

# Submission to [*JOURNAL*]

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Title: *The Unjustified UFO Taboo*

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Over the last decades sufficiently strong evidence was obtained to discuss the possibility of non-human intelligent causal influence on earth as a relevant hypothesis in Bayesian terms. From this follows that, given the enormous scientific and cultural implications, the discussion around this hypothesis should be a large scale scientific project of the academic community. I summarise a selection of evidence: (a) declassified government reports of UFO related investigations, (b) a barrage of whistleblowers with former military or intelligence roles, (c) not strong, but also not negligible evidence of *alien* encounters close to or inside of UFOs. However, I show empirically that scientists, in particular astrobiologists, strategically and strictly ignore any UFO related evidence. Reasons for this are socio-psychological and pragmatic concerning personal careers, but not rational. The UFO taboo, as any other taboo in science, dangerously undermines the public's trust in science. I suggest strategies for scientists to overcome the taboo.

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“Normal science, for example, often suppresses fundamental novelties because they are necessarily subversive of its basic commitments.” (Kuhn 1962, 5)

“[D]ie Kraft der Erkenntnisse liegt nicht in ihrem Grade von Wahrheit, sondern in ihrem Alter, ihrer Einverleibtheit, ihrem Charakter als Lebensbedingung. Wo Leben und Erkennen in Widerspruch zu kommen schienen, ist nie ernstlich gekämpft worden; da galt Leugnung und Zweifel als Tollheit.” (Nietzsche 1887, Sec. 110)

## 1 Introduction

Due to the controversy around this paper’s topic, I introduce it with some very general remarks to provide a broader historical motivation. As scientists and philosophers of science, I believe, we should aim to not only work out a specific niche in working groups of specialized training. More importantly, philosophers of science should comment on criteria for scientific methodology on the forefront of scientific discussions. One interesting observation with relation to such an aim is hinted by the fact that, as Feyerabend (1975) elaborates on, some important scientific breakthroughs came, for whatever reasons, from academic outsiders.<sup>1</sup> Schliemann, an investor and entrepreneur, funded the excavation of Troy. Einstein was employed at a patent office when he wrote his four important papers of 1905. Galileo had to forcefully fight for heliocentrism against the church’s establishment. Darwin studied theology, after being very displeased by his medical studies (cf. Darwin 1826). Reber, a radio manufacturer, established radio telescopes for astronomical purposes. Gans and Shepherd (1994) collect a list of rejected “world’s leading economists[?]” journal contributions of which some “later became classics” and their list “includes fifteen Nobel Prize winners”.

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<sup>1</sup>Breakthroughs have to be *achieved* by publicly defending, promoting or financially funding the defence of a claim. This involves *risk* and demands *courage*.

It seems that, roughly speaking, even if academics consciously praise free speech and rhetorically demonize dogmatism, new ideas are hard to defend regardless of how evidentially justified a belief may be. One can speculate for reasons of this: cognitive inability of an *establishment* to adapt to significantly new approaches, psycho-social mechanism to defend the significance of the own and now challenged results, other non-scientific or social motives. I do not provide a detailed psychological study on these issues, but one of the results of this paper is that today's academia still shows aspects of irrational dogmatism, and very important scientific questions can be a taboo in the sense that any contribution to such an issue seems to get systematically rejected by large groups. Even worse, available evidence is bluntly ignored.

To demonstrate this, I present evidence from the field of ufology in the Section 2, which is a necessarily lengthy section due to the lack of available academic publications about these evidence. Ufology is defined by scientific goals, but it is mostly overlooked by publicly funded scientists. The goal of ufology is, in brief, to find out what reportedly sighted UFOs (definition/explication in Section 2) are, who or what makes them and who steers them, if they are steered. To put it frankly, the evidence is noteworthy for a hypothesis that non-human intelligent beings are involved. Evidence is published by reliable sources and easily available to everyone. However, UFO related evidence seems to be dogmatically rejected by academic mainstream, in particular by astrobiology, in which's scope aspects of these investigations lie (e.g. possible relations to extraterrestrials). Later on, I speculate about the reasons why these evidence are irrationally overlooked, which turn out to be not only psychological and social, but also rational from the perspective of personal career optimization (Section 3).

## 2 Evidence

In a Bayesian approach to science, evidence is measured by a probabilistic degree with which it confirms or disconfirms a hypothesis. These degrees can

be interpreted as being subjective to certain agents or a group of agents (e.g. the scientists in the field) or to be in some sense objectively justified (e.g. explicated in statistical terms). Evidence for the existence of UFOs is strong, evidence for the occurrence of non-human intelligent causal influence on earth is non-negligible.

UFO (“unidentified flying objects”) occurrences are a good example for evidence that can be used to corroborate different speculative hypothesis (e.g. ETs visit earth; military engineers work on new forms of propulsion technology) in Bayesian terms. According to the consensus in ufology,<sup>2</sup> UFOs are *objects* in the sense of being non-illusional, intersubjectively observable matter. UFOs *fly* in the sense of occurring in airspace without falling down and seem to move by an own propulsion system. UFOs are *unidentified* in the sense that they, despite their appearance and movements being clearly described, do not match any publicly documented animal or vehicle and—this is the most important aspect—they show superior mechanical capabilities that could only be achieved by technology that is not publicly documented. The last criterion can, for example, be fulfilled when data shows that an UFO was “hovering absolutely silent” or it “accelerated much faster than rocket propulsion allows” or the like. (cf. Kean 2011)<sup>3</sup>

## 2.1 Declassified Official Reports

A country’s air space is a security sensitive area. Foreign military vehicles or terrorists can cause great harm via airspace due to the possibility of fast and direct movement to almost every location (e.g. city centers; nuclear installations). That is why all capable nations observe their air space cautiously and continuously. The main technology to observe large areas of air space is ground

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<sup>2</sup>This is my definition/explication that is based on the literature that is mentioned in 2.1 and 2.2.

<sup>3</sup>These two descriptions occur at many different UFO sightings, whereas other descriptions, such as the specific shapes or colors of the UFOs vary greatly.

and satellite radar. Furthermore, in particular in case of a detected possible threat observation helicopters or planes are sent up to investigate.

