korea's perception and payoff structures, relevant countries need to persuade North Korea that mutual cooperation under mutual trust can be beneficial to it.

In a game-theoretic logic, North Korea's denuclearization needs to promote a Pareto optimum in resource allocation for national security and economic prosperity. In this equilibrium, North Korea and relevant countries can gain mutual national interests in national security, economic prosperity, and peacebuilding in global governance. In Figure 1A, the assurance game, mutual cooperation is preferred to unilateral defection, and thus this makes the preference ordering as CC > DC > DD > CD. As expected in the assurance game, political leaders in both South and North Korea have nourished mutual trust to make peace through summit meetings since spring 2018. By extension, mutual trust between North Korea and relevant countries will switch the vision of East Asia's international relations from the PD to the assurance game. To simplify, let State A be North Korea and State B be the other relevant countries, in particular the United States. Since spring 2018, South Korea has played the constructive role of "arbiter (중재자)" in peacebuilding between the United States and North Korea.

Figure 1 proposes nation states' causation from peacebuilding to economic prosperity through mutual trust. In the payoff structure, Payoffs 4, 3, 2, and 1 are ranked according to the preference order for each party. Payoff 4 is the first priority that each party hopes to choose, while Payoff 1 is the worst option for each party. In this figure, in the *assurance game*, the preference order is CC > DC > DD > CD. In the assurance game, where utilities are beneficial to all parties, this symbiotic relationship will lead to peacebuilding through normal diplomacy between North Korea and relevant countries. In the *PD game*, the preference order is DC > CC > DD > CD.

During North Korea's denuclearization, North Korea and the relevant countries face paradigmatic changes for peacebuilding, economic prosperity, and humanity in global governance. Peter F. Drucker argues that few policies remain valid for as long as 20 to 30 years, while most of our assumptions about business, technology, and organization are at least 50 years old.[21] Drucker further points out that paradigms in social science have more significant roles for humans and society than those in natural science. Paradigmatic changes in social science directly exert influences on humans' behaviors as well as on the organization of institutions, such as local communities, nation states, and international organizations. However, paradigmatic changes in natural science do not change the essence of the objects in natural phenomena. Paradigmatic changes for peacebuilding between North Korea and relevant countries can transform the path of humanity from antagonistic coexistence to peacebuilding, economic prosperity, and global equity.

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[21] Peter F. Drucker, "Management's New Paradigms," *Forbes*, October 5, 1998, www.forbes.com/forbes/1998/1005/6207152a.html (April 25, 2019).

II. A Long Process of Denuclearization, but a Promising Way for Peace and Humanity

Policy Prescriptions of Systems Analysis: From Mutual Trust to Peacebuilding

If I apply Dror's concept of *global equity* to North Korea's denuclearization, relevant countries need to promote North Korea's economic development. [22] North Korea's denuclearization will be accompanied by economic prosperity in a common market in East Asia encompassing the Korean Peninsula. North Korea's economic development will guarantee its regime in the long term with robust support from its citizens and relevant countries. Thus, North Korea's national strategy not only for national security, but also for its state competitiveness, can be realized by switching from its nuclear development to economic development.

By extension, Krone, Krone, and Gregory-Krone aim to increase policymaking capacity to influence the future for humanity's benefit in the era of space development. [23] The Kepler Space Institute (KSI) that Krone leads highlights the *Law of Space Abundance*, which states, "space has abundant resources to meet human needs," because all the resources that humans will ever need are waiting in space. [24] According to this law, all nation states may utilize space resources as public goods for humans' economic prosperity and welfare. Dror proposes to redesign governance to upgrade human future-shaping capacities. [25] Krone, Krone, and Gregory-Krone extend the concept of global governance to prepare for space governance, and thus to enhance humanity through humans' economic prosperity and wellbeing from resources in space. [26]

North Korea's official justification for its development of nuclear power and missiles is that it aims to launch satellites to develop space in a peaceful way. For North Korea, the peaceful use of space is a nation state's just right. North Korea's National Aerospace Development Administration mentioned that the launch of the ICBMs is "an epochal event in developing the country's science, technology, economy, and defense capability by legitimately exercising the right to use space for independent and peaceful purposes." [27] The ideas of Krone and KSI may provide a roadmap on how the United States, North Korea, and other relevant countries may reach a consensus for the goal of humanity in the era of space development.

North Korea has developed advanced military technologies, such as nuclear weapons and missiles, although it has a weak domestic economy as a low-income country. In this regard, North Korea is not the same type of failed state as those that are commonly found in the Middle East and sub-Saharan Africa. Conventional failed states have exhibited poor performance in economic growth and redistribution, and thus they have been prone to

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[22] Dror, *Capacity to Govern*, 27.

[23] Robert M. Krone, Kat Krone, and Salena Gregory-Krone, *Space Abundance for Humankind's Needs* (London: Bookboon, 2019), bookboon.com/en/space-abundance-for-human-kinds-needs-ebook.

[24] Krone, Krone, and Gregory-Krone, *Space Abundance*, 21.

[25] Dror, *Capacity to Govern*, 213.

[26] Krone, Krone, and Gregory-Krone, *Space Abundance*.

[27] Reuters, "North Korean Rocket Puts Object into Space, Angers Neighbors, U.S.," February 7, 2016, www.reuters.com/article/us-northkorea-satellite-idUSKCN0VG00H.

civil war without domestic hierarchy (political order). Although North Korea is a low-income country, and though North Koreans are impoverished and suffer from long-lasting famine and malnutrition, North Korea has an advanced mobilization system, specifically a totalitarian regime, that has evolved over more than 70 years. Because of its closed system and economic sanctions, its economy has degenerated into one of the world's lowest-income countries. However, it has developed its science, engineering, and IT industries, as well as its military and nuclear technologies, through bold, state-led investments. North Korea also has a high level of human capital compared to other low-income countries.

Krone, Krone, and Gregory-Krone point out that, during the long human history, past leadership has come from either the survival of the fittest or from political organizations with short-term thinking; whereas, in the era of space development, leaders may design global governance using long-term thinking.[28] The most important idea for humans is to stop destroying each other and to take positive steps for the advancement and survival of humankind. Space development will be one of those very important positive steps.[29] Under global governance for humanity, North Korea may switch its investment in science and technologies from the military sector to economic development and social welfare.

Krone highlights that when uncertainty and risk are involved in strategic games, probabilistic quantitative models of decision-making are employed.[30] In systems analysis, a probabilistic model as an alternative to a deterministic model can analyze the interactions of several states. It is necessary to remember that North Korea's armed provocation of South Korea, as well as its tests of nuclear weapons and ICBMs against the United States, have led to deep-rooted mistrust between North Korea and other relevant countries. Reducing uncertainty through mutual trust can be a preliminary step for denuclearization in global governance, as illustrated in Figure 1.

Upon North Korea's denuclearization and relevant countries' guarantees of the North Korean regime, all countries may find Pareto-optimal outcomes for North Korea's economic development and all countries' economic prosperity and peacebuilding. Crazy states could obtain nuclear weapons for blackmail or use.[31] Krone recommends that Pacific nations, such as the United States and East Asian states, should establish a Pacific Nuclear Information Group to control the usage of nuclear weapons and to build peace, as the North Atlantic Treaty Organization (NATO) formed the Nuclear Planning Group to manage nuclear weapons for defense purposes.[32] North Korea has attempted to blackmail several countries since its nuclear development in the mid-1990s. To transform North Korea from a military to a normal state, and to prevent it from degenerating into a crazy state, relevant countries need to share mutual trust, because mutual trust will lead to peacebuilding in the context of the assurance game.

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[28] Krone, Krone, and Gregory-Krone, *Space Abundance*, 24.

[29] Krone, Krone, and Gregory-Krone, *Space Abundance*, 65.

[30] Krone, *Systems Analysis*, 68-69.

[31] Krone, "Pacific Nuclear Information Group," 437; Dror, *Crazy States.*

[32] Krone, "Pacific Nuclear Information Group."

Through national solidarity, South Korea can help North Korea to transform from a military to a normal state. Relevant countries may manage uncertainty and risk, which have led to North Korea's nuclear development. Dror pays attention to Confucianism, which theorizes governance for harmony and communitarianism.[33] By extension, my research points out that, in domestic politics, Confucianism promotes social capital, such as mutual trust and solidarity in community-oriented life.

Can communitarianism and national solidarity in domestic politics be extended to peacebuilding and international solidarity in the Korean Peninsula and in East Asia? My answer is positive. South Korea regards North Korea as the same ethnic community, not an independent nation state. It may exert national solidarity for North Korea's economic development, which will be accompanied by denuclearization.

In this regard, it is necessary to highlight the KSI hypothesis: that "the emerging Space Age can be designed and implemented to create societies with reverence for life within ethical civilization; and that those models can be adopted for Earth's implementation."[34] My project on peacebuilding and economic solidarity explores national solidarity between the two Koreas and international solidarity between all relevant Pacific nations.

Previous Policy Failures in Denuclearization, but Diplomatic Turns for Mutual Trust
From a North Korean perspective, both the United States and China have very limited measures of either military or economic dimensions to make North Korea give up its nuclear weapons and to discourage it from developing ICBMs. Military attacks will induce North Korean military retaliation, which no neighboring countries or great powers can peacefully control. In North Korean President Kim Jong-un's view, it is not easy for him to discard his grandfather and father's accomplishments and legacies of nuclear development, which have proceeded for 25 years since 1994. In North Korea's diplomacy, his declaration of denuclearization in 2018 must be a critical juncture, which will significantly change not only North Korea's national security and defense, but also South and North Korea's process for peacebuilding. Conventional policy prescriptions include nuclear proliferation, disarmament, the US-led nuclear umbrella, the neutralization of the Korean Peninsula, and the nuclearization of South Korea and Japan. However, these are not effective in peacebuilding, because they cannot lead to North Korean satisfaction. My democratic peace solution links domestic governance with global governance for humanity: For feasible denuclearization, policy makers need to consider the path from North Korea's economic development to liberalization.

