# Metalaw – What is it good for?

Michael Bohlander

Chair in Comparative and International Criminal Law, Durham Law School, Durham, United Kingdom | International Co-Investigating Judge, Extraordinary Chambers in the Courts of Cambodia | Judge, Kosovo Specialist Chambers

michael.bohlander@dur.ac.uk

Abstract

The initial metalaw debate about relations with ETI since the mid-to-late 1950s advocated a transmogrification of the traditional Golden Rule into "Do unto others as *they* would be done by". The reasoning built upon full equality between humans and ETI and on extrapolations from Kant's Categorical Imperative. Later iterations used thermodynamics, technology, economics, and altruism to shape the contours of universally valid ethical and legal principles. This paper aims to critique the intellectual foundations of the debate and argue, firstly, that despite its attempts at avoiding anthropocentrism in its deontology, it cannot evade the banal fact that so far only humans have contributed to the discussion. Secondly, it fails to acknowledge the diverse scenarios to be realistically expected in the case of contact. Thirdly, it omits recognition of the realpolitik environment surrounding such an encounter, for which there is ample empirical evidence in interhuman legal and political relationships. Ultimately, current unilateral human reflection about a cosmic metalaw is premature and the focus of the discussion should be on the parameters of the *human* response to a contact event, the quality and impact of which is unknown and unknowable until it occurs.

## 1. Introduction

The modern debate about how relations with extraterrestrial intelligences (ETI) should be established and subsequently legally regulated began in earnest with the seminal writings of Andrew G Haley in the 1950s[1], followed by the work of Ernst Fasan[2] in the 1960s, the initial period of humanity's excitement of entering the Space Age[3]. It has been critiqued by a number of commentators mainly for its lack of an empirical, rather than theoretical-deductive, approach[4], most recently in relation to human interaction with Artificial Intelligence (AI).[5] In essence, the Haley-Fasan rule advocates an alleged transmogrification of the traditional "Golden Rule" of "Do unto others as *you* would be done by" into "Do unto others as *they* would be done by". The reasoning builds upon espousing full equality between humans and ETI, and on an extrapolation of Kant's Categorical Imperative[6]. Fasan in particular distilled eleven more specific rules[7] from the general discussion, which are still the most detailed to be found in the debate[8]. Later iterations of the metalaw debate used technological, economic, thermodynamics- and altruism-based[9] arguments to shape the contours of universally valid ethical and legal principles.

This paper aims to critique the intellectual foundations of the debate and argue, firstly, that apart from questionable approaches in the use of Kant's philosophy and despite its attempts at avoiding anthropocentrism[10] in its deontology, it cannot *qua natura* evade the banal and incontrovertible fact that so far only humans have contributed to the discussion, based only on human interaction with

the world. While there may be other highly developed, and possibly even sapient, species on Earth – such as, for example, dolphins – humans are so far obviously unaware of any philosophical reflections they might entertain; communication with them is not at a level where such complex concepts could be addressed and hence, they cannot influence the terrestrial debate.[11] Secondly, it fails in its present form to acknowledge properly the diverse scenarios, other than the widely held prevalent generic expectations of alien altruism, which may be realistically expected in the case of contact with ETI. Thirdly, it omits proper recognition of the likely realpolitik environment surrounding such an encounter, including sheer power politics, for which there is moreover ample empirical evidence in interhuman legal and political relationships. Ultimately, despite its now decade-long pedigree, human reflection about a universally applicable cosmic metalaw is still premature philosophical speculation – based on extrapolations from hitherto unverifiable hypothetical grounds also imagined by humans. It is undoubtedly intellectually highly stimulating but mostly without practical relevance when it comes to defining mutual foundations of the very practical problem of managing actual contact with ETI, if and when it should occur. At present, the focus should thus be on developing the practical, including the legal, parameters of the *unilateral human* response to a potential future event, the quality and impact of which is unknown and unknowable until it occurs. The metalaw debate may, however, still play a role in this respect.