If there were UFOs flying through our air space and they appear on radar, meaning they do not use any stealth technology, then aerial surveillance must have collected detailed information of such phenomena. Therefore, an obvious argument against the existence of UFOs in our air space would be that we would know much about them from aerial surveillance reports. The simple answer to this argument is that we in fact do know a lot about UFOs, at least about how they appear to our air surveillance. It is another question whether scientists are informed about the evidence or simply ignore it.

Democratic countries have laws similar to the Freedom of Information Act (FOIA) in the USA and governments depend to some degree on their citizens' trust. Citizens are legally allowed to request formerly classified information. Ufologists made extensive use of this law to collect official reports from various state agencies. Table 1 shows a rough overview over some UFO related documents from government sources. Note that the mere existence of this vast amount of documentation indicates that the authorities treated UFO sightings extensively and with care. Furthermore, this table only lists officially declassified government documentation, and does not include still classified documentation or non-official disclosure from individuals in (formerly) official roles (of which there are many, too, as is discussed in Section 2.2).

In the following, I discuss a brief and exemplary selection of quotes from declassified documents from U.S. sources.—I chose those due to the English language and available extensive discussions. The first quote is from a documented briefing in 1952. Authored by H. M. Chadwell (Assistant Director for the Office of Scientific Intelligence) to inform the Director of Central Intelligence about the relevance of UFO sightings:

At this time the reports of incidents [=UFO sightings] convince us that there is something going on that must have immediate attention. The details of some of these incidents have been discussed by AD/SI

Country	Description of Available Documentation	Source
Australia	35 files of <i>Reports on flying saucers and other aerial objects</i> from 1950s–70s with each 94–416 pages and internal reporting policies from the Department of Air	NAA (2012-2016)
Brazil	Ufologists were granted access to official military’s UFO related physical files from the 1950s to 1960s amounting to roughly 4,000 pages and 300 photos in 2005. Physical files from the 1980s were disclosed in 2009 and comprise roughly 800 pages	Gevaerd (2010a, 2010b)
Canada	Approximately 9,500 UFO related documents from several government sources related to investigations between 1947 and 1980	LAC (2007)
Denmark	329 pages of UFO reports of cases from 1946 to 2002 released by the Air Force	SUFOI (2009)
France	As of August 2017, CNES/GEIPAN, the official UFO investigation division of the French space agency, disclosed 2,664 investigated UFO cases. 9% overall and 2% in the last 10 years are <i>type D</i> , which means that they could not be identified despite sufficient data	CNES (2009-2017)
New Zealand	The Defense Forces released reports on several UFO related cases from 1952 to 1984 in files that amount to more than 2,000 pages	ANZ (2010)
Spain	Roughly 1,900 pages in 80 files with relation to UFO sightings between 1962 and 1995 were released by the Ministry of Defence	MD (1991–)
UK	208 formerly secret government files with up to several hundreds of pages each on UFO incidents	TNA (2008-2013)
USA	Various US agencies disclosed many thousands of pages as website uploads or via mail to answer individual FOIA requests. These include many reports with focus on foreign territories.	CIA (2017b), SoD (2017), PBBA (2005), FBI (2010), a. o.

Table 1: Declassified UFO files directly from government sources. A compilation of some of these are conveniently digitalized available at Best (2017).

[Air Defense/Scientific Intelligence] with DDCI [Deputy Director of the Central Intelligence Agency]. Sightings of unexplained objects at great altitudes and travelling at high speeds in the vicinity of major U.S. defense installations are of such nature that they are not attributable to natural phenomena or known types of aerial vehicles. (Chadwell [1952](#))

A research committee was set up (the *Robertson Panel*) and the group concluded that the UFO phenomenon is not considered as a threat for national security. However, not all available data, which came from cases recorded by the air force, could be explained as misinterpretations of known phenomena (e.g. weather phenomena, balloons). The air force major Dewey J. Fournet (aeronautical engineer and Technical Intelligence Officer) suggested to the panel that origin from extraterrestrial beings provides the best explanation for the remaining cases. Overall, the panel did not follow Fournet in his conclusion, because they evaluated the available data as too imprecise to draw this conclusion. (cf. Durant [1953](#))

Note that these conclusions are from an intelligence report, which aims to evaluate UFOs from the aspect of national security and not due to general scientific concerns. Furthermore, panel consultant and professor for physics and astronomy Allen Hynek ([1972](#), 209–238) concluded in retrospect that the downplaying results of the Robertson Panel Report helped to coin UFO investigations as scientifically unrespectable, which itself is, according to his investigations, an unscientific treatment of the subject. (see also Hynek [1978](#), 20–27)

Of what quality are the sightings? A 1955 report (CIA [2017a](#), doc. no. 0005515988) for the Chief of Physics and Electronic Scientific Intelligence states that a UFO was close to a tanker aircraft, changed directions, and was visually observed by the pilot, whereas his observations are in accordance with ground radar data. The observation lasted for 49 minutes.

What do UFOs do besides just flying around? A report from the American

Embassy in Kuwait, 1979 summarises that a UFO visited and interfered with technology (NICAP [2012](#)):

Subject: “UFO” sightings cause security concern in Kuwait

A Series of “UFO” sightings on November 9 caused the GOK [Government of Kuwait] to appoint an investigatory committee of experts from the Kuwait Institute for Scientific Research. (...) The KISR Committee rejected the notion that the “UFO’s” were espionage devices but remained equivocal whether they were of extraterrestrial origin. (...) The scientists did not know enough about the phenomena to say with certainty that they weren’t “spaceships.” (...) The “UFO” did strange things to KOC’s [Kuwait Oil Company] automatic pumping equipment. This equipment is designed to shut itself down when there is some failure which may seriously damage the petroleum gathering and transmission system and it can only be [re]started manually. At the time of the “UFO’s” appearance the pumping system automatically shut itself down and when the “UFO” vanished the system started itself up again.

Note that the UFO seemingly did either not trigger the shut down mechanism or could also trigger the necessary “manual” restart.