For mutual trust between North Korea and relevant countries, the international community needs to consider a Pareto optimum in policymaking for both North Korea and relevant countries to agree for mutually beneficial national interests. This equilibrium can be accompanied not only by North Korean regime legitimacy, but also by relevant countries' expectations that economic liberalization will lead to political liberalization as well as denuclearization. Since the summit meetings between the United States and the two

[33] Dror, *Capacity to Govern*, 13.
[34] Krone, Krone, and Gregory-Krone, *Space Abundance*, 52.

Koreas, the international community is seeing favorable conditions to promote peacebuilding and humanity in global governance.

The United States and North Korea are leading a paradigmatic shift from hostile to close relations in their bilateral diplomacy. For humanitarian purposes, the relevant countries aim to help North Korea to transform from a military, isolated, and poor state to a normal, open, and economically affluent one. My project on humanity indicates how the international community can help North Korea to overcome long-lasting economic difficulty, while removing economic sanctions and diplomatic isolation.

The international community highlights that, with mutual trust, North Korea can evolve into another South Korea regarding economic prosperity. In May 2018, US President Donald Trump announced that, upon North Korea's complete denuclearization, the United States has no intention of overturning the North Korean regime. Trump emphasized that, upon denuclearization, North Korea's road map will be the South Korean model: South Korea has achieved economic prosperity, as the United States has provided generous foreign aid and favorable markets in trade to South Korea.

However, the United States and North Korea revealed differences in their perception of denuclearization in the second summit meeting in late February 2019. The two countries aimed to materialize North Korea's denuclearization and the United States' declaration of the end of war (종전선언). North Korea wanted a partial dissolution of economic sanctions according to its partial denuclearization, while the United States demanded substantial denuclearization, which would be accompanied by comprehensive economic support. The United States perceived that partial dissolution would make economic sanctions ineffective, and hence it chose "no deal" rather than a "big deal." In North Koreans' view, as the United States' guarantee of, and economic rewards to, the North Korean regime, is uncertain, North Korea's partial denuclearization must be a bold decision, against broad opposition from the Party, diplomats, and the military.[35]

In this vein, regime guarantee accompanied by liberalization and economic development by the North Korean regime and people can be a feasible solution for denuclearization. My research defines this solution as a democratic peace solution, which is beneficial for both the North Korean regime and its people. This solution may promote the *global equity* that Dror highlights for humanity in global governance.[36]

Regarding the diplomacy of the two Koreas, since summit meetings beginning in spring 2018, North and South Korea have evolved from rivals to brotherly states. Under national solidarity and humanity, each Korea regards the other Korea as a brotherly state, as one single ethnic community. During South Korean President Moon's visit to Pyongyang, the capital of North Korea, President Moon noted that the two presidents agreed on the denuclearization of the Korean Peninsula (한반도 비핵화), and that the two Koreas should

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[35] *NEWSIS*, "CHOI Sun-hee 'Kim Jong-un, Singapore Ihu Guknae Manheun Bandae-dojeon Maat-seo'" [최선희 "김정은, 싱가포르 이후 국내 많은 반대·도전 맞서"], March 26, 2019, www.newsis.com/view/?id=NISX20190325_0000598650.

[36] Dror, *Capacity to Govern*, 27.

seek for peacebuilding (평화구축) free of war. This event implies that the two Koreas can have mutual trust, that North Korean top elites and citizens are ready to accept denuclearization and peacebuilding in the Korean Peninsula, and that they have aspirations of economic prosperity.[37] Mutual trust between South and North Korean presidents can be regarded a de facto declaration of the end of war.

Regarding the domestic politics of the two Koreas, South Korea may play a constructive role in North Korea's regime guarantee and economic prosperity, because South Korea considers North Korea the same ethnic community, which should be unified. Because the relevant countries of the Korean War are the two Koreas and the United States, South Korea can be an arbiter (중재자) to reduce the gap between the United States and North Korea in solutions to North Korea's denuclearization. South Korea has been the sole partner to embrace North Koreans for peacebuilding and humanity, because it may provide assistance without any conflict in national interests, because of the national solidarity between North and South Koreans.

III. North Korea's Marketization and the Two Koreas' Prosperity During Denuclearization

North Korea's Marketization and Capitalist Development Despite Economic Sanctions

The promotion of denuclearization and peacebuilding will be accompanied by the economic prosperity that the North Korean regime and citizens desire. Economic sanctions and diplomatic repression as conventional policy prescriptions have not discouraged North Korea's ambition of nuclear development. Instead, these policies have simply brought about a long-lasting North Korean famine. Although North Korean Chairman Kim Jong-un has encouraged the improvement of the domestic economy and an increase in agricultural products, 40 percent of North Koreans suffer from malnutrition.[38] It is necessary for the international community to transform North Korea from a military state with a shortage economy to a normal state with capitalist development and economic prosperity. This humanitarian aim will enhance peace, economic prosperity, and humanity as humans seek for global governance and, by extension, space governance.[39]

To understand North Korea's motivation for denuclearization, it is necessary to explain North Korea's views on economic development and the substantial changes in its society and economy. North Korea has experienced marketization despite economic sanctions

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[37] *JoongAng Sunday* [중앙선데이], "Meekook, Hankook Apseoganda Bulpyeong Malgo Buk-haeng-yeolcha Soakdo Nopyeora" [미국, 한국 앞서간다 불평 말고 북행열차 속도 높여라], October 6, 2018, news.joins.com/article/23024324.

[38] MBC, "Book Sickryangnan Simgak … Ingoo Jeolban Gakkai 'Youngyangsiljo'" [北 식량난 심각…인구 절반 가까이 '영양실조'], April 17, 2019. imnews.imbc.com/replay/2019/nwdesk/article/5253135_24634.html; *Hankyoreh Newspaper*, "'Ssalyi Geumboda Gwihada' Bookhan Sickryangnan 10nyeonsae Choeank Seoulsi Daebook Sickryangjiwon Naseonda" ["쌀이 금보다 귀하다" 북한 식량난 10 년새 최악 서울시 대북 식량지원 나선다], May 2, 2019, www.hani.co.kr/arti/politics/defense/892350.html.

[39] Krone, Krone, and Gregory-Krone, *Space Abundance*.

from the United States. This section evaluates North Korea's hidden potential for economic development, because these potentials have not been evaluated by scholars on international relations and political economics. North Korea's rapid marketization and capitalist development imply that North Korea's main national strategies are focusing on the goals of rapid industrialization and economic prosperity. These goals are matched with those of its neighboring countries, and they are far from its official diplomatic metaphor of anti-Americanism and Marxism. Yeon-chul Kim argues that it has been difficult for North Korea to adhere to a socialist planned economy since its economic reforms of the 2000s.[40] Since then, autonomous marketization has steadily broadened its reach, irrespective of North Korean leaders' intentions. Outsiders have not recognized North Korea's rapid change to marketization and capitalist development since the 1990s.[41]

Under an extreme famine, North Koreans have recognized that their state and government do not have the capacity to provide economic security. They have also seen that China does not intend to provide economic security as well as national security. North Korean society has rapidly developed its market system and informal economy, helping people to survive the shortages in the North Korean regime's provisions. Due to its market system and informal economy, North Koreans have survived despite their poor domestic economy and the economic sanctions from the international community. As North Korean society becomes liberalized and as the North Korean economy evolves into a market economy, North Korean citizens' loyalty to the Supreme Leader and the Party weakens. Liberal ideas are more common among young generations, who do not show strong loyalty, unlike their grandfathers' generations.[42]

North Korean society has evolved its informal economy as the North Korean regime has failed to take responsibility for the masses' basic needs for physical survival. Since the socialist states' regime breakdowns in the early 1990s, North Korea has lost international solidarity and external aid systems. North Korea's socialist economy has been weakened because of the lack of external markets and aid providers. During the long-lasting famine of the 1990s, North Koreans recognized that they should not rely on their government, but that they needed to develop a self-help system, such as an informal economy. Since then, North Korean society has developed its informal economy, divided from the formal economy controlled by the government. North Korea's informal economy has been expanded with voluntary aid from South Korean or Chinese markets and relief

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[40] Kim, Yeon-chul, "Potential for Economic Reform in North Korea," in *Understanding North Korea: Indigenous Perspectives*, eds. Jongwoo Han and Jung Tae-hern (Lanham, MD: Lexington Books, 2014), 91-110.

[41] *JoongAng Ilbo*, "Bookhanpan Gangnam-eun Pyongyang-yeonk Ap ... 60Pyeong 2eok, Royal-cheung 1~10cheung" [북한판 강남은 평양역 앞 ... 60 평 2 억, 로열층 1~10 층], September 17, 2018, news.joins.com/article/22975701; *JoongAng Ilbo*, "Book Sonjeonhwa 580maandae, Gaipbi 17eok Dollar … Modu Dollarmaan Badatda" [북 손전화 580 만대, 가입비 17 억 달러…모두 달러만 받았다], September 17, 2018, news.joins.com/article/22975716.

[42] *Yonhapnews*, "'JSA Gwisoon' Bookbyeongsa 'Bookhan, Kim Jong-un Moorihage Sinkyeokwahago Itseo'" ['JSA 귀순' 北병사 '북한, 김정은 무리하게 신격화하고 있어'], November 17, 2018, www.yna.co.kr/view/AKR20181117030200073?input=1179m.

organizations. The informal economy has been operated regardless of economic sanctions, mainly from the United States and the United Nations. In the globalized world, economic sanctions cannot control all the dimensions of the informal economy in North Korea. Dror argues that humanity can be promoted not only by science, technology, mass media, and the internet, but also by globalization. [43] For a humanitarian aim, the international community needs to help North Korea to organize its market and economy successfully under the system of capitalism and world trade for North Koreans' economic prosperity and wellbeing.

Many specialists have evaluated that if North Korea succeeds in its economic reform and opening, it will have an immense potential for economic development. For example, an investment guru, Mark Mobius, evaluated that North Korea can jump to a modern economy with the help of its cheap labor and advanced human capital as well as with additional help from South Korea's generous investment, capital infusion, and technology transfer.[44] Furthermore, North Korea can evolve from a low-income to a middle-income economy with the help of its favorable background and its factor endowments for advanced capitalism: specifically, (1) a synergy of economic cooperation between the two Koreas, (2) its geo-economic network that connects South Korea, China, and Russia, and (3) its estimated natural resources, such as rare earths and uranium.