## 2. Foundations of the metalaw debate – some critical aspects

### 2.1. The questionable use of Kant's categorical imperative by Haley and Fasan

As was already mentioned, the modern debate, for all practical intents and purposes, began in the 1950s with Haley's string of articles[12] and ultimately his seminal book "Space Law and Government" from 1963[13], followed by the work of Fasan. Central to his argument, as later to that of Fasan, is an adaptation of Kant's Categorical Imperative. Haley, however, apart from listing a string of sources for the universality of the anthropocentric traditional Golden Rule, the applicability of which he then rejected as a proper basis of metalaw, did not engage in any deeper philosophical argument about the legitimacy of using Kant's idea in the context of interspecies relations[14]. In his famous "wager" [15] and the speculations in his Universal Natural History about inhabitants of other planets, Kant referred to the existence, living environment and possible physical and mental constitution of ETI[16]; however, he did not engage in explicit ethical discussions about interspecies relations. Nor did Haley and Fasan confront the criticism already levelled at Kant on account of the controversial *a priori* grounding of his imperative by other philosophers, such as Hegel or Schopenhauer[17], at the time[18].

Incidentally, the idea of using the Categorical Imperative as a foundation of, or a shortcut to, the traditional Golden Rule as a maxim of ethics based on an agent's desire for a certain outcome was rejected by Kant himself[19], so it stands to reason that he might not have approved of its use for a revised Golden Rule, either.

The best example of the absurd conclusions in legally relevant scenarios which the application of the categorical imperative can lead to is the response by Kant to French philosopher Benjamin Constant's challenge whether it was permissible for a person to lie to a murderer who asks them about the whereabouts of the murderer's intended victim (assuming that not answering the question was not an option). Kant, in the 1797 essay "On the Supposed Right to Lie from Benevolent Motives"[20], agreed with Constant that based on Kant's argument the murderer must be told the truth in order to treat him as an end in himself. Two criticisms are apposite in this context: Firstly, this outcome is far removed from common sense *practical* ethics – and indeed the commands of almost any criminal law on complicity on Earth – and it must be called grotesque to

try to shoehorn applied human practical ethics, which will ultimately have to underlie any conversation with alien ethics, into Kant's conceptual theoretical framework. Secondly, the focus on guaranteeing the murderer's quality as an end in himself misses the fact that it is his innocent victim who is now being treated as a mere means to an end, namely, to uphold the purity of the categorical imperative, and Kant may actually have misapplied his own principle in his response to Constant. From the point of view of relevant practical ethics, Kant's philosophy was thus a problematic foundation on which to build a *cosmic* metalaw – not least because at the time, the pertinent modern discussion about terrestrial cultural and human rights relativism was essentially unknown.

Interestingly, Fasan also advocated the use of the principles expounded in Hans Kelsen's *Reine Rechtslehre* of 1934 ("Pure Theory of Law") as a kind of second stage of fleshing out the details of metalaw by the purely formalistic and almost mechanical mode of argument espoused by Kelsen, an approach that does not allow any extraneous policy aspects, or indeed adjustments, to influence the process of deduction as such.[21] Again, that idea of a seemingly "clean" – another word for the German "*rein*" – method based on mere deductive logic is something the modern development of domestic and international legal interpretation in virtually all jurisdictions has long abandoned as an epistemological illusion.

2.2. The new Golden Rule of Haley and Fasan led to an impasse.

Subject to the overarching caveat explained under 2.3. below, Haley's and Fasan's arguments would also appear to be self-defeating to a large extent: If the new rule is to be that each party to a metalaw-based relationship should treat the other as *they* want to be treated, the universal rule's implied mutual reciprocity also demands of each party to treat the other in a way which the other party is not entitled to ask to be treated in the first place. In other words, if A must not expect to be treated as it wants to be treated but must treat B as B wants to be treated, and B must not expect to be treated as it wants to be treated but must treat A as A wants to be treated, then the mutual commands of the new Golden Rule *prima facie* cancel each other out, always assuming that the expectations on either side are not identical.

In a slight modification of the example given by Patricia M. Sterns[22] of a war after which the victorious ETI as a rule practices the enslavement and cannibalism of the vanquished on its home world, the new rule might expect an allied human force to abide by the ETI's practices and join in them. Not doing so would irredeemably offend the ETI. However, the humans in turn could ask the ETI not to be made to do so, because it would violate fundamental human values, which the ETI would under the metalaw rule be prevented from asking the humans to consent to.