As [Table 1](#) indicates, reported UFO sightings are not restricted to any region of the world or nation. They are common globally. In 1991, Soviet Deputy Minister of Defence Ivan Tretyak described in a national Soviet newspaper interview (CIA [2017a](#), doc. no. 0005517677) that “fighter-interceptors had encountered unidentified flying objects in soviet air space”. He said that one “unidentified flying machine” had been photographed by interceptor and that optical and thermal signals from it had been detected. He states that pilot reports indicate that UFOs “appeared to be of artificial origin” and he warned, it “would be foolhardy to launch an unprovoked attack against an object that may possess formidable capacities for retaliation.” Note that this last comment is very important regarding the evaluation of the security threat: UFOs show



superior capabilities from which we can derive that a good strategic advice is to avoid any provocation.

The documents reveal, in summary, the following: (1) UFOs are commonly detected by radar, visual and thermal imaging since the 1940s (wide-ranging radar aerial surveillance was established for World War II activities). (2) Scientific divisions of the intelligence and defence services do not have a final opinion about where UFOs come from; extraterrestrial origin is not excluded and often considered as the best ad hoc explanation. In particular, the observed abilities by these crafts do not fit our known aerial engineering capabilities. (3) UFOs seem to have aims, which include observation and influence of technical facilities.

Chile recently reported a thorough official military investigation of a 2014 UFO incident via the Huffington Post (Kean 2017) including a scientific analysis with French experts and video footage of the UFO. The US Department of Defense recently admitted a \$22 million research program focussing on UFOs from 2007–2012 (Cooper, Blumenthal and Kean 2017 in the New York Times). Involved researchers corroborate my summarising conclusion, provide video evidence and described that they “recovered” “metal alloys and other materials” from “unidentified aerial phenomena”.

In addition to the mentioned form of data that serves as evidence for UFOs photographs (178-79), highly detailed sketches of the crafts (24-33, 48, 60, 125, 133, 154, 180-91, 225) and reports of distinct ground marks at UFO landing sightings (183-85; Phillips 1975) were collected during government investigations. (referenced pages from Kean 2011)

Furthermore, astrophysicist Stothers<sup>4</sup> (2007) presents a study about “ancient reports of what might today be called unidentified flying objects” that “fall neatly into the same categories as modern UFO reports, suggesting that the UFO phenomenon, whatever it may be due to, has not changed much over two millennia” (abstract). The sources for the study are well known Roman

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<sup>4</sup>Research staff at NASA Goddard Institute for Space Studies.

historians, primarily Livy, Pliny, Plutarch, Obsequens and Orosius.

Psychoanalyst C. G. Jung was very interested in people who believed to have seen UFOs. He compiled a careful study (1958)<sup>5</sup> based on his experience as practitioner of clinical psychology with patients and the contemporary literature on UFOs. His conclusion can best be summarized by citing it in combination with a letter (1957) that he wrote to G. Harrison, the editor of the New Republic magazine. “For the last decade, despite the large amount of empirical material the physical reality of UFOs was a problematic issue, which could not be decided upon positively or negatively with sufficient certainty” (1958, 8). On the one hand, cases of “collective visions” (11) occur among humans, on the other hand the witness reports are too striking, include technical corroboration (e.g. radar) and do not to fall easily in this category (12-17). In his book Jung focusses on the myth that UFOs induces in human psych, but he does not explain all UFO sightings as purely psychologically induced. He writes from his perspective as a psychologist: “As a matter of fact the psychological aspect is so impressive, that one almost must regret that the Ufos seem to be real after all.” (1957)

## 2.2 Whistleblowers

Whistleblowers play a substantial role in the revelation of institutions’ illegitimate acts. Whistleblowers are defined as individual insiders who reveal an organisation’s wrongdoing by testimony and leaking of documents. Research on whistleblowing is available and covers, in particular, historical cases (e.g. Johnson 2003) and the legislative perspective (e.g. Vandekerckhove 2006).

The documents referred to in 2.1 show that UFO occurrences were seriously investigated around the world. It follows that a significant amount of intelligence and military personnel got in contact with these information. Even under the FOIA, the archivists from the official side do not hand out every document and some of them are blackened at crucial parts (e.g. to not reveal

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<sup>5</sup>My translations of quotes.

names).<sup>6</sup> Given this knowledge, additional information regarding UFOs may be revealed via whistleblowing by former officials.

In these cases the degree of belief for the evidence, which is the testimony, heavily depends on the whistleblowers personal *reliability*. Judges or forensic psychologists might have more suitable expertise regarding an evaluation of a whistleblower's reliability than scientists have. Personal traits like general responsibility or conflicting personal interests play an important role. A testimony's reliability increases, if other individuals, who worked in related areas, corroborate one whistleblower's claims.

Robert Hastings (2017) presents a monumental work with the aim to provide evidence for the claim that UFOs often appear close to and interfere with nuclear weaponry. He presents more than 150 military veteran testimonies and FOIA documents to support his claim. Regarding these whistleblowers with former military roles, the fact that these individuals were selected to be responsible for nuclear weaponry may indicate a personal history that increases their general reliability. Their testimonies include unambiguous sightings, video and radar analysis, as well as UFOs' interference with communication equipment and nuclear weaponry.

Kean (2011) collects detailed testimonies about UFO sightings from involved military veterans, (space agency) researchers and pilots from Belgium, Brazil, Chile, France, Iran, Peru, Portugal, UK and USA. Bürgin (2015) presents a collection of more than 140 UFO related documents that a Swiss air defence radar controller illegally collected over many years on duty.

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<sup>6</sup>The redaction of parts of classified documents for publication is often called *sanitization*. A good example of a document that was sanitized to a suspiciously extreme extent is the case *Communications Intelligence (COMINT) report - "XXXXX Unidentified Flying Objects"* at <https://www.nsa.gov/news-features/declassified-documents/ufo/>.