The Two Koreas' Economic Prosperity during Denuclearization
During the process of North Korea's denuclearization, economic cooperation between South and North Korea will lead to economic prosperity in both Koreas. In South Korea, President Moon Jae-in's administration (in office May 2017-May 2022) holds a belief that economic prosperity in South and North Korea will be accompanied by peacebuilding in the Korean Peninsula. In his speech on Korea's National Liberation Day (Independence Day: 광복절), President Moon expressed confidence in the two Koreas' immense potential for economic prosperity by utilizing North Korea's human resources and natural resources, as displayed in his key words "평화가 경제 (peace is economy)." [45] In

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[43] Yehezkel Dror, "Crafting the Past on the Future: Realistic Visions and Futuristic Nightmares?," in *The Thinking State?* eds. Kees Schuyt, Bruno Latour, Jan Peter Balkenende, Wim van de Donk, Anton Hemerijck, Lisa Anderson, Yehezkel Dror, Jérôme Vignon, and Peter Weingart, WRR-Lecture 2007 (The Hague: Scientific Council for Government Policy, 2007), 83-96.

[44] CNBC, "Investment Guru Mark Mobius Says North Korea Presents a 'Tremendous Opportunity,'" June 12, 2018. www.cnbc.com/2018/06/12/investment-guru-mark-mobius-says-north-korea-presents-a-tremendous-opportunity.html.

[45] *Kukmin Ilbo* [국민일보], "Moon Daetongryeong 'Naedal Pyongyang Bangmoon, Cheoldo Doro Yeonkyeol Olhae Ane Chakgongsink Mokpyo'" [광복절 경축사 전문] 문 대통령 "내달 평양 방문, 철도 도로 연결 올해 안에 착공식 목표"], August 15, 2018, news.kmib.co.kr/article/view.asp?arcid=0012603754&code= 61111111&cp=du; *Segye Ilbo* [세계일보], "'Pyeonghwaga Kyeongje' … Hyanghu 30nyeon Nambook Kyeongjehyeopryeok Hyokwa 'Choeso 170jo'" [[文대통령 광복절 경축사] "평화가 경제" … 향후 30 년 남북 경제협력 효과 '최소 170 조'], August 15, 2018, www.segye.com/newsView/20180815003085.

November 2018, President Moon emphasized in his address to the Korean congress that peace is a new engine for South Korea's higher economic growth.[46]

East Asian developmental states, such as Japan, South Korea, and Taiwan, have succeeded in *economic growth with equity.*[47] South Korea may propose an appropriate "developmental state model" for North Korea's rapid industrialization with egalitarianism.[48] Eventually, economic cooperation between the two Koreas will lead to the process of national unification for economic prosperity. Relevant countries have not recognized North Korea's desire for economic development, and instead they have focused on its nuclear development. All countries should find Pareto-optimal outcomes for denuclearization and economic prosperity.

IV. The Feasibility of Democratic Peace Solutions from Systems Analysis
Proposals to Enhance the Feasibility of North Korea's Liberalization
From the framework of systems analysis, policymakers can enhance the feasibility of democratic peace solutions through mutual trust. North Korea's liberalization will promote North Koreans' humanity and, by extension, South Korea will enhance the feasibility of national integration or unification between the two Koreas. Economic exchange between North Korea and relevant countries as well as the infusion of information into North Korea will nurture North Korean civil society.[49] Economic liberalization can transform North Korea from its hard, authoritarian regime to a soft, authoritarian regime, such as Singapore. This path is most feasible for denuclearization and peacebuilding over conventional policy prescriptions, such as nuclear proliferation and disarmament.

However, North Korea's democratization should be decided by North Koreans, not by the international community. Arbitrary democratization by external military forces—accompanied by ignorance of North Korea's state sovereignty—will not receive agreement from North Korean citizens. North Korean elites do not want to degenerate into *secondary* citizens after the national unification of the two Koreas. North Korean denuclearization may lead to national integration between the two Koreas. As a result,

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[46] *OhmyNews* [오마이뉴스], "Moon Jae-in 'Kijeokgateun Kihoe ... Pyeonghwaneun Sae Kyeongjeseongjangdongryeok'" [문재인 "기적같은 기회... 평화는 새 경제성장동력"], November 1, 2018, www.ohmynews.com/NWS_Web/View/at_pg.aspx?CNTN_CD=A0002484131.

[47] World Bank, *The East Asian Miracle: Economic Growth and Public Policy* (Oxford: Oxford University Press, 1993).

[48] Seokdong Kim, "Developmental States' Weak Welfare Regimes but Long-Term Low Inequality: Why Economic Nationalism Promotes Solidarity for Egalitarianism Rather Than Conflict for Resource Monopoly," (doctoral dissertation, Claremont Graduate University, Claremont, CA, 2018), Conclusion.

[49] A previous North Korea top elite and diplomat, Thae Yong-ho (태영호), stated that North Korea's repressive, totalitarian regime has maintained itself through its terror to citizens and the exclusion of information from outside world. In his view, the United States and the international community can infuse information about the free world into North Korea, and it can weaken the regime durability. See Thae Yong-ho [태영호], "Beyond Nuclear Diplomacy: A Regime Insider's Look at North Korea," Invited Talk, Center for Strategic & International Studies (CSIS), October 31, 2017, www.csis.org/events/beyond-nuclear-diplomacy-regime-insiders-look-north-korea. For a transcript, see www.csis.org/analysis/beyond-nuclear-diplomacy-regime-insiders-look-north-korea.

humanity should be accompanied by the international community's respect of North Korea's state sovereignty. Economic and political liberalization through democratic peace will effectively change North Korea's diplomatic policy lines for peacebuilding and humanity. Diplomatic repressions and economic sanctions have been unable to change North Korea's nuclear policies, while military attacks against North Korea have been considered almost impossible.

To realize Pareto-optimal outcomes during denuclearization, relevant countries need to help North Korea to develop its economy like China and Vietnam in the short term, or like Singapore in the long term. This development path will transform North Korea from a military to a normal state with economic prosperity. North Korea will be more motivated to denuclearize than if it maintains its poor economic status. A developed North Korea will keep its national defense with the help of its advanced economy, and additionally with relevant countries' guarantee of its regime. Its ruling elites will gain legitimacy and popularity from the masses. In this case, they are more likely to liberalize its society. Modernization theory or political development theory elucidates that developing countries under authoritarian regimes are liberalized in the short term, and they are democratized in the long term if they succeed in economic development. Relevant countries need to consider democratic peace solutions for North Korea's gradual path from economic development to liberalization, and eventually to denuclearization. For peacebuilding and humanity in global governance, North Korea's liberalization is likely to lead to national and political integration between South and North Korea for national unification.

North Korea's National Security: Focusing on Cross-Cultural Variables
a) The United States' Guarantee of North Korea's Regime as a Military Sponsor
Relevant countries need to respect North Korea's state sovereignty, and consistently to provide North Korea with military protection (national defense like an alliance between the United States and North Korea) against neighboring countries or great powers, and with economic aid. To prevent nuclear proliferation from North Korea's nuclear weapon exports to enemy states and terrorist groups, the most feasible way is to democratize North Korea or to unify the two Koreas peacefully and with humanity.

Power transition theory postulates that the satisfaction of the challenger (North Korea) in East Asia's international relations will lead to peace. Democratic peace theory implies that democratization will reduce the policy uncertainties and/or irrational behaviors of the North Korean ruling elites. Under mutual trust with relevant countries, a democratized North Korea can agree to the denuclearization of the Korean Peninsula, and it will not export its nuclear weapons or ICBMs to anti-American nations or terrorist groups.

The United States can guarantee North Korea's state sovereignty if North Korea intends to become a peace-seeking country. Thus, the United States should change the purpose of US forces in Korea, so that they function as a military sponsor for North Korea. The original main purpose was deterrence for North Korea and China. But because the US forces in Korea have been a significant threat to North Korea, North Korea has maintained a strong motivation to develop nuclear weapons. Neighboring countries' regime guarantees to North Korea would imply that there is no remaining hostility to North Korea,

and, thus, it will not need nuclear weapons. Therefore, after North Korea's denuclearization, the US forces in Korea should provide national defense not only to South Korea, but also to North Korea.

In particular, when the United States plays a constructive role in making regional community in East Asia, it can expect a peaceful relationship with China. Even during the probable power transition, its allies, such as Japan and South Korea, will remain friendly countries. The East Asian regional community can be established like the European Union has been institutionalized through its deepening and enlargement. Eventually, it may persuade North Korea to abandon nuclear weapons, when the community guarantees North Korea's national security.

b) Economic Assistance and North Korea's Liberalization
If North Korea remains a peace-seeking country, it is necessary for all neighboring countries to provide economic aid, such that the recipient, North Korea, may realize its rapid industrialization. Since Kim Jong-un's rule began, North Korea has prioritized economic development over nuclear development. According to the standards of international human rights, it must be morally inappropriate for neighboring countries to be patient with North Korea's repressive regime. But global governance that promotes North Korea's economic development will eventually soften the North Korean regime's harsh rule. For global equity, economic assistance to North Korea will promote not only long-term democratization in North Korea, but also peacebuilding in East Asia.

North Korea and the United States mutually agree that relevant countries' support for North Korea's economic development is one way to help North Korea's regime guarantee. US Secretary of State, Michael Richard Pompeo, witnessed that North Korean President Kim Jong-un wants the United States' economic support, regime guarantee, and peace treaty.[50] President Trump has repeated that North Korea's denuclearization will be accompanied by economic prosperity, which is similar to that of South Korea. Upon a guarantee of national defense and economic assistance, North Korea's voluntary denuclearization must be a path for global equity and humanity.

Regarding the feasibility of North Korea's liberalization, my democratic peace solution seems too optimistic, because it is not certain if and when North Korea will be a normal state with democratization. The international community needs patience to wait for North Korea's liberalization in the short term and its democratization in the long term. However, if North Korea's regime guarantee and national security are provided, then North Korea's political reform and the opening of its domestic market will promote prosperity and humanity. North Korea's economic development will lead to liberalization. Economic liberalization has led to peaceful democratization in South Korea (in the late 1980s) and in many previously authoritarian states. This path can enhance humanity in global governance from the North Korean context.