Fasan's eleven rules[23], against this background, are actually not mere and more specific explanatory sub-rules of the new Golden Rule, they are in themselves – in legal terms moreover rather unclear and in part self-contradicting – restrictions on its general application: Rule 1 on not asking for an impossibility may be understood not merely as a factual impossibility (which seems rather banal) but also, and more importantly, as an ethical impossibility, i.e., it may depend on whether a certain demand refers to negotiable or non-negotiable aspects of the other party's set of moral or legal rules. The same applies to Rule 4 on self-determination and Rule 5 on avoidance of harm. All of these could trigger the right to self-defence under Rule 7, which coupled with Rule 8 on the hierarchically more important protection of one's own species might ultimately justify, in terms of current international interhuman criminal law, the crime against humanity of extermination of the other species. What is left of the general new rule after these detractions is open to question.

A major conceptual problem becomes apparent here, namely, that there is no reference to a higher instance that could be called upon to settle disputes arising from the application of the new rule. Depending on the strength of offence caused to either party, settling the dispute might *ultima ratione* result in another conflict. The usual way of managing such discrepancies between parties' positions is the negotiation of a compromise, as evidenced in human international relations experience. The new Golden Rule offers no guidance in that respect, yet as the examples above show, compromise will be the only viable avenue short of conflict.

2.3. No model can avoid anthropocentrism or withstand every direct contact scenario.

The subsequently introduced models based on thermodynamics arguments (thermoethics) and altruism- or technological/economic feasibility-based[24] hypotheses are certainly intellectually more sophisticated than the methodologically questionable recourse to an 18th century philosopher, yet they, like Haley's and Fasan's, are all mere human conjecture based on the behaviour of the only sapient ethical civilisation known to humans and with whom they can communicate at an advanced level – themselves. It is therefore irrelevant for the purposes of the present examination to discuss their respective philosophical and practical merits as such.

Only the following general comment on the link between an advanced civilisation state[25] and ethical conduct may be permitted – it should certainly contain no radically new insight: Even if the general assumption that ETI will likely be highly advanced and hence rational actors was correct, ethical or even altruistic behaviour does not necessarily follow from being rational – especially in the case of post-biological AI civilisations where the level of self-awareness and experience of contact with other sentient (biological) entities may determine the level of insight into ethical reference frameworks. Human history alone speaks against such a blithe conclusion which some might even call wishful thinking. The Nazi ideology arose in a German scientific environment whose community was very advanced for its time, yet the Nazis were extremely rational in using that science in order to pursue an utterly immoral policy that led to immeasurable suffering and the horrors of the Holocaust. Also, as every criminal detective, prosecutor and judge knows, even "ordinary" criminals can be highly intelligent and rational and the more they are, the greater the danger they pose – one need only think of Arthur Conan Doyle's fictional character of Professor Moriarty. There is no reason to think that ETI do not have them or that first contact might not be made with a rogue individual or group.[26] Humans are as advanced as never before technologically but massive organised criminal activity, both by state and non-state actors, using that very technology still occurs and our level of civilisational development has so far not led to drastic action to stop and reverse the greatest environmental crime against our entire species, manmade climate change.[27]

The fact of the matter is: There is simply no other dataset that would support any of the conclusions reached by human scholars based on hypotheses created out of sheer speculation. They can only ever serve the – nonetheless important[28] – purpose of elaborating the moral point of departure for humans in future ethical conversations with ETI. Beyond that, what is said in these models about expectations related, for example, to likely degrees of alien altruism or aggressive and hostile attitudes of ETI is, it must be repeated, currently only a figment of our own ethical imagination. It may equally be as true as it might be wrong.[29] In this sense, Tony Milligan cautioned even for the aspect of mere human space exploration:

> "The danger then is one of imagining what we can specify, by appeal to known and homely considerations, more than the very broadest and most general ethical features of how this more distant and troubling future might be lived."[30]