## 2.3 From UFOs to Non-Human Causal Influence

In this paper I mention evidence that is sufficiently strong to demand a further scientific investigation. However, even if UFOs occur, this does not necessarily imply the interference of non-human intelligent beings, or, even more specific, extraterrestrials. Possible origins of UFOs are the following: (i) top secret military vehicle, (ii) other hidden and technically advanced parts of human civilization, (iii) human time travelers (if technically feasible in principle), (iv) intelligent non-human visitors,<sup>7</sup> (v) an universal intelligent designer, who implements UFOs and many other phenomena<sup>8</sup>, or a subgroup of i - v. Note that these possible solutions are derived from the definition of UFOs as given in Section 2, in particular their vastly superior technical capabilities.

Reason (i) is specifically excluded by the mentioned institutional investigations and cannot explain pre-modern sightings. Furthermore, UFOs' reported technical capabilities are in many cases described as being very advanced to the point that we cannot even explain them in physical terms, let alone engineer such a vehicle. **REF** The challenging question why the UFO makers and steerers do not make more personal contact with us than showing themselves flying in the sky is more compelling regarding the human options (ii) and (iii). Investigation for reason (v) demands another form of reasoning than science, because we do not have inherent empirical access to such a designer, only to the phenomena it designs. However, despite being *unscientific* in the sense of not being empirically observable, (v) has the advantage of being able to explain further unexplained phenomena of which we hear in our cultural and religious stories (however reliable we deem these sources).

In brief, my conclusion is that a combination of reasons iv-v is most likely. In

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<sup>7</sup>This does not necessarily mean extraterrestrials for other planets. Physical hyperdimensionalism or other not well researched physical configurations of matter may play a role.

<sup>8</sup>One example for this would be, if human life takes place in a computer simulation that was programmed by someone—a possibility suggested by Bostrom (2003)—or everything was created by an almighty god.

the next paragraphs I mention some further evidence for the claim that non-human intelligent beings might make and steer genuine UFOs. This evidence might not be considered as strong, but it is non-negligible.

Sighting incidents with several witnesses result in descriptions of non-human beings stepping out of UFOs. The *Ariel School Sighting* is one example, where 62 Zimbabwe school children report to have witnessed such an event in 1994. Their testimonies could not be shown to be unreliable by psychiatric analysis and witnesses confirmed their reports as adults after years.<sup>9</sup>

Another approach to possible evidence are reports from alleged *alien abduction* victims, of which there are thousands of cases.<sup>10</sup> Disregarding the intricate field of psychological justification<sup>11</sup> for or against the reliability of alleged *abductees*, who claim to be taken on UFOs and have been in direct contact with *aliens*, the described physical evidence could, in Popper's terms, be falsified<sup>12</sup> by simple methods, but laboratory results did not succeed in doing so. Even if we accept every psychological argument against any real abduction experience, the physical evidence presents a noticeable and puzzling scientific case.

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<sup>9</sup>I cannot refer to any thorough scientific analysis of the case. All comments on them are biased in one or the other direction. I concluded that the case is rather sufficiently compelling than completely dismissable by watching Harvard psychiatrist J. Mack's interviews of the children, his comments and several skeptic analyses of the case, mainly from internet blogs. The nature of this case demands very thorough attention. I am mostly convinced by the adults' testimonies after years and by Mack's original interviews.

<sup>10</sup>For an introduction into the research of the field and further references see Jacobs (2009).

<sup>11</sup>Psychological arguments were put forward for (e.g. psychologically healthy victims, strong convictions) and against (e.g. false memory, psychological needs) the reality of alien abduction. Like with many complex psychological phenomena, an analysis cannot provide as conclusive explanatory results as in, for instance, experimental physics. Alien abduction is a complex and unparalleled phenomenon. That is why, at this point, it does not make much sense to put much evidential weight for or against the reality of alien abductions on psychological analyses.

<sup>12</sup>For Bayesians: read "falsification" as designing an experiment or observation with the aim to gather evidence to significantly decrease the justified believability of the hypothesis in question.

Those evidence are very specific and rapidly healed body marks with a very noticeable dent in the skin (e.g. Chalker 2005, 183), and metallic alleged implants in abductees bodies. These alleged alien implants could be shown to not be body-own cristallizations or mundane objects (e.g. splinters) by several materialist’s laboratory analyses. (cf. Leir 2005, 218–244) According to my research of the literature, no more mundane alternative medical explanation was suggested for the characteristic skin dents, which, according to the victims’ testimonies, appear in direct accordance with the alleged abduction incident.

These investigations do not serve as strong scientific confirmation of actual abduction by aliens. However, if these physical evidence have nothing to do with actual abductions, their occurrence could and should be explained alternatively by a proper investigation. More precisely, the hypothesis ‘Aliens cause skin dents’ would be *falsified*, if we find a good alternative hypothesis. However unlikely alien abduction *feels* to us, if we apply rational methodology, the plurality of evidence and the absence of good alternative hypotheses<sup>13</sup> demands to accept alien abduction as a scientifically valid explanation of the evidence. Note that all the UFO evidence supports such a claim further and there are no good arguments against it. Overall, I am convinced that under a Bayesian approach, these evidence are sufficiently strong to demand a thorough scientific investigation, which is, as I show in the next section, socially prohibited due to dogmatic reasons.

### 3 The Astrobiologists’ View

Speculations about non-human intelligent life is neither a very new idea, nor—in fact—very controversial among scientists. According to an anecdote, physicist E. Fermi already speculated in the 1950s that, given our best scientific

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<sup>13</sup>I did not find alternative hypotheses for the mentioned skin dents and alledged implants in months of research. These evidence are simply ignored or left unexplained by medical experts.

knowledge of astronomy and biology, extraterrestrial intelligent life should exist, and we should have already noted signs of extraterrestrial civilizations. This is often referred to as the *Fermi paradox*.—The paradox is that humans allegedly never gathered any evidence of extraterrestrial life. Scientific search for all forms of life with non-earthly origin falls in the field of astrobiology.