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[50] *Yonhapnews*, "Pompeo 'Kim Jong-un, Mee-Gyeongjejiwon·Chejebojang. Pyeonghwahyeopjeong Wonhaetda'" [폼페이오 "김정은, 美경제지원·체제보장·평화협정 원했다"], May 24, 2018. www.yna.co.kr/view/AKR20180524002000071.

Peaceful democratization will be the most feasible way to prevent irrational wars or leakages of nuclear weapons. Even if the regime collapses due to internal protests or external shocks, neighboring countries will need to empower North Koreans to make a peaceful transition from autocracy to democracy. For a democratic transition, a peaceful solution is preferable to a violent solution to prevent unexpected nuclear leakages to foreign countries. Conventionally, peaceful transitions of democratization include the ruling elites' voluntary measures of liberalization and democratization—democratization from above in Samuel P. Huntington's term[51]—as well as democratization through negotiations between the ruling elites and citizens. Huntington categorizes patterns of democratization into democratization from above (transformation), democratization from below (replacement), and democratization through negotiation (transplacement). Of course, a voluntary concession of power from North Korea is not likely in the near future. However, North Korea's liberalization will promote the preconditions for peaceful democratization.

My application of democratic peace theory to systems analysis postulates that the North Korean regime should be peacefully democratized to denuclearize the Korean Peninsula. Global governance focusing on North Korea's domestic politics will promote the peaceful, gradual political reform or democratization of the North Korean regime by inner ruling elites or the masses. But for humanity, state sovereignty, and national self-determination, North Korea's democratization should be decided by North Korean citizens, not by external forces or foreign countries. For national solidarity, South Koreans should also respect North Korea's state sovereignty and its political regime until the two Koreas have been integrated politically, economically, and socially.

Considering cross-cultural variables, my project assumes that many North Koreans would not want their Korea absorbed into South Korea and their political regimes and values negated by South Koreans. North Korea's regimes and values should be respected until the substantial national integration of the two Koreas: This integration process will lead to complete unification between the two Koreas.

V. Global Governance: Peace, Prosperity, and Humanity During Space Development

East Asia faces a paradigmatic shift in the perspective of nationalism from aggressive nationalism to international solidarity; hence, this section discusses how global governance may promote the humanity that Dror and Krone, Krone, and Gregory-Krone highlight.[52] One open question for peacebuilding in East Asia is how Pacific nations, such as the two Koreas, the two Chinas, Japan, and the United States, can promote economic prosperity and egalitarianism despite their differences in political regimes, economic systems, and national interests. Consecutive summit meetings between South and North Korea, and also between the United States and North Korea since spring 2018, have dismantled the long-lasting Cold War in East Asia and, by extension, they will promote

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[51] Samuel P. Huntington, "How Countries Democratize," *Political Science Quarterly* 106, no. 4 (1991): 579-616.

[52] Dror, *Capacity to Govern*; Krone, Krone, and Gregory-Krone, *Space Abundance*.

peacebuilding and economic cooperation. During North Korea's denuclearization, all East Asian countries may use a *revised developmental state model*, by applying the assets of South Korea's economic development to North Korea. For example, because North Korea has a foundation of socialism, relevant countries utilize public land-ownership for investment into North Korea. By creating common markets for peace and humanity, relevant countries may create a peace regime for economic prosperity.

In 2018, South and North Korea sought for peace and humanity through summit meetings, declaring the end of the war. Since then, South and North Koreans' national solidarity has brought about the process of national integration between the two Koreas, and it has led to a broad consensus for economic prosperity. By extension, the United States and the two Koreas have dismantled East Asia's long-lasting Cold War through summit meetings.

A constructive partnership for humanity between the United States, South and North Korea, and other relevant countries will create a political community and a common market for peace and economic prosperity. If East Asian peoples' exchanges across national borders are accompanied by peaceful communications between East Asian nation states, they will be a bond to connect nation states, and they will be a catalyst to build a regional community for humanity. For the political integration or the building of a peace regime in East Asia, international solidarity will be an asset for Pacific nations to seek economic prosperity and peace, as seen in the European Union. Peacebuilding for humanity will transform East Asian states' aggressive and exclusive nationalism to moderate and inclusive nationalism.

In the long term, international solidarity will promote humanity during space development. With mutual trust, a broad consensus on denuclearization between North Korea and relevant countries can switch interstate conflict from a *zero-sum* game to economic prosperity with common markets as a *positive-sum* game during global governance and space governance. In positive-sum game politics (known as a plus-game situation), political actors (e.g., nation states) perceive who gets more and who gets much more. Meanwhile, in a zero-sum game politics (a minus-sum situation), actors' perception is pessimistic: Some get nothing and some must give up benefits that are regarded as semisacred in many nation states at the cost of winners' dominance in competitions, as winners aim to take benefits as much as possible for the monopolization of resources.[53] If optimism in East Asia's international relations is shared between relevant countries, North Korea will have an immense potential for economic development. A consortium for humanity between relevant countries will transform North Korea into another South Korea, providing North Koreans with economic prosperity, peace, freedom, and democracy. Krone proposed peaceful management of nuclear weapons between Pacific nations even before North Korea's development of nuclear weapons and ICBMs.[54] North Korea's infrastructure and manpower for nuclear development will transform assets for

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[53] Mancur Olson, Jr., and Hans H. Landsberg, eds, *The No-Growth Society* (New York: Norton, 1973); Dror, *Policymaking under Adversity*, 32.

[54] Krone, "Pacific Nuclear Information Group."

space development, and hence, they will not be dismantled unproductively, if North Korea and relevant countries seek for a *revised developmental state model* to establish North Korea's new national strategy for a strong state and a wealthy nation.

In space, there will be abundant resources, which can be utilized as public goods for humans' wellbeing and economic prosperity. Peacebuilding through denuclearization may switch Pacific nations' investment in nuclear development to investment in space development. Relevant countries have engaged in zero-sum games due to limited resources on earth, particularly engaging competitions through nuclear weapons. If Pacific nations establish leadership and moral values for *public ownership of space resources*, space development will be a *positive-sum game*, in which all relevant countries may gain Pareto-optimal outcomes for peace, economic prosperity, and humanity.

Conclusion: Prospect and Summary
Prospect after Summit Meetings between the Two Koreas and the United States
In Singapore in June 2018, the 6.12 summit meeting between the United States and North Korea was a milestone that significantly developed the relationship between the United States and North Korea, in addition to preventing nuclear proliferation all over the world. This temporary mutual trust led to the second summit meeting in Vietnam in late February 2019. Although there were no substantial agreements in Vietnam, the two countries continue to discuss solutions for denuclearization and peacebuilding in the Korean Peninsula.

What is a feasible plan for the long-term goal of North Korea's liberalization and denuclearization and for humanity in global governance? The international community must guarantee North Korea's state sovereignty, admit President Kim Jong-un's rule, and admit the North Korean ruling elites' regime's legitimacy. Then, North Korea will not develop more advanced ICBMs and nuclear weapons, such as the miniaturization of nuclear weapons, and it will not sell them elsewhere. North Korean society will be able to liberalize if peacebuilding leads to economic cooperation between North Korea on the one hand and South Korea and the United States on the other. In North Korea, liberalization will be a precondition for democratization in the long term.

In North Korea's gradual democratization, political leaders will voluntarily give up any ambitions for nuclear development, and they will dismantle nuclear facilities. This democratization is a long-term process that needs patience from neighboring countries. Thus, preliminary steps for democratization consist not only of North Korea's liberalization, but also of mutual trust between South and North Korea and between North Korea and the United States. Economic cooperation between the two Koreas and between North Korea and the United States will promote these steps.

Summary
Why have nation states' foreign policies for North Korean denuclearization failed? This is a puzzle in systems analysis. The reason for this policy failure is that the great powers have relied on power-centric approaches, and they have not taken account of North Korea's domestic politics. Policy makers have questioned why North Korea has needed to develop nuclear weapons; why any measures, such as military actions, economic

sanctions, and diplomatic repressions have been ineffective or almost impossible to apply to North Korea. My research introduces North Korean insiders' views on international relations and US policy on North Korea, because many of these views are missing, or they are not are clearly spotlighted by the US mass media and academia. In switching North Korea from a military to a normal state, it is necessary to discuss why neither military attacks nor economic sanctions have been applied effectively against North Korea. My research explains why neither a balance of power between the United States and China nor a power transition by the United States (or by China) has led to North Korean satisfaction with East Asia's international order for North Korea's top priority of national security and regime guarantee. Relevant countries must consider North Korea's domestic politics for its peaceful denuclearization to induce its satisfaction with denuclearization.

My project reflects North Korea's perceptions to identify cross-cultural variables in systems analysis. In this framework, democratic peace solutions considering domestic politics can enhance the feasibility of North Korean denuclearization beyond power-centric approaches, such as BoP and PT theories. It can also be effective at incorporating North Korea's satisfaction into a power transition perspective for peacebuilding in the Korean Peninsula. In the long term, peaceful democratization in North Korea will be accompanied by North Korean regime maintenance, national security, economic development, and economic liberalization.

Conventional foreign policies—such as (1) the US-led nuclear umbrella, (2) the neutralization of the Korean Peninsula, and (3) the nuclearization of South Korea and Japan—have not led to North Korean satisfaction with the international order. These policies are mainly nuclear proliferation and disarmament, which are based on the structure of power distributions, like BoP and PT. North Korea's economic liberalization will transform its policy line from nuclear development to peaceful coexistence. Specifically, all viable solutions of democratic peace include (1) the United States' guarantee of North Korea's regime as a military sponsor, (2) economic assistance, and (3) North Korea's liberalization, focusing on cross-cultural variables.