Actual empirical data on any moral principles of ETI will be collected only when contact is made, and the content or speed of data collection will depend on the manner of contact: It may take decades or even centuries if a signal from afar is received; it may happen within hours in the case of direct contact in the proximity of, or even on, Earth. It bears pointing out in the context of the debate about the greater likelihood of contact being made with a highly advanced AI-controlled machine civilisation rather than a biological one, that reception of a remote signal might already be *direct* contact if the signal contains either a sort of virus meant to debilitate terrestrial defences or even *is* the AI in the form of a sentient clone programme of itself.[31]

In both cases, there will very likely either – at least initially – be no sufficient point of reference in the form of an interstellar Rosetta Stone in order to decipher the meaning, leave alone a moral meaning, of a message, or there may be no time at all to achieve efficiency of communication on a level required for an exchange of information on ethical or other philosophical concepts. If in the latter case the ETI is hostile, inclined to pre-emptive aggression and superior in power, there may be no communication.

## 3. Realpolitik

### 3.1. SETI is a real-life endeavour facing real-life challenges.

Competing for expensive and highly coveted dish time by radio astronomers or creating such ambitious projects as Breakthrough Starshot[32] makes no sense unless there is a shared expectation that contact is actually possible and all involved aspire to making it – although some have queried whether the traditional refusal to engage with accounts of alleged direct contact on Earth or the persistent "giggle factor" around UFO research etc. might not be indicative of a subconscious apprehension that the very thing everyone is working towards might actually come to fruition or already have happened.[33]

SETI is not primarily a philosophical or academic undertaking. It has so far been mainly in the hand of natural scientists, more recently also increasingly of social scientists, but as Baxter and Elliott correctly stated in 2012 regarding the need for proper pre- and post-detection protocols and policies, "[t]he early involvement of space lawyers and UN agencies could help improve the chances of having any proposed policy widely accepted, and workable in practice".[34]

In an unprecedented editorial comment in the American Journal of International Law, Richard B. Bilder recently confirmed the widely held conviction that despite the broad acceptance in the community of the two SETI protocols and some references in the existing treaties and agreements about the use of outer space, the moon and other celestial bodies which could find application to contact events, there is currently no binding legal framework regarding SETI. A treaty regulating it would make eminent sense in his view, yet on the one hand not many states might develop an interest in preparing for a scenario that is in many people's views unlikely to materialise anytime soon. On the other hand, they and the UN agencies might consequently be reluctant to divert resources away from the more pressing core areas of UN activity to a field where a large number of states would not realistically have the chance of any material involvement. A few states with the capacity of space exploration in the wider sense would thus be dominating the efforts, creating the risk that any treaty would not receive sufficient ratifications. He expresses the view that in practice the SETI Protocols would be largely observed already. Incidentally, this was confirmed in a private communication to the author from a member of the European Space Agency (ESA) who wrote on condition of anonymity that in the case of a first contact, ESA would probably abide by the SETI protocol(s) and accordingly coordinate its response with UNOOSA. Bilder argues that "soft law" options[35] such as non-binding declarations or resolutions by the UN General Assembly might

provide a less difficult pathway to international agreement on the matter.[36] He concluded, however, by stating:

> "The chances of our contact or encounter with extraterrestrial beings or civilizations may be remote. Yet, as Stephen Hawking and others have argued, the risks and impact of such a contact for our human species could be very great – even existential. Consequently, the issues raised by SETI and METI merit the international community's, COPUOS's – and international lawyers' – timely concern and consideration."[37]

If that is the case, then the SETI community needs to add practical politics-facing activism to its portfolio to a greater extent than is hitherto the case. SETI protocol development currently has a democracy deficit[38] and needs a stronger basis in society and among political decision-makers, not least because it is all but certain that the moment detection occurs and is communicated to the relevant governmental and international authorities, the latter will take control of the situation.[39] Law is one discipline that should be at the forefront of these endeavours. In the words of Dick, "SETI is way behind the curve when it comes to legal implications of discovering intelligent life".[40]

3.2. *Si vis pacem, para bellum* – If you want peace, prepare for war.