I analyse the treatment of the UFO phenomenon by the two mayor peer-reviewed astrobiological journals<sup>14</sup>. My premise is that, given the evidence presented in Section 2, UFO sightings stand in a positive evidential relation to possible extraterrestrial life. In other words, UFO sightings provide data that is worth investigating, if we search for extraterrestrial life. This does not imply a stipulation of the hypothesis that UFOs have an extraterrestrial origin. More prudently, it implies that UFO related data might be helpful for new scientific insights regarding this question, because we cannot sufficiently exclude extraterrestrial origin of UFOs before proper investigation took place. Furthermore, in relation to other data gathering approaches of the field (e.g. Webb Telescope, Mars Rovers), UFO investigation is a very cost-efficient one. The *International Journal for Astrobiology* (publisher: *Cambridge University Press*; impact factor: 1.598 (2016); first issue: 2002) describes its goals as:

International Journal of Astrobiology is the peer-reviewed forum for practitioners in this exciting interdisciplinary field. Coverage includes cosmic prebiotic chemistry, planetary evolution, the search for planetary systems and habitable zones, extremophile biology and experimental simulation of extraterrestrial environments, Mars as an abode of life, life detection in our solar system and beyond, the search for extraterrestrial intelligence, the history of the science of astrobiology, as well as societal and educational aspects of astrobiology.

Occasionally an issue of the journal is devoted to the keynote plenary

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<sup>14</sup>According to <http://www.scimagojr.com/journalsearch.php?q=astrobiology> The *Springer* series *Advances in Astrobiology and Biogeophysics* is not peer-reviewed and does not show, according to my analysis, any other result regarding the exclusion of UFO data from the scope of the field.

research papers from an international meeting. (Mancinelli 2017, my emphasis)

The search routine on the website is restricted to search for specific keywords, which are given by an explicated list for each article. As of 6 October 2017, the keyword search for “UFO” shows 0 results, the keyword search for “Mars” shows 142 results, which tells us that the search does not seem to be technically flawed.

*Astrobiology* (publisher: *Mary Ann Liebert, Inc.*; impact factor: 2.603 (2016); first issue: 2001) describes its goals as:

Astrobiology is the most-cited peer-reviewed journal dedicated to the understanding of life’s origin, evolution, and distribution in the universe, with a focus on new findings and discoveries from interplanetary exploration and laboratory research. Astrobiology coverage includes: Astrophysics, Astropaleontology, Astroplanets, Bioastronomy, Cosmochemistry, Ecogenomics, Exobiology, Extremophiles, Geomicrobiology, Gravitational biology, Life detection technology, Meteoritics, Planetary geoscience, Planetary protection, Prebiotic chemistry, Space exploration technology, Terraforming[.] (Cady 2017, my emphasis)

The *advanced search* routine on the website allows the user to search for strings in the categories: *All, Abstract, Article title, Author, Publication year, Affiliations*. Since the alleged *keyword* search on the website was in fact a search in the broad category *All*, the five “ufo” resulting articles (the search routine did not allow for case separation) did not seem to have a specific mentioning on UFOs. Therefore, I searched according to the following rule: “ufo” in *Title* or *Abstract*. As of 6 October 2017, the result showed one article, namely Oreiro and Solbes (2017). The search for “mars” under the same search rule showed 409 resulting articles.

My search results show that either the whole community of publishing astrobiologists ignores any prominent reference to UFOs or the number of peers, who



reject those references is sufficiently high to statistically rule out any UFO related publication. Note that a relevant amount of articles that aim to argue against the relevance for UFO related evidence for astrobiology would serve as relevant examples against my claim that this sort of evidence is dogmatically ignored. We can have a look into the one UFO related paper from the field.

It is titled *Secondary School Students' Knowledge and Opinions on Astrobiology Topics and Related Social Issues* and it is authored by a professor for didactics of science and a researcher at a department for physics and chemistry. They survey and discuss the astrobiological knowledge of 89 Spanish pupils at the age of 15. The reference to UFOs can be found in the abstract in the following sentence: “Student questionnaire answers also indicated that students had problems in reasoning and critical thinking when asked for their opinions on issues such as the potential for life beyond Earth, the question of whether UFOs exist, or what our place is in the Universe.”

In the paper they write with regard to this statement:

Student opinions on ufology were quite diverse (...) A total of 31.5% of the pupils did not believe that aliens are visiting us and gave a correct justification (C), among them were the following: (i) “we would have already seen them” (20.2%); (ii) “it has been investigated and discarded” (5.6%); (iii) “it is an invention or a manipulation due to different interests” (3.3%); (iv) “beings in our neighborhood of the galaxy are not evolved” (2.2%); (v) “if they exist, they wouldn’t be interested in us” (one person). (95, my emphasis)

The authors’ implicit opinion seems to be that we can be sure to not have been visited by “aliens”. Given the evidence indicated in Section 2 of this paper and further evidence-based considerations, my comments on the “correct justification[s]” are the following:

- (i) There is no sufficient justification for the belief that no-one has seen extraterrestrials or their artifacts. In fact, thousands of witnesses claim to

have seen or contacted “aliens”.<sup>15</sup>

- (ii) Intelligence and military agencies have investigated, but not discarded. At best, they discarded it as a security threat that demands a strategic reaction.
- (iii) This implies that government agencies publish false information, disguised as outdated classified information. Furthermore, all UFO and alien contact related media coverage has to be fabricated, which has to be supported by proper evidence. “Every reported evidence in favour of claim  $X$  is fabricated by someone, because it is in favour of  $X$ ” is obviously not a scientific argument.
- (iv) This answer is the only one from the five that might be adequately investigated. However, two important conjectures are implied to make it a “correct answer”. First, “evolved beings” live only on habitable planets. Second, no effective faster than light travel is possible in principle.
- (v) No evidence is available to support this speculative claim.

In summary, in my view, none of the collected “correct answers” are sufficiently convincing for the claim held.