Of course, from realists' viewpoint, it is not certain if and when North Korea will be a normal state with democratization. The international community must be patient with North Korea's democratization. However, if North Korea's regime guarantee and national security are provided, then North Korean political reform and the opening of its domestic market will promote prosperity and humanity. Pareto-optimal outcomes during denuclearization are likely to enable North Korea to develop its economy like China and Vietnam in the short term, or like Singapore in the long term. If North Korea successfully evolves from a military state to a normal state with economic prosperity, it will voluntarily accept denuclearization. If ruling elites in North Korea gain political legitimacy, popularity, and support from their citizens, they will provide citizens with more freedom and a higher standard of human rights. With peacebuilding and economic prosperity, North Korean society will also follow a development path from economic development to economic liberalization, and eventually to political liberalization. Relevant countries, such as South Korea, the United States, China, Russia, and Japan, must consider democratic peace

solutions for North Korea's gradual path from economic development and political liberalization to denuclearization.

It is necessary to establish global governance for peacebuilding to enhance humanity during the era of space development. Krone, Krone, and Gregory-Krone[55] and KSI are exploring the peaceful use of resources in space to enhance humans' economic prosperity and wellbeing, and eventually to promote humanity. By extending this vision, my democratic peace solutions will promote global governance, interstate peace, and humanity for the long-term goals of human space development.

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Editors' Notes: Dr. Seokdong Kim represents the younger generation of scholars joining Kepler Space Institute. Here he combines his original research into the long-time challenge for peace on the Korean Peninsula with his hypotheses about the role that future Space development and abundance of resources for Earth could play as a positive independent variable for consideration. We believe that Dr. Kim is the first to introduce this concept for analysis. ***Bob Krone and Gordon Arthur.***

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[55] Krone, Krone, and Gregory-Krone, *Space Abundance*.

Space in Situation

By Yann Flipo

Space in general is not the timeless frame, the Kantian *a priori* form, we all have in mind, but, in fact, it never extends beyond our current present.

When Is Our Current Present?
The fact that our perception of the present, past, and future remains vivid after so much discourse on the illusion of time suggests that the perception has as much *raison d'être* as the supposed reality or unreality of time. It thus seems appropriate to set aside the duality of psychological illusion vs. physical reality to speak rather in terms of configuration, or, to borrow from continental philosophy, in terms of *dispositif* (apparatus). Our starting point is thus a neutral utterance: on the human scale, our experience of time is linear.

From there, a philosophical question arises which is one of actuality: when is the present situated? Is it in 1871? In 10,000 BC? In 2019? And the same question seems to apply, only with a broader date range, to the age of the universe itself.

For its part, philosophical *presentism*[1] postulates that "only events and entities occurring in the present exist." There is doubtless much to say about the somewhat problematic use of the verb "to exist" here. Is this to say that past existence has no status, or even is a contradiction in terms? This could possibly be postulated for future existence, insofar as it is wholly unpredictable, but it seems decidedly open to dispute to refer to the past as nothingness, as non-existence, on the grounds that the events involved have left the theatre of operations. Yet if we allow the word "exist" to stand, it remains the case that the presentist proposition immediately opens up the further question of *what* present is meant, and that is doubtless why the postulate contains an implicit presupposition. What it means in fact is that "only events and entities occurring in the *current* present exist."

This change in terms raises the crucial question of the existence of the current presence, i.e., knowing whether time is tensed or tenseless in the terms of John McTaggart and his A-series (past, present, and future objectives) and B-series (a perspectivist conception of time with events that precede, follow, or are simultaneous with each other).[2] In other words, the question is "how do we know now is now" (David Braddon-Mitchell) or "when am I?" (Craig Bourne).[3]

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[1] Not to be confused with presentism in a societal sense, which most of the time is not a conception, but a value judgment on (unintended) short-term vision, lack of cultural awareness, forgetting the lessons of history, etc. (although the despising of history and the glorification of present times has sometimes become a doctrine – see, for instance, futurism or Dadaism).
[2] J. McTaggart, "The Unreality of Time," *Mind* 17, no. 68 (1908): 475-74.
[3] D. Braddon-Mitchell, "How Do We Know Now Is Now," *Analysis* 64, no. 3 (2004): 199-203; C. Bourne, "When Am I? A Tense Time for Some Tense Theorists?" *Australasian Journal of Philosophy* 80 (2002): 359-71.

These are good questions; the answers given by presentist philosophers, who logically come down on the side of A-series, are hesitant, to say the least, without ever managing to demonstrate the *nowness* of the present. McTaggart, it would seem, looked for actuality all his life without finding it.

We may suspect that the problem again arises from the postulate, since affirming that "only events and entities occurring in the [current] present exist" by no means prevents the verb from being conjugated as, for example "only events and entities that occurred in the [then current] past existed." As such, it is clear that the problem is no nearer to a solution. There is clearly a form of incoherence here: conjugation has no built-in cursor, while presentism presupposes that such a cursor does exist.

Yet, if actuality is not demonstrated, then the "events and entities occurring in the present" in fact occur everywhere in time, i.e., never. Let us make sure no such thing happens, and, for that purpose, let us explore this lexical field and what we refer to as the present.

We know that the word *present* has two meanings. The first is temporal: the present moment. The second is spatial: that which is not absent, which occupies space, which takes place.

This homonymy should intrigue. Is this merely a trick of language to refer to two things that exist in discrete categories, or are they linked by something other than language? The question may initially appear somewhat distant, precisely because we have two separate categories in mind. This is the Kantian way.

From Kantian Space to Space in Situation
Indeed, we spontaneously separate the concepts of time and space. Whether we consider them physically or geometrically, we can easily conceive of space without time, for example, when we contemplate something (as long, of course, as it does not co-occur with a meditation on time...) or simply when we think of physical or geometric space in general terms. Conversely, we can easily conceive of time without space: our notion of the past, present, and future, in other terms, our sense of duration (and, beyond that, of history) is the spontaneous equivalent of separating off the concept of time.

This Kantian geography of space and time (the famous "a priori forms of our representations") seems to be our impassable horizon, even after a century of space-time.

Indeed, physics, which produced the concept that is such a source of intimidation for presentists (and philosophers in general), does not separate the two concepts. However, it is entirely feasible to consider the universe objectively without taking account of any observer, as scientists do when they calculate the age of the universe, and as others do more poetically when discussing God's point of view (in both cases with light from all stars at certain points in its travel...)

If this is our supposition, the separation of the concepts of time and space immediately becomes relevant once more, such that it can be affirmed that space-time is *based* on this initial separation rather than cancelling it out, and that in the end, the two cohabit perfectly.

Therefore, whatever the case of space-time as a sort of phenomenology of the universe, there is an equally significant intuitive experience in which time is linear and the concepts are separate.

Yet the problem of this separation, which seems so natural to us, is that it does not reflect reality – not of space-time, but of space itself, and consequently of time, as will be shown below.

So, let us take our eyes off the Kantian maps and examine the idea stated in our foreword, that space could in fact lie within the perfect frontiers of a current present.

However, to explain our current truncated vision, we must now return to a concrete, pre-Kantian understanding of space. It will be shown that the conclusion we will arrive at is valid both for physical space and abstract space, though the demonstration requires a return to the concrete.

Let us, therefore, attempt to leave behind geometry and consider space as Descartes and Leibniz did, as space *occupied* by that which exists. We know that Descartes denied the existence of space prior to that which occupies its own space: "For in fact the names 'place' or 'space' do not signify anything different from the body which is said to be in the place."[4] Following on from Descartes, Leibniz similarly deduced the space of the notion of place. Place does not necessarily pre-exist matter; rather it is a deduced notion, the place occupied by a given thing: "space is what results from places taken together."[5] Even Spinoza maintained this understanding of space, albeit while imbuing it with considerable divine value.

Note that this logically implies the rejection of the idea of the void: in other words, as Alexandre Koyré writes, "if God should destroy the world, there would be no void space left behind."[6] Therefore, let us consider for the moment the space occupied and nothing more, not as a container, but as a sort of result of that which "takes place." Of that which is present.

Bearing this *induced* space in mind, let us turn to a question that may appear incongruous, but whose response may provide us with some clues as to why the word "present" has two meanings. The question is: does this necessarily occupied space (in other words, the universe and the place it occupies) have a place in time?

The response may be rather surprising, given that, as we have just seen, it is masked by the framework of our thoughts, which spontaneously separate the concepts of space

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[4] R. Descartes, *Principia Philosophiae*, Part. II (Amsterdam: Danielem Elzevirium, 1644).
[5] Leibniz-Clarke correspondence, 1715-16.
[6] A. Koyré, *Du monde clos à l'univers infini* (1957; repr., Paris: Gallimard, 2003).

and time. It is that space occupies wholly and uniquely a present, thereby rendering the present universal and current.

Indeed, does space extend beyond the present? Does it not perfectly match its extent?

To convince yourself, please take any object around you: does it extend beyond the present? Take yourself, do you extend beyond? Then move from the particular to the general, which is space: does it extend beyond the present?

Let us call it space *in situation* as opposed to our spontaneous understanding of it, intrinsically separate from time.[7]

Not an Eternalism
The present is fashionable. Contemporary spirituality has put it on a pedestal, aiming to drive home the message that everything that happens is in the present, that we cannot step outside the present, that we should trust "the power of now,"[8] and so on. This is doubtless as it should be: at least attempts are being made stir to the "spiritual awakening" that has taken up the torch of Greek *ataraxia* and borne it to unexpected new heights.

Yet this New Age presentism, as it might be described, hardly seeks to identify the boundaries of the present, giving rise to the perpetual temptation to derealize time, to detemporalize the present.

Identifying the boundaries of the present as those of space and vice versa, as the present article does, on the contrary, returns the prerogatives of the (current) present, and consequently of the past and future. Now that actuality is fixed, we are able to say that the event "Julius Caesar crosses the Rubicon" both exists (as presentism would put it) and belongs to the past, that it had its actuality, and that it no longer has it (all things that presentism could not specify, whichever way we take it!)

To achieve this result, our only choice was to deconstruct the mental habit of intuitively seeing the present as a simple limit and space as a dissociated frame. In the absence of this deconstruction, presentism could only *decree* the actuality of the present or be doomed to a circular argument; whereas situating space in the present *induces* actuality, so that while we can still conjugate tenses, at least we know the standpoint we are conjugating from, since if the present were not (filled with) the universe itself, why would it, rather than a different one, be the current present? The universe cannot be both 1 million and 13 million years old: it has a current age, a current situation.