The argument that because scientific SETI has been unsuccessful so far, (direct) contact remains only a remote possibility is a common logical fallacy based on incomplete statistics. The current search parameters of SETI are very narrow as it is, and humanity may moreover have missed a plethora of available information because we are not (yet) technologically equipped to recognise the evidence – if there is much to detect in the first place or if it will be SETI scientists at all, and not the intelligence services with their more advanced technology, who detect the signal.[41] We might in theory be only days away, every day, from contact. Even if contact were a low-probability event, it would at the same time be high-risk, the level of risk depending on the nature of the contact.[42]

Humanity cannot rely on the hope of a purely benign contact, especially if we were to face direct interaction with ETI. Prudence requires that adequate preparations be made especially for the risk of hostile contact.[43] This includes drafting revised planetary defence protocols involving a change in paradigm for the interpretation of the term "defence", and possibly adaptations, for example, of the laws of armed conflict. Research into potential amendments to current laws of armed conflict applicable to interhuman military space operations is already being conducted under the auspices of the Woomera Manual project[44] and the Manual on International Law Applicable to Military Uses of Outer Space (MILAMOS)[45]. In the context of possible SETI success and preparing for (direct) contact, it would seem obvious that an extension of such research into interspecies conflict should be a natural corollary to considering interhuman space warfare.

In an email of 13 August 2020 to the author, a senior member of the US Army officer corps, also on condition of anonymity, further opined:

> "Regarding a general blueprint or policy for first contact, I am not aware of any such plan or policy. Having said that, there are two points that I would highlight. First, as you might imagine, any such plan would most likely be classified. That is, it is not at all uncommon as most operations plans are. Second, at least from the perspective of the U.S. military, we are obsessive planners. As such, it would not surprise me that such plans or policies would exist."

The revision of existing protocols and legal frameworks cannot be done by the scientific community alone or remain forever in the black box of military operational planning but must involve democratically legitimised political decision-makers at the earliest opportunity.

If all of this seems to be (lunatic) fringe thinking, it may be because humanity has not yet developed cosmic species awareness and responsibility[46], or simply accepts the common narrative that any ETI contacted will be vastly more advanced and powerful and hence impossible to resist anyway. In that respect, Michaud had the following to say:

> "SETI conventional wisdom assumes that because we will be much less technologically advanced than any other civilization that we contact, we would be helpless if the extraterrestrials were hostile. This disparity may turn out to be true, but it remains unproven. To assume our weakness in advance would be preemptive capitulation."[47]

Even in peace time, international interhuman relations are ultimately always based on power politics. Unless one side can back up its position with some form of persuasive capital, it will stand little chance of influencing the negotiations in its favour. There is no reason to think it would be otherwise in compromise negotiations with ETI.

4. Conclusion: The question at this time is not how *ETI would* act, but how *we should* act.

Given that reflections about possible moral persuasions of ETI will by necessity remain one-sided, unverifiable conjecture until contact is made, the role of legal research in SETI should shift to shaping the human baseline for future moral conversations with ETI in the wider sense, or even conflict.[48] If there is a "Galactic Club" to which humanity might in time wish to aspire, we should expect to fulfil certain membership criteria and be in a grounded position to decide whether they are compatible with human ethical parameters. Dick found that "the possibility of contact is a strong argument that some form of metalaw must be developed in order to deal with interactions with aliens[.]"[49]

The experience of international law has shown that there is an osmosis effect both ways with domestic jurisdictions, and while domestic states create international law through treaties or simply their practice, once created, international law can develop powers to bind even its creators, for example, in the case of customary *ius cogens* applicable *erga omnes*. It can be expected that such an osmosis effect might also occur in the relationship with ETI, especially in the "Galactic Club" example. Human rights law in particular can serve as a ready guideline for ethical discussions. It has so far been conspicuously absent as an avenue of study in the metalaw environment.[50]

There is a related field of uncertainty in the context of potential hostile encounters, assuming humanity would be in a position to mount an effective defence at all. Our laws of armed conflict and consequently international criminal law are based on human-to-human hostilities or in other words, "man's inhumanity to man". They ultimately derive from considerations of damage control within one species. Genocide or the crime against humanity of extermination are particularly glaring examples. Would these laws still be held to prevent the destruction of an entire species or a substantial part thereof – for example, the arrival of a colony ship in Earth's orbit carrying all, or a majority of, the members of a nomadic civilisation – if otherwise humanity was at risk of enslavement or extinction?