Oreiro and Solbes go on to state that “A non-negligible fraction of students (20.2%) indicated belief in ufology (I). Within this group, three references to ancient Egypt and a reference to a Spanish paranormal television show were identified.” (96) The authors do not explain how the other students from this group justified their “belief in ufology”. Furthermore, the unspoken agreement

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<sup>15</sup>A common reflex of many readers at this point is to claim that thousands of people also claim to have been in contact with angels, demons, gnomes, zombies, big foot or god. Firstly, this is simply not the case. Alien encounter testimonies describe real physical contact with causal interaction and not “spiritual connections”. I did not find any good case study of comparably strong encounter testimonies with any of the other mentioned phenomena. Secondly, if thousands of people claim to have been in physical causal contact with, for example, ghosts, there might be a phenomenon in this world that is well described with how these witnesses describe ghosts.

regarding the reference to “ancient Egypt” and “a Spanish paranormal television show” seems to be that at these platforms, every information must be fallacious, but a reference to forms of publication is not a scientific argument. All in all, to me it seems that a reference to UFO related evidence is bluntly rejection by dogmatic rules of the astrobiological community. Even worse, astrobiologists accept beliefs that are not properly shown to be supported by evidence, which is neatly exemplified by the discussed paper from *Astrobiology*. Astrobiologists reject any proper analysis of the evidence provided by ufologists, due to seemingly social and historical circumstances. This is unscientific and fits well into the history of Kuhnian paradigm shift, according to which a scientific paradigm is not open to new methods, even if they promise great advances for the proclaimed goal of the field.

### 3.1 Speculations about Reasons for Denial of Evidence

It is not the main purpose of this paper to discover the psychological reasons for the denial of proper evidence. I aim to convince the reader that the described example is a good case for unscientific denial of evidence by a group of individuals, who may regard themselves as scientifically motivated. Further cases may be found in other scientific branches. Feyerabend is one classical author, who describes similar intuitions about scientific agents and provides further historical examples.

Wendt and Duvall (2008) look for an answer why most governments constantly claim that UFOs are not interesting to investigate, even if they must have access to very reliable evidence from their air surveillance agencies. From a perspective of political science Wendt and Duvall conclude that this “UFO taboo” can, at its core, be explained as follows. “Modern sovereignty is anthropocentric, constituted and organized by reference to human beings alone”. It is “of immense practical import, enabling modern states to command loyalty and resources from their subjects in pursuit of political projects.” “God might have ultimate sovereignty” but “it is not [causally] exercised in the temporal

world.” (607) Therefore, they conclude, non-human and possibly superior intelligence (Wendt and Duvall focus on extraterrestrials here) with causal influence as a hypothesis must be systematically ignored by political elites to maintain their own systematic political role and, more importantly, to secure the stability of the established democratic system.

Be that as it may, my analysis shows that political forces are not the only ones that fuel the UFO taboo. Social and psychological factors or mundane career concerns seem to play an important role for the scientists, too. Otherwise, evidence based and rational reference to UFOs would not be censored in astrobiology journals. On the other hand, silent authoritarian influence into media and science might be stronger than the relevant agents in the field are willing to admit. I believe that—judged by some cases of personal experience—academics tend to be very naive regarding the motives and actions of non-academic members of society. If you are used to carefully check data and claims—let us assume that academics mostly work according to this scientific standard—, you may underestimate how strategic and profit driven the political and economical spheres work. Many academics seem to think that “If UFOs are real, then the government would already have spend billions to publicly clarify everything about them” is a valid scientific argument, but the piecemeal disclosure of decades old UFO evidence shows that it is not.

Confronted with UFO and alien evidence opponents often refer to some sort of inductive argument: they are very unlikely reliable, since we strongly rejected them throughout the history of modern science. This is rather conservatism than a scientific argument and seems to be the reason why astrobiologists discuss the Fermi paradox in an almost comically absurd way (with the premise that we have never seen any sign of alien life) given all the available UFO and alien evidence. However, some of human’s greatest discoveries were historically rejected, as Kuhn (1962) and Feyerabend (1975) point out. Good reasons why all UFO sightings and encounters are unsubstantial need to be put forward to defend today’s astrobiology paradigm.

Why do astrobiologists accept pseudo-scientific claims about UFOs and seem-

ingly censor any scientific reference to them? I think that one very important aspect is that UFOs are a career threat to many of them. If, for instance, one spends decades at training in microbiology or astronomy, he/she might have no interest in a paradigm shift towards the acceptance of UFOs. Furthermore, with regard to personal status, UFO sightings and data gathering depends vastly on collaboration with non-scientific personal, such as citizens or pilots. Some scientists may feel narcissistically displeased by the fact that their specific training and attitude is only of minor relevance, or even hindering, to such important discoveries. A good UFO video might be gathered due to luck on a single working day by a military pilot, and is an extremely important set of scientific data on the one hand, but, on the other hand, not the yield of a decade long effort of collaborative science.<sup>16</sup> Some scientists may *emotionally feel* that this would be a very *unfair* scenario; many of the textbook heroes of science, as mentioned in the introduction of this paper, were devoted to their influential discoveries for a significant proportion of their life time.

Another important aspect might be that many astrobiologists do not dare to accept the UFO evidence due to the ridicule that accompanied it in earlier times. This is, again, a very irrational and human motivation; as beings with social and emotional needs, not many scientists seem to dare to defend a rational claim against an opposing majority when there is a significant danger of social rejection. Interestingly, this *brave* form of “truth” or “rationality” is widely described and discussed in the history of philosophy from Aristotle to Kant.

A more general aspect is *epistemic dogmatism*. Due to our vastly restricted epistemic resources (finite brain cells and time), we depend on a large body of dogmatic beliefs. We only have very limited time and attention to spend on carefully selected topics. That is why we necessarily cannot reflect upon many crucial aspects of, for instance, daily routines, social behavior or even (or in

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<sup>16</sup>The recent detection of gravitational waves by Abbott et al. (2016) may serve as a fitting example of a decade long, vast, expensive and collaborative endeavour to gather good evidence. For a historical survey see Collins (2004).

particular) religious beliefs. How do we select the phenomena or questions that are worth a thorough investigation? Due to the high complexity of the natural and social world, we have to make these decisions on various levels of depth all the time (e.g. from coffee brand choices to suicide decisions). Ironically, the criteria for these decisions may be influenced by dogmatic and even irrational beliefs, as well.

Overall, the only thing that seems certain to me to claim is that *psychological pragmatism* plays an important role here. It may be a hard task to describe what exactly that means, but we can be certain that a scientist selects a topic for investigation, if he/she expects *something* out of it. This something might be the excitement of a new discovery, a career position, social agreement from the peer group or other things. If the scientist's dogmatic and reflected on background beliefs are sufficiently similar to those of his peers, the setup of a scientist's own pragmatic incentives may fit nicely to what his/her peers expect and are willing to reward.—This may be a reason why science is so strictly divided into different and socially very closed peer groups.