Therefore, "reality takes place in the current present" is doubtless a more satisfactory presentist utterance. This present – neither timeless, nor an unsituatable and

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[7] To conclude this step in our reasoning, let us note, as anticipated, that while the Cartesian identification of space and matter has helped us to conceive of this space in situation, it also conversely applies to geometrical space.
[8] E. Tolle, *The Power of Now* (Vancouver: Namaste, 1997).

ungraspable theoretical limit – is current in itself and present in both senses of the word, the homonymy reflecting reality.

This "present-present" sheds new light on the nature of time itself: there is not one nature, but two. Time is no longer a chimera, a metaphysical absolute or an illusion engendered by the brain,[9] but (at least in our reality, in the "temporal" world, as it used to be referred to) a precise and necessary configuration of abstraction (past and present) and of presence, of "there is."

In our temporal reality, there is movement and (apparent) immobility, and therefore, an abstract past and future of bodies, whether immobile or in movement.

A body is thus by definition present in the two meanings of the term. As we have seen, it is an essential property of any body, object, form, or space itself never to extend into the past or the future. A body necessarily exists in the present; the present is what encloses its form, so to speak. And conversely, time necessarily involves bodies. The physical state presupposes the abstractions of before and after.

The space in situation alters our mental framework such that the universe suddenly appears to us as if suspended or "encapsulated" between the abstracts of past and future. It is somewhat as if we were rediscovering the closed space from before the infinite universe of the scientific revolution, to borrow Alexandre Koyré's term once more,[10] but this time space is no longer closed by itself (if this could be said to mean anything), but by time.

We Are Still Very Much Attached to Our Immanent Frame
We see that every new scientific discovery further seems to unveil the rationality and intelligibility of the real, its mathematical structure, and its ever finer tuning. Therefore, as the artificiality of the real progresses, its "naturality" logically regresses.

But in the first instance, has this idea of nature not largely been dependent on our common understanding of space as a timeless frame? This frame has been called "immanence": the idea of nature slotted into it and unfurled majestically across it like a landscape. Space *in situation*, on the other hand, seems incompatible with this notion of immanence, and it reveals a reality that is more *sustained*, as if embedded, and more Heraclitean.

On the one hand, we should be alright with the idea of nature shrinking away to nothing, because this is what we wanted.

It is indeed striking to note that late nineteenth- and early twentieth-century writers thought of themselves in terms of a *struggle* against nature. Romain Rolland, a pacifist French writer awarded the Nobel Prize for Literature in 1915, remarked as an aside in

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[9] Albeit that our experience of duration is well explained by science. Briefly: within two to three seconds, our brains synchronize and homogenize various stimuli to create an impression of movement and flux, giving rise to a coherent experience of the self and the world.
[10] Koyré, *Du monde clos.*

an interview discussing the flood of inventions that marked the turn of the century that "the lightning-fast rapprochement technology has created between all the peoples of the earth [will make them] unite in the fruitful daily struggle against nature and old injustices."[11] Jules Michelet powerfully summed this up when he argued that "with the world there started a war that must finish with the world and not before: that of man against nature, of mind against matter, of liberty against destiny."[12] It would, in fact, be interesting to establish at what point this struggle to the death began. Whatever the case, it is equally striking that not only are we no longer aware of it, but also we do not see that ecological disasters are the consequences of this struggle, rather than of our negligence or even carelessness as regards nature.[13]

But on the other hand, we are still deeply attached to nature and immanence, even reduced to a mere simulacrum, a simple *interface*. We are still attached to a simulacrum of immemoriality. This is probably why the Kantian space prerequisite still has some beautiful days ahead; only they are perhaps numbered.

For if the idea of nature is dear to us, who, on the other hand, truly likes infinite space? Who is alright with this "circle whose center is everywhere and whose circumference is nowhere" (Pascal) and where "all determinate places" are "denied" (Kepler)?

Yet if all of space is enclosed in the present, then deep space, infinite space, suddenly looks less horrific: again, it is as if we got an ancient *sphere* back!

And from there, the separation between atmosphere and outer space almost seems like an internal frontier that will prove one day secondary, like a fortified city whose fortifications become obsolete as the city grows open and free.

In this (long-term) perspective of un-hostile space, and since open societies are generally more prosperous than closed societies, it is likely that we will indeed benefit from abundant space resources (regardless of the question of other civilizations). And this is raising numerous philosophical questions, such as, what to build? Colonies? New worlds? Earth suburbs? Far Wests?

Will we disperse in space or converge in megacities like we do on earth? Will there be new countries, new states, or will we go back to feudality? Also, will we stem the decline in fertility rate and start having more children again? Will we remain capitalists or will abundance make us share everything with everyone?

Will we look at earth as our home or just a territory among others? Will space be viewed as the garden of earth or earth as the courtyard of space?

And, perhaps more importantly, what about *spiritual* abundance?

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[11] Interview recording, *Anthologie sonore de la pensée française* (Paris: Frémeaux & Associés).

[12] J. Michelet, *Introduction à l'histoire universelle* (Paris: Hachette, 1831).

[13] This is indeed proof that, in line with Heidegger's well-founded intuition, we have been dispossessed of the struggle by the technology so naively referred to by Romain Rolland, and that, as such, we should perhaps be considering the Industrial Revolution as the moment the baton was handed over, and the Cartesian interlude of mastery and possession came to a close.

It seems that if the present is (along with an ego-free life) the gateway to spiritual awakening (see the abundant literature on the matter), then the fact that all of space is encapsulated in the present is certainly a worthwhile subject of meditation.

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About the Author: Born in 1973, Yann Flipo studied philosophy at the Sorbonne. He currently works in the finance department of British Telecom in Paris. He has published a few articles in French literary journals, and he has recently become interested in spirituality.

Editors' Notes: Our author, Mr. Yann Flipo, has given us an important essay on the illusion and reality distinctions involved with time and space of the universe. He questions our mental representation of space, and, in consequence, the relation between space and the present. He ends his essay with some important philosophical research questions related to the future of human exploration, development and settlements in Space. They are all relevant to our work within the issues of the *Journal of Space Philosophy*. *Bob Krone and Gordon Arthur.*

Kepler Space Institute Pareto Optimum Principles and Policies

By Bob Krone, PhD, President, Kepler Space Institute
This essay is provided for the leadership, staff, and scholars of the academics, research, programs, and publications of the Kepler Space Institute (KSI)

The life's work of Vilfredo Pareto (1848-1923), Italian scientist, sociologist, and economist, influenced the direction of management and economic theory. There are two principal concepts that he created which have become classics. The first is the *Pareto Formula*. Pareto observed that 80% of the system results flow from the efforts of 20% of the participants. The pioneers of the Quality Sciences adopted the Pareto Formula, and they created Pareto Charts to capture what was happening in business and management. The 80% to 20% formula continues to be generally validated today. The Pareto Formula was intended to be descriptive of what happens in organizations, not necessarily prescriptive for what should happen.

Vilfredo Pareto's observations and analysis produced another principle, which became known at the *Pareto Optimum* which has more powerful implications than the Pareto Formula. It is a normative, or prescriptive, concept *that should be* adopted by researchers, analysts, and leaders. A Pareto Optimum is achieved when a policy, intervention, plan, or program *makes many people better off and none worse off*. The Pareto Optimum is very difficult to achieve in any public, private, or non-profit organization. It is often impossible to achieve, because of political feasibility barriers. The greatest majority of policies require change that helps some and hurts others. That is often described as a zero-sum game, in contrast to a win-win outcome. Vilfredo Pareto realized the complexity of his concept, and he advised leadership to pursue the Pareto Optimum only as long as it was economically feasible to do.

For the past four decades, I have done organizational strategic planning consulting, and I have taught systems analysis at the university graduate level. I consider the Pareto Optimum a *golden strategic rule* for policymaking. To the degree that the quality of your policymaking or strategic planning approaches a Pareto Optimum, the following will occur:

1. the feasibility of acceptance of your recommendations will rise;
2. because, with many benefiting, consensus for approval of those recommendations has a higher probability;
3. and, no or few people will perceive themselves as worse off,

Objections and opposition to your recommendations will be small – occasionally even zero, which has happened in the US Congress.

Philosophically, sociologically, politically, psychologically, and theologically, the Pareto Optimum is consistent with some long-advocated views of preferable communities and societies. Many people being better off matches the political theory of *the general good*. It fits the values of *inclusion*, of *anti-discrimination*, and of *community in diversity.* The

theology of most religions depicts heaven as a place where everyone is better off than they were under the uncertainties, injustices, sins, and pains of life on earth.

What are some Pareto Optimums? Being an educator, I believe that education, done right, is a Pareto Optimum. Individuals improve their knowledge and professional capabilities. Their families and organizations benefit. When they apply their learning in the service of others, groups, their country, or toward global or Space needs, many are better off.

Time is a variable in validating whether a policy, plan, program, or new paradigm is a Pareto Optimum. Those of us who are professionals in the Quality Management, Quality Sciences, and Space Sciences area will design principles and policies as close to achieving a Pareto Optimum as possible. The truth is that few achievements of leadership throughout history have achieved the Pareto Optimum. Those organizations, nations, and societies that fail to achieve it are losing out competitively, and their people are relatively worse off to the more developed corporations and governments of the world. The Quality Sciences has been a variable in the increasing thriving of societies worldwide. Joseph Juran, in his final career addresses and publications, said that "The 21st century will be the century of quality." I predict that most reading this essay will support Dr. Juran's vision.

But the truth is that there is still much to be done, both nationally and globally. KSI has in its vision for the 21st century future maintaining the goal for our academics, research, and publications an ever-expanding scope of progress toward the Pareto Optimum as Space abundance is captured to meet humanity's needs.