Currently, humanity has no coordinated answers for any of those questions.[51] Metalaw research could play a role in testing and, if necessary, stretching the envelope of traditional attitudes. Work on fundamental principles of universal human rights and acceptable negotiated forms of governance, as well as research into the foundations of an outward facing law of armed conflict

including its interaction with international criminal law as a basis for encounters with ETI could become a mainstay of its policy ambitions. To quote Steven J Dick once more:

> "Meeting the alien will be an experience we cannot afford to mismanage. In so many ways and more than ever, failure is not an option."[52]

***

[The author would like to thank Dr Benedict Douglas, Assistant Professor in Law, Durham University (UK), Dr John Elliott, Chair of the UK SETI Research Network and Honorary Research Fellow at Manchester University (UK), Professor Christopher J Newman, Professor of Space Law and Policy, Northumbria University (UK), and Professor Shaun Pattinson, Professor of Medical Law and Ethics, Durham University (UK), as well as the anonymous reviewers, for helpful comments on earlier versions of this paper. The usual disclaimer applies. The paper is written in a purely personal capacity.]

---

[1] Andrew G. Haley, 'Space Law and Metalaw—A Synoptic View, (1956) Harvard Law Record, November 8; id., Space Law and Government, 1963 (hereafter "Haley, Space Law").

[2] Ernst Fasan, Weltraumrecht, 1965, 141 – 154; id., Relations with Alien Intelligences: The Scientific Basis of Metalaw, 1970 (hereafter: "Fasan, Relations") cited after the version printed in Patricia M. Stearns/Leslie I. Tennen (eds.) Private Law, Public Law, Metalaw and Public Policy in Space, 2016, 181 – 246; id., Discovery of ETI: Terrestrial and Extraterrestrial Legal Implications, Acta Astronautica 21(2) (1990) 131–135, id., Legal Consequences of a SETI Detection, Acta Astronautica 42 (10–12) (1998) 677– 679.

[3] See, for example, Stephen Gorove, On the Threshold of Space: Toward a Cosmic Law, (1958) 4 New York Law Forum, 305 – 328.

[4] Overview of the literature in George S. Robinson, METALAW: From Speculation to Human*kind* Legal Posturing with Extraterrestrial Life, Journal of Space Philosophy 2, no. 2 (Fall 2013) 49 - 56, Adam Korbitz, IAC-10-A4.2.10 – Metalaw and the Need for Further Elaboration, 2010 (unpublished paper kindly provided courtesy of the author) and id., Altruism, Metalaw, and Celegistics: An Extraterrestrial Perspective on Universal Law-Making, in Douglas A. Vakoch (ed.), Extraterrestrial Altruism, 2014, 231 – 247.

[5] Kamil Muzyka, The basic rules for coexistence: The possible applicability of metalaw for human-AGI relations, Paladyn, J. Behav. Robot. 2020 (11) 104–117.

[6] Haley, Space Law, 412; Fasan, Relations, 223.

[7] Fasan, Relations, 237 – 238. He later reduced these to a shorter canon of three rules, Legal Consequences of a SETI Detection, Acta Astronautica 42 (10–12) (1998) 677– 679 at 678 - 679.

[8] Overview in Adam Korbitz, Altruism, Metalaw, and Celegistics: An Extraterrestrial Perspective on Universal Law-Making, in Douglas A. Vakoch (ed.), Extraterrestrial Altruism, 2014, 231 – 247 at 239 – 242.

[9] Adam Korbitz, Altruism, Metalaw, and Celegistics: An Extraterrestrial Perspective on Universal Law-Making, in Douglas A. Vakoch (ed.), Extraterrestrial Altruism, 2014, 231 – 247.

[10] Haley, Space Law, 414, 420.

[11] Denise L. Herzing, SETI meets a social intelligence: Dolphins as a model for real-time interaction and communication with a sentient species, Acta Astronautica 67 (2010) 1451–1454; Laurance R. Doyle/Brenda McCowan/Simon Johnston/Sean F. Hanser, Information theory, animal communication, and the search for extraterrestrial intelligence, Acta Astronautica 68 (2011) 406–417. On similar research with octopuses Peter Godfrey-Smith, Other Minds – The Octopus and the Evolution of Intelligent Life, 2016.