With regard to UFOs and alien encounters, from a mainstream scientific point of view, it may be hard to see what the pragmatic gain of a thorough investigation could be. Dogmatically, the topic is heavily ridiculed for decades now by the vast majority of the reporting media. Note that scientists do not argue against UFO reality, most of them simply ignore all references to UFOs. From media ridicule follows that a scientist, who investigates UFOs, will be subject to the public's ridicule. He/she would need very good arguments to *sell* his/her ideas to the uninformed laymen; these arguments have to be far better than those for non-ridiculed hypotheses as we find them often in social sciences, archaeology or other non-experimental fields. From a rational perspective of career optimization the ridicule is too strong to be outweighed by even very good evidence and excitement. As shown in this article, good evidence is simply ignored throughout the academic discourse. Only those few scientists, who get extraordinarily excited by scientific discoveries and ignore career options, can discuss UFO evidence and related hypotheses. Some ad-

vocates of academic science may claim that this excitement is what mainly motivates a genuine scientist, but the here presented case of UFO evidence shows that this is not the social academic reality.

Fleck (1935), in his sociological approach to science, rejects any non-social concept of “objectivity”. But it is very important to stress, that UFO evidence is by no means unscientific in today’s sense of good science or demands a new scientific approach. UFO evidence on video or radar and alleged abduction marks fit well into the scope of evidence from other scientific fields. They are as objective and intersubjectively observable as evidence in science can be and even surpass many accepted standards of proper data in social sciences and psychology. A radical sociological approach to science, like Fleck’s, is not necessary to explain the UFO taboo.

Furthermore, as Nietzsche (1887, see introductory quote) stresses, beliefs were historically hold contrary to available evidence, if they were traditionally embedded and deeply assimilated in a live and feel of the daily life.<sup>17</sup> UFO denial may be a case of such a *religious* ignorance of evidence.

Another relevant aspect to the UFO taboo is the known history of hoaxes and possible hoaxes. However, non-relevant and falsely interpreted data occur often in all scientific fields, including physics and biology. Varying degrees of reliability, common causation, reproducibility, confounding factors and other related issues of scientific data and evidence are very commonly discussed in the literature from philosophy of science. Ufology might be an extreme case of various sorts of bad data (maybe even due to intelligence’s disinformation campaigns<sup>18</sup>), but this does not make its phenomena unscientific. Most im-

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<sup>17</sup>It is almost impossible to translate Nietzsche properly into English.

<sup>18</sup>The FOIA disclosures reveal that there was an interest to keep UFO evidence secret. As Durant (1953) concluded, the administration should establish a “‘debunking’ aim [that] would result in reduction in public interest in ‘flying saucers’ which today evokes a strong psychological reaction. This education could be accomplished by mass media such as television, motion pictures, and popular articles.” Pseudoscientific presentations at UFO conferences helped to brand ufology as a pseudoscientific field. (e.g. Omnec Onec, who claims to be send from Venus to teach earthlings spiritual lessons)

portantly, no large scale scientific group does ufology; academic scientists let this important topic be led by laymen.

## 4 Conclusion and Suggestions for a Frutiful Approach to UFOs

In the abstract I claimed that the hypothesis of non-human intelligent influence on earth is “relevant (...) in Bayesian terms”. This implies a reference to degrees of justified belief, but what degree should we assign to this hypothesis? Based on the study of collected evidence referenced in this paper I, as an informed scientific agent of this discussion, believe in this hypothesis with a degree of even greater than 50% (sic!). The basic rational arguments for this claim are, (a) the quality of some of the data is sufficient in comparison to many data from other scientific fields such as social sciences, (b) the evidence is pluralistic in the sense that various phenomena are well explained by the claim of involved causally acting non-human intelligence, and (c) some of the phenomena cannot be explained by a more mundane alternative hypothesis.<sup>19</sup>—That is why the scientists at the military and intelligence agencies consider the extraterrestrial hypothesis since the 1950s. The argumentative game of science demands the following: the three claims and in particular claim (c) should be weakened considering the referenced evidence. And to me it seems that this is not possible and I challenge everyone to show the opposite.

The following thought experiment helps to internalize my Bayesian claim. Assume the world freezes right now without anything new to happen and we are not able to gather any new information about its past. Furthermore, we have to decide whether non-human intelligent causal influence is true or false (no degrees of belief allowed). In my view, we should rather pick *true*, than *false* and that is why a Bayesian would have to accept a degree of belief greater than

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<sup>19</sup>For a discussion of the *no alternatives argument* see Dawid, Hartmann and Sprenger (2015).



50%. Furthermore, note that a degree of belief slightly greater than 50% is far weaker than that of claims that are considered as “scientifically proven” by non-Bayesians; the existence of gravitational waves, for instance, has a degree of belief far above 99% in today’s community of physicists.

My and your scientific beliefs are restricted to today’s available body of theoretical and empirical knowledge. New evidence or ideas may alter our degree of belief significantly, but we simply need a scientific and diverse program to gather this information.

I refer to *non-human intelligent influence on earth*. Some readers may connect this wording to religious ideas, like the existence of a god or, more contemporary framed, an *intelligent designer*. I chose this wording intentionally. We do not know enough about UFOs and their operators to make any conclusive claim about them. Given the vast influence of alleged but scientificall unexplained religious incidents (miracles, spritual enlightments etc.) on human culture, we cannot exclude the possibility that both phenomena, religious tradition and UFOs, are not independent.