<div align="center">****************</div>

Editors' Notes: The Pareto Optimum should be our constant target in both study and the application of study. It is a principle we should always keep in mind. For more details on the vision, principles, and practice of KSI, see www.keplerspaceinstitute.com. *Gordon Arthur.*

Ethics, Values and Moral Leadership for Space Settlements

By Lawrence G. Downing, DMin

Introduction
Kepler Space Institute (KSI) started its graduate academics with a course in the Summer of 2019 titled: "PHI 502, Strategic Foresight and Alternative Futures." The professors were Dr. Bob Krone and Dr. Lawrence "Larry" Downing. Dr. Downing presented this subject during the June 26 class session as reading for this subject which will permeate the KSI programs in the future. This is one of the most important subjects, for any society, government, school, business, and for humankind, and for Space settlements, and it is championed by the best qualified scholar and teacher for Ethics and Moral Leadership I have known. His whole life has been a model for what he teaches, preaches, and publishes. *Bob Krone, President, Kepler Space Institute.*
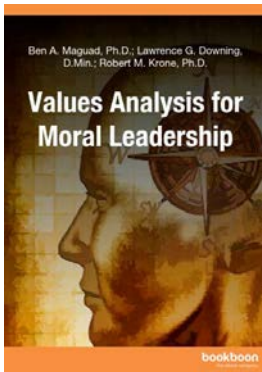
Building Your Personal Foundation for Moral Leadership

"You must be the change you wish to see in the world." – Gandhi

The Need
Evidence is abundant that there is a need for moral leadership. The need will continue to increase with the ever-increasing human and material costs of its failure. Moral leadership is essential for all of humanity.

Responsibility

Readers of this book[1] are, or will be, leaders in schools, churches, government agencies, businesses, communities, military units, foundations, non-profit organizations, hospitals, banks, financial organizations, and families. They have the responsibility to be moral leaders, to help others be moral leaders, to prevent failures, and to design codes of ethics for their organizations.

The Components of Moral Leadership
Moral leadership is a tough subject in our complex world. Formalizing the set of rules for right conduct runs into cultural, religious, cognitive, and philosophical diversities. Initially, it will raise more questions for you than it provides answers. An initial list of places to begin your study follows:

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[1] Ben A. Maguad, Lawrence G. Downing, and Robert M. Krone, *Values Analysis for Moral Leadership* (London: Bookboon, 2016), bookboon.com/en/values-analysis-for-moral-leadership-ebook. As of June 30, 2019, there had been 283,398 downloads.

1. *Using the world's religions* to define *good and moral conduct.*
2. *Studying philosophy* to define *the truth*, *systems of knowledge*, and *wisdom.* Philosophy is the science of sciences. It includes ontology, epistemology, logic, ethics, and aesthetics.
3. *Values analysis.* Values are *principles or things preferred* by individuals, groups, religions, organizations, cultures or nations, or international entities. We maintain throughout this article that values analysis is the best methodology for understanding people's and groups' beliefs and behavior.
4. *Ethics.* Ethical study investigates the nature and constituency of human character and the formulation of rules of moral behavior. Designing a *code of ethics* for yourself and your organization can be a valuable contribution to moral leadership.
5. *Theory building.* As you design your moral leadership foundation, you will be theory building.
6. *Literature review.* The Internet has revolutionized our ability to search for information. Try searching for the keywords *moral leadership* and see what you get. For the best analysis of why public moral leadership is needed, start with Yehezkel Dror's modern classic *Capacity to Govern.*[2]
7. *Continual learning.* Being a moral leader in this era characterized by uncertainty, novelty, complexity, and adversity may be your most difficult professional and personal challenge. There are pitfalls and dilemmas. Defining and achieving your own personalized foundation for moral leadership will take time, and it will mature as you advance through your career and life.

Humankind's Future and Moral Leadership

"You will not do incredible things without an incredible dream." – John Eliot

Moral leadership is a universal requirement for any society anywhere. So moral leadership should exist for humans living anywhere in the universe. How can readers become active in a movement to expand moral leadership continually throughout humanity? A practical and effective option is for leaders to take an active role in promoting positive values and practices in their organization and communities. Today, there is abundant evidence to support such action. For example, the June 12, 2016 Orlando, Florida, massacre of fifty people that caused severe injuries to more than fifty others and had profound effects upon thousands of others across America and the world turns attention once more to consider how best to prevent immoral acts perpetrated upon innocent people. The wanton act of violence upon those assembled in a gay club by a young terrorist, the deadliest mass murder in US criminal history, reminds us how important it is to instill values and morals in our young people that counter the hate and calls to violence that have encouraged those who seek to harm others. People cannot feel secure as long as evil has such a prominent role in our society. Laws by themselves will not change behavior. Limitations on human behavior will have but moderate success.

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[2] Yehezkel Dror, *Capacity to Govern: A Report to the Club of Rome* (London: Frank Cass, 2002).

More effective than the multiplication of civil regulation is a change of heart, a fundamental shift in attitude, and a mind that seeks good above ill. Moral leaders are an important component in the effort to improve how we treat one another and the value we place upon human life. Now is the time to take positive action that will promote the basic values and morals that promote and perpetuate behaviors that benefit life. A passive role, a decision to ignore the evil that surrounds and destroys, will not cut it. Moral leadership will continue to play a significant role in shaping life today and into the future. Our plea is that women and men of good will do not let this opportunity pass. Take action now!

A primary reference for you is the classic Yehezkel Dror book, *Avant-Garde Politician: Leaders for a New Epoch.*[3] Dror, in this fourteenth book of his brilliant career as co-founder and leading scholar of the Policy Sciences, takes a perspective of 100 years with prescriptions to *shape the future of humanity* – including the essential requirement of moral leadership.

Earth's literature, past and present – now readily available worldwide – provides a storehouse of wisdom to defrost and apply to this challenge. I cite here Yehezkel Dror's writings as unmatched models for personal research and involvement. Furthermore, we assume that in 2019, there is a human capacity to shape the future positively for the benefit and survival of humanity. The missing link presently is a universal commitment of global leadership and citizens to do so.

The following short Yehezkel Dror statements describe the existing situation today:

1. Humanity collectively is unprepared for coping with future challenges.
2. Without global political leadership, increased awareness, and actions, the probability of human extinction will increase, until it occurs.
3. "Continued sleepwalking by political leaders on critical issues assures disasters."[4]
4. Much is known today about the failings of public and private leaders as uncovered by investigative media. Unethical and immoral behavior is revealed continuously.
5. "Based on my personal acquaintance with the corridors of power in many countries having different regimes, my finding is that many political leaders perform much worse than is publicly known."[5]
6. There are increasingly novel critical issues, such as deep globalization, economic crises, unprecedented geopolitical shifts, greenhouse deterioration, explosive demographic pressures, technologies with uncertain long-range impacts, fanatics armed with mass-killing devices, and violent culture clashes.
7. Despite some optimistic outlooks about self-managing social processes, or governance leaders predicting major future improvements, the trend

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[3] Yehezkel Dror, *Avant-Garde Politician: Leaders for a New Epoch* (Washington, DC: Westphalia Press, 2014).

[4] Dror, *Avant-Garde Politician*, 3.

[5] Dror, *Avant-Garde Politician*, 5.

is toward an increasing severity of problems. This is dangerous, because political leaders are the only ones legitimately in charge of regulating or reversing social actions through the instruments they create.

8. We come to face the finding and conclusion that leadership will be the key to the design of future human actions that determine how developments turn out.

9. We further conclude that of all the necessary characteristics of leadership, moral leadership will remain the most influential – for good or for bad – just as it has throughout recorded history on Earth.

Future Challenges

Achieving moral leadership at a societal level will require human behavioral changes for which the means of doing so are currently unknown. We hope they will be found. If those changes remain impossible on Earth, is there the possibility of creating them in future human space settlements?

I agree with the philosophy prescribed by the Kepler Space Institute (KSI) for human settlements in Space, which is "reverence for life within ethical civilizations."[6] The hypothesis of KSI leadership is that the vision of reverence for life within ethical civilizations can be achieved by establishing it in the planning for all future Space settlements through their implementation guided by the Policy Sciences; and, furthermore, that achieving it in Space settlements will feed back as models for Earth societies. Space has no history of human conflict, intolerance, discrimination, violence, genocide, wars, or human catastrophes.

At the International Space Development Conference, in San Juan, Puerto Rico on May 22, 2016, KSI chaired a panel to begin a research program for "Human Pathologies and the Space Epoch." The purpose of the panel was to assist long-time desires to heal these human pathologies, including immoral and unethical leadership. The emerging Space Age opens up unprecedented new opportunities by using the exploration, development, and human settlement of Space as the catalyst for a human societies' paradigm shift. Humanity's health and progress – even its long-term survival – is at stake. A research question which will be pursued is:

How can the emerging Space Age be designed to avoid repetition of humanity's destructive history on Earth?

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[6] Bob Krone, "Philosophy for Space – Learning from the Past – Visions for the Future," *Journal of Space Philosophy* 1, no. 1 (Fall 2012): 17-26.

Editors' Notes: Dr. Larry Downing has been professionally contributing to Kepler Space Institute (KSI) since its 2009 origin, and before that through his academic collaboration with Dr. Bob Krone. He was a contributor to Bob's 2006 book, *Beyond Earth: The Future of Humans in Space*, which triggered the idea to pursue KSI. He then became the Chair of the Space Faith Research Project. He will be active in future KSI research and academic ventures. He has co-authored with Bob Krone and Dr. Ben Maguad of Andrews University the 2012 book, *Values Analysis for Moral Leadership*, which can be downloaded free from www.bookboon.com, and on which this article draws. ***Bob Krone and Gordon Arthur***.

Journal of Space Philosophy (JSP) Board of Editors

Kepler Space Institute (KSI) is honored to have 38 of the world's Space community professionals as members of the Board of Editors for the *Journal of Space Philosophy*.

Dr. Elliott Maynard, our *Journal of Space Philosophy* Board of Editors colleague, has beautifully stated both the purpose and the style for our peer reviews:

> This is such a hi-caliber group of leading-edge thinkers and supercharged individuals, it should be natural for each of us to wish to provide a supportive and synergistic environment for the others. I have also learned always to have someone else proof read any material I write, as I have discovered that the brain tends not to "see" my own simple mistakes. Ergo, within the new Kepler context I feel editors should be there to support our writers in the most creative and positive ways possible. (email to Bob Krone, March 23, 2013)

The purposes of peer reviews of article submissions to the *Journal of Space Philosophy* are: (1) to determine the relevance to the Vision and Goals of KSI; (2) to help the author(s) improve the article in substance and style or recommend references; and (3) to provide publication recommendations to the Editor-in-Chief.