[12] Listed in Haley, Space Law, 421 – 423.

[13] Haley, Space Law, 394 – 423.

[14] Quite outspoken Francis Lyall/Paul B Larsen, Space Law – A Treatise, 2nd ed., 2018, 506 – 507.

[15] "If it were possible to settle by any sort of experience whether there are inhabitants of at least some of the planets that we see, I might well bet everything that I have on it. Hence I say that it is not merely an opinion but a strong belief (on the correctness of which I would wager many advantages in life) that there are also inhabitants of other worlds" – Immanuel Kant, Critique of Pure Reason, translated and edited by P. Guyer & A.W. Wood. Cambridge University Press, 1998, 687 (B 853). – See on the wager's impact on theology Andreas Losch, Kant's wager. Kant's strong belief in extra-terrestrial life, the history of this question and its challenge for theology today, (2016) 15 International Journal of Astrobiology, 261 – 270.

[16] Immanuel Kant, Universal natural history and theory of the heavens or essay on the constitution and the mechanical origin of the whole universe according to Newtonian principles, 1755, Part Three; in Eric Watkins (ed.) Immanuel

Kant – Natural Science, (CUP), 2012, 182, at 294 - 306. See also in the context of anthropomorphism the reference by Ulrike M Bohlmann/Moritz JF Bürger, Anthropomorphism in the search for extra-terrestrial intelligence - The limits of cognition?, [2018] Acta Astronautica 143, 163 - 168, at 165.

[17] Georg Wilhelm Friedrich Hegel, Grundlinien der Philosophie des Rechts, 1820, § 139; id., Aufsätze aus dem Kritischen Journal der Philosophie. vol. 2, 463; Arthur Schopenhauer, On the Basics of Morality, Hackett Classics, 1999. – Fasan only briefly mentions a generic hint at critique in Relations, 233.

[18] More recent critiques of Kant by Karl Marx, Critique of Hegel's Philosophy of Right, 1844; Jürgen Habermas, Moralbewusstsein und kommunikatives Handeln, 1983; Hans Jonas, Das Prinzip Verantwortung. Versuch einer Ethik für die technologische Zivilisation, 1984; Marcus G. Singer, Generalization in Ethics, 1971; Norbert Hoerster, Ethik und Interesse, 2003.

[19] Immanuel Kant, Grundlegung der Metaphysik der Sitten, in Gesammelte Schriften; 1900 ff., AA IV, 430. – Online at https://korpora.zim.uni-duisburg-essen.de/Kant/aa04/430.html.

[20] See www.sophia-project.org/uploads/1/3/9/5/13955288/kant_lying.pdf.

[21] Fasan, Relations, 238. On the consequences of using Kelsen for designing criminal law systems Otto Lagodny, Zwei Strafrechtswelten – Rechtsvergleichende Betrachtungen und Erfahrungen aus deutscher Sicht in Österreich, 2020.

[22] SETI and Space Law: Jurisprudential and Philosophical Considerations for Humankind in Relation to Extraterrestrial Life, [2000] 46 Acta Astronautica (AA), 759- 763, at 762.

[23] They are: "1. No partner of Metalaw may demand an impossibility. This is the strongest rule of all, because an obligation to perform the impossible goes contrary to the principles of life, law, and logic. Living organisms are not capable of performing the impossible. 2. No rule of Metalaw must be complied with when compliance would result in the practical suicide of the obligated race. This rule is the second in strength, because it results from the most basic instinct of life, that of self-preservation. 3. All intelligent races of the universe have in principle equal rights and values. This rule comes next because it results from the basic will to live and because it is necessary for the development of further legal relations. From which it follows: 4. Every partner of Metalaw has the right of self-determination. 5. Any act which causes harm to another race must be avoided. This next rule, based upon the anti-entropical nature of life, is (as may well be noted) the first one which assigns a real duty to one race in regard to the other one. It results in the following terms of equal validity. 6. Every race is entitled to its own living space. 7. Every race has the right to defend itself against any harmful act performed by another race. 8. The principle of preserving one race has priority over the development of another race. 9. In case of damage, the damager must restore the integrity of the damaged party. 10. Metalegal agreements and treaties must be kept. 11. To help the other race by one's own activities is not a legal but a basic ethical principle." See Fasan, Relations, 237 – 238. He later reduced these to a shorter canon of three rules, Legal Consequences of a SETI Detection, Acta Astronautica 42 (10–12) (1998) 677– 679 at 678 - 679