What should one do, if he/she wants to write an UFO related astrobiological paper? Stothers (2007), and Wendt and Duvall (2008) published papers in non-astrobiological fields, namely ancient studies and political theory. But it is important to note that Stothers makes a strong case for the reality of genuine UFOs, and Wendt and Duvall make the assumption of UFO reality. To me it seems that they succeeded in passing their papers through the review by focussing on the specific aims of the respective academic fields of ancient studies (i.e. thorough treatment of the original ancient sources) and political theory (find explanations for why governments act how they act). Academic peer groups accept slight disagreements inside the borders of their fields, but for epistemic and social reasons, the methodological deviation cannot be too large. Furthermore, the applied concepts, vocabulary and referred to authors are often restricted to very specific peer groups. What the mentioned authors do is a smart move and to me it seems that this technique is the only feasible way to overcome the dogmatic censorship: argue in favour of UFO reality

in non-astrobiology focussed journals to, over time, force astrobiologists to provide convincing arguments against the reality of UFOs, which they will not be able to provide. This paper is a contribution to exactly this strategic scientific project, too.

Is UFO denial societally necessary? The acceptance of non-human intelligent influence on earth may be disturbing to some. However, heliocentrism, Darwinism, atheism, the history of genocides, infectious diseases and animal cruelty are disturbing topics to many, too, but this should not be a guideline for pseudo-scientific programs of denial. Since the history of humanity is a history of superstition and certain death, I do not see why the scientific acceptance of UFOs would be of such heavily disturbing character; non-scientifically motivated persons deny unpleasant truths anyhow, as flat earthers, creationists, Holocaust deniers and vaccine sceptics exemplify.

In my view, the distrust in science by a clear case of evidence denial is a much higher cost to pay for society than a phase of emotional adaption to possibly disturbing scientific findings. Opponents of heliocentrism and Darwinism used similar arguments. Furthermore, recent public votes in many democratic states reveal a noticable increase in distrust towards science. If non-scientific criteria are accepted by professional scientists, then modern science scepticists are correct in their claim that results from scientific communities cannot be trusted regarding the finding of most rational explanations for phenomena.

How could a scientifically thorough ufology look like? In the short term, based on the best sightings and in particular on the official documents, UFOs should be classified by appearance and behaviour of movement in a similar way to 19th century biological descriptions and drawings of animals and plants. This classification and the related discussions should be a large scale project of the scientific community and not only the hobby of privately funded individuals or secret military projects. More importantly, such an endeavour would help to gain proper background knowledge for future investigations. In the medium term, our air surveillance and air vehicles need to be equipped with proper observation devices that might be controlled by a central observatory institute.

UFO occurrences are extremely rare and arbitrary according to our current knowledge, but from what we know so far, we can design proper observation routines. If we spend billions for Mars surveillance, we should have millions at hand for proper UFO surveillance on earth.

Concerning alleged *abductees*, police crime investigators and medical professionals need to be informed about the phenomenon, which can be treated agnostically regarding the question what really causes the experiences or memories. Again, if we start to simply catalogue incidents thoroughly without any ridicule, we may get a much clearer view on the phenomenon and gain more evidence in favour or against relevant hypotheses.

Furthermore, both astrobiology journals publish articles in which the authors speculate about the circumstances of complex and possibly intelligent life on other planets. Given the vast amount of detailed reports from alleged *abductees*, and Chalker's (2005) very unusual human-like DNA sample from hair, it is rather obvious to discuss these cases scientifically from a biological perspective.

Most importantly and more general, the mere absence of ridicule towards UFO witnesses and alien abduction memories is already a big step to a more scientific treatment of the topic. This does not imply that further investigations may reveal many of the made claims from ufology are empirically inadequate. It simply implies that we do not know what we do not know and we should use scientific methods to get more knowledge.

In the introduction I referred to some heroic figures of the history of science. Some striking historical similarities can be found. An old establishment of a scientific branch forcefully fights against the paradigm shift with unscientific methods. Evidence is bluntly ignored. Established publishers enforce censorship and ridicule, public funding is denied. Scientific outsiders act overly careful and highly strategic to overcome the unscientific defence mechanisms.<sup>20</sup>

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<sup>20</sup>Kean (2011) suggests that “[c]aution, or even understatement, must be the name of the game when dealing with the unaccepted subject of UFOs. The reality of what we *do* know is extraordinary enough.” (241) She exemplifies this rule by strictly ignoring all research on alien encounters and possible intentions of UFOs by claiming that “we have

Concerns of the public's reaction are paternalistically used as an argument.<sup>21</sup>

Another important aspect regarding the acceptance and development of paradigm shifts or “new world views” is put best by Feyerabend (1983)<sup>22</sup>:

A new world view is not conjured up immediately (Aristotle today, Helmholtz tomorrow, that is not only impossible, that is absurd) A scientific assessment is impossible until the new full-blown world view is available. That is why one needs to be willing to wait decades or even centuries. The willingness to wait and to ignore a significant amount of crucial observations is ignored by our scientific methodologies. Quite the opposite: they want “hard proofs”, i.e. they want to kill a child before it becomes a grown-up. (196, my translation)

This description seems to fit the UFO phenomenon remarkably well. A scientific explanation for the phenomenon is obviously not a simple new model, but rather a complex set of propositions with novelties for various other scientific branches. That is why we should encourage a large scale discussion that is based on current knowledge to sharpen the view for further observation and theory formation.

*Justified belief* means that we consider possible explanations for epistemic reasons, even if we lack important pieces of evidence. Explanations can still be inferior to unknown ones, which may also be the case for today's best scientific theories.—Newtonian mechanics is the classical example of a widely accepted theory that turned out to be empirically inadequate. Note that it is a specific

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no idea as to their intention and purpose (...) UFOs have demonstrated no hostile act to date” (85). But she mentions the Amazon UFO flap of 1977 and was in contact with the Brazilian investigators (cf. 199). In this case there is strong evidence of hostile behaviour of UFOs towards humans.

<sup>21</sup>Broderick (1961, 366-378, reference from Feyerabend) describes how Cardinal Belarmine argued against heliocentrism by reference to its unsettling influence on “common” people.

<sup>22</sup>Feyerabend heavily revised *Against Method*, including the German translation, which should be seen as an additional revised edition.

characteristic of science to accept and discuss the most likely theories even at the level of basic education. Scientific discourse always included explanation for phenomena like, for instance, the extinction of large dinosaurs or aurora borealis, that turned later out to be inferior to newer explanations. Degrees of belief are updated in the light of new evidence. It is very important to thoroughly speculate