****

1.

ARTHUR, Gordon, PhD, JSP Associate Editor, Theology at King's College, London, UK.

For Bio Info: www.linkedin.com/in/gdarthur.

2.

AUTINO, Adriano, Founder, Space Renaissance International.

For Bio Info: www.spaceentrepreneurs.ning.com/profile/AdrianoAutino.

3.

BELL, Sherry, PhD, Kepler Space Institute Dean, School of Psychology.

For Bio Info: www.nss.org/about/bios/bell_sherry/html.

4.

BLOOM, Howard K., Author, Scientist, Founder Space Development Group, Publicist, Author on Human Evolution, Science, Technology, and Space. Photo by Luigi Novi.

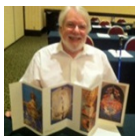**For Bio Info:** www.en.wikipedia.org/wiki/Howard_Bloom.

5.

BOLTON, Jennifer, PhD, Co-Founder Virtual Space Orbiting Settlement VOSS. Veteran and molecular biologist, Space Pioneers Science Officer.

For Bio Info: Google Jennifer Bolton.

6.

BURGESS, Lowry, Professor, Distinguished Fellow at the Studio for Creative Inquiry, Center for the Arts and Society, College of Fine Arts, Carnegie Mellon University.

For Bio Info: See Issue 1, no. 1 (Fall 2012), Article 13.

7.

CLEMENTS, Douglas H., MD, American Board of Ophthalmology, "*Improving Human Vision for Space Exploration and Settlement".*

For Bio Info: Board Certified Ophthalmologist, University of Southern California Keck School of Medicine.

8.

DOWNING, Lawrence G., DMin, Senior Pastor, Space Faith and Spirituality Pioneer, University Professor.

For Bio Info: See Issue 1, no. 1, Article 11.

9.

FITZPATRICK, Susan Beaman, DBA, Vice Chairman, Oak Family Advisors, LLC based in Chicago. She earned her DBA with the University of South Australia in Zurich Switzerland, where she studied under the supervision of Dr. Bob Krone. She is an international health expert specializing in health risk management. She has consulted with governments, public and private providers, and within health systems projects sponsored by the World Bank, World Health Organisation, and the UK's National Health Service. Susan's research interests include management capacity development and the implementation of complex innovations and programs. She has been a keynote speaker at industry symposiums and professional organizations such as the National Risk Manager's Association, Excess Surplus Lines Claims Association, American Hospital Association, American Bar Association, and State Chambers of Commerce. Kepler Space Institute is proud to have her in the *Journal of Space Philosophy* Board of Editors.

10

HAYUT-MAN, Yitzhaq (Isaac), PhD, Architect for the Universe, The Jerusalem Dome of the Rock as a memory site for theology, philosophy and humanity past, present and future.

For Bio Info: Google Yitzhaq Hayut-Man.

11.

HOPKINS, Mark, Chairman of the Executive Committee, National Space Society (NSS). Space Economics. Important in founding of the L-5 Society and collaboration of the NSS with the Kepler Space Institute.

For Bio Info: www.nss.org/about/hopkins.html.

12.

ISAACSON, Joel D., PhD, *Nature's Cosmic Intelligence*, pioneer of RD Cellular Automata since the 1960s.

For Bio Info: See Issue 1, no. 1 (Fall 2012), Article 7.

13.

IVEY, Janet, is a Nashville TV treasure and a friend of Kepler Space Institute. Her *Janet's Planet* show is the recipient of 12 regional Emmys and five Gracie Allen Awards. She is an Ambassador of Buzz Aldrin's *Share Science Foundation*. A Google search will take you to delightful images and video clips of her teaching and entertaining children about Space.

14.

KHOVANOVA-RUBICONDO, Kseniya, PhD, University of Chicago, Expert in public economics, innovation, policy and urban planning. Consultant to the Council of Europe and European Commission, proficient in six languages, Space International Economics.

For Bio Info: www.connect.tcp.org/profiles/profile.php?profileid=2296.

15.

KIM, KEE YOUNG, PhD, Republic of Korea Senior University Academician and Administrator. Former President, Kwang Woon University; former Dean of the School of Business and Provost, Yonsei University; currently the Chairman of the Board of the prestigious Samil Foundation, the oldest Korean institution to award and provide scholarships to high-performing scientists, artist and engineers.

16.

KIKER, Edward, General Engineer, GS-13, Office of the Chief Scientist, US Army Space and Missile Defense Command/Army Forces Strategic Command, Kepler Space Institute Chief Scientist.

For Bio Info: www.indeed.com/r/Edward-Kiker/45bd40a86c090f07.

17.

KRONE, Bob, PhD, *Journal of Space Philosophy* Editor-in-Chief, President, Kepler Space Institute (KSI), sponsor of this Journal.

For Bio Info: www.bobkrone.com/node/103.

18.

LIVINGSTON, David, PhD, Founder and host, *The Space Show*.

For Bio Info: www.thespaceshow.com.

19.

MARZWELL, Neville, PhD, Space Solar Power and Robotics Scientist. Career at JPL as Manager for Advanced Concepts and Technology.

For Bio Info: www.spaceinvestment.com/lcr2_bios.html.

20.

MATULA, Thomas L., PhD, Business and Management Professor, Lunar Commercial scholar.

For Bio Info: www.trident.edu/dr-thomas-matula.

21.

MAYNARD, Elliott, PhD, Founder, ArcoCielos Research Center, Sedona Arizona, www.arcocielos.com.

For Bio Info: www.fasiwalkers.com/featured/ElliottMaynard.html.

22.

MOOK, William, PE, Trained in aerospace engineering, 15 years in alternative energy, Space Commerce Technology.

For Bio Info: www.vimeo.com/user1527401.

23.

OLSON, Thomas H., PhD, DBA, Professor of Clinical Management and Organization, University of Southern California Marshall School of Business, Los Angeles, California, USA. Dr. Olson's specialty in research and consulting is on strategy, development, organization. and human capital. He has authored four books and 100 professional articles.

For Bio Info: www.marshall.usc.edu/faculty/directory/tholson.

24.

PALMA, Bernardino, Historian, Portuguese Age of Discovery.

For Bio Info: See Issue 1, no. 1 (Fall 2012), Article 8.

25.

PEART, Kim, Co-Founder, Virtual Orbiting Space Settlement (VOSS). Artist, visionary, virtual worlds.

For Bio Info: www.independentaustralia.net/about/ia-contributors/kim-peart-bio/.

26.

SCHORER, Lonnie Jones, *Kids to Space* author and teacher. Architect, aviator.

For Bio Info: See Issue 1, no. 1 (Fall 2012), Article 17.

27.

SCHRUNK, David, MD, Aerospace engineer, Founder, Quality Laws Institute, KSI Faculty.

For Bio Info: See Issue 1, no. 1 (Fall 2012), Article 18.

28.

SCHWAB, Martin, PhD, International Space author, KSI Faculty, Aerospace Technology Working Group.

For Bio Info: See Issue 1, no. 1 (Fall 2012), Article 21.

29.

SCOTT, Winston E., American Astronaut, Vice President for Development, Florida Institute of Technology.

For Bio Info: www.en.wikipedia.org/wiki/Winston_E.Scott.

30.

STEPHANOU, Stephen E., PhD, Emeritus Professor of Systems Technology, University of Southern California, Los Angeles, California, USA.

For Bio Info: See Issue 2, no. 2 (Fall 2013), Article 26.

31.

TANG, Terry, PhD, Kepler Space Institute Director of Research.

For Bio Info: See Issue 1, no. 1 (Fall 2012), Article 24.

32.

THORBURN, Stephanie Lynne, Author, Astrosociology.

For Bio Info: See Issue 1, no. 1 (Fall 2012), Article 12.

33.

WERBOS, Paul, PhD, US National Science Foundation, Space scholar.

For Bio Info: See Issue 1, no. 1 (Fall 2012), Article 19.

34.

WHITE, Frank, MSc, Founder, The Overview Effect Institute.

For Bio Info: See Issue 1, no. 1 (Fall 2012), Article 9.

35.

WILKINS, John, PhD, Professor of Space Settlements.

36.

WOLFE, Steven, Space advocate and author of the 2013 Space novel, *The Obligation.*

For Bio Info: See Issue 2 no. 2 (Fall 2013), Article 26.

37.

YACOUB, IGNATIUS, PhD, Founder and first Dean of the School of Business and Management, La Sierra University, Riverside, California. Currently Professor of Graduate Studies, Loma Linda University School of Social Work and Social Ecology, Loma Linda, California.

38.

ZUBRIN, Robert, PhD, President, Mars Society.

**For Bio Info:** www.en.wikipedia.org/wiki/Robert_Zubrin.

In Memoriam

BEN-JACOB, Eshel, PhD, Former President of Israel Physical Society; Founder Science of Bacterial Intelligence. Tel Aviv University

For Bio Info: Google Eshel Ben-Jacob.

MITCHELL, Edgar Dean, ScD, Captain, US Navy (Ret), Apollo 14 Astronaut, sixth person to walk on the Moon, Founder Institute of Noetic Sciences

For Bio Info: Google Edgar Mitchell.
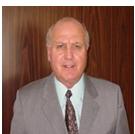
O'DONNELL, Declan J., JD, Space law attorney, Fifty publications in Space Law and Policy, Publisher, Space Governance Journal, President, United Societies in Space, Inc.

ROBINSON, George S., III, LLD, Space law pioneer and international space expert. Smithsonian Institute Legal Counsel.

For Bio Info: See Issue 1, no. 1 (Fall 2012), Article 14.

"The greatest use of a life is to spend it for something positive that outlasts it." Dr. Max T. Krone, Dean, Institute of the Arts, University of Southern California and Founder, Idyllwild School of Music and the Arts, 1950.

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