[24] Critical Steven J Dick, Astrobiology, Discovery, and Societal Impact (hereafter: Dick, Astrobiology), 2018, 287: "dubious alien economics about the cost-effectiveness of interstellar spaceflight".

[25] But see Niklas Alexander Döbler, The Concept of Developmental Relativity: Thoughts on the Technological Synchrony of Interstellar Civilizations, Space Policy 54 (2020) 101391.

[26] Michael A G Michaud, Contact with Alien Civilisations, 2010 (hereafter "Michaud, Contact"), 302.

[27] Michaud, Contact, 293 – 301, 304.

[28] James S J Schwartz, On the Methodology of Space Ethics, in James S J Schwartz/Tony Milligan (eds.), The Ethics of Space Exploration, 2016, 93 – 107 at 106.

[29] Michael Schetsche/Andreas Anton, Die Gesellschaft der Außerirdischen – Einführung in die Exosoziologie, 2019, 212.

[30] Tony Milligan, Space Ethics Without Foundations, in James S J Schwartz/Tony Milligan (eds.), The Ethics of Space Exploration, 2016, 125 – 134 at 133.

[31] Michael Schetsche/Andreas Anton, Die Gesellschaft der Außerirdischen – Einführung in die Exosoziologie, 2019, 212 – 213, with references to previous literature on the virus scenario.

[32] See https://breakthroughinitiatives.org/initiative/3.

[33] Michael Schetsche/Andreas Anton, Die Gesellschaft der Außerirdischen – Einführung in die Exosoziologie, 2019, 199 and 215; Michaud, Contact, 241 (citing Zdenek Kopal), 252, 325, 358 – 359.

[34] Stephen Baxter/John Elliott, A SETI metapolicy: New directions towards comprehensive policies concerning the detection of extraterrestrial intelligence, Acta Astronautica 78 (2012) 31 – 36, at 36.

[35] Irmgard Marboe (ed.) Soft Law in Outer Space – The Function of Non-binding Norms in International Space Law, 2012.

[36] Richard B Bilder, Editorial Comment: On the Search for Extraterrestrial Intelligence (SETI), (2020) 144 American Journal of International Law, 87 – 95.

[37] Ibid, at 95. See also Dick, Astrobiology, 287.

[38] Peter Hatfield/Leah Trueblood, SETI and democracy, Acta Astronautica (2021), doi: https://doi.org/10.1016/j.actaastro.2020.11.053; Michaud, Contact, 288 – 291, 366 – 368.

[39] Dick, Astrobiology, 292.

[40] Dick, Astrobiology, 295.

[41] Michaud, Contact, 264 – 267, 277.

[42] Compare Dick, Astrobiology, 269 – 302 on an "astropolicy" to prepare for the impact of discovery.

[43] Compare William Kramer and Charles Bahmer, The Fire Officer's Guide to Disaster Control, 2nd ed., 1992, Chapter 13 on enemy attack and UFO sightings or landings (copy received courtesy of Mr Rex Heisdorffer, Assistant Chief, Newton Fire Department, Iowa).
[44] Https://law.adelaide.edu.au/woomera/.
[45] Https://www.mcgill.ca/milamos.
[46] Dick, Astrobiology, 310 – 311, and more broadly 209 – 239.
[47] Michaud, Contact, 376.
[48] Dick, Astrobiology, 240 – 268.
[49] Dick, Astrobiology, 301.
[50] Francis Lyall/Paul B Larsen, Space Law – A Treatise, 2nd ed., 2018, 506 fn. 131.
[51] Dick, Astrobiology, 270 – 271.
[52] Dick, Astrobiology, 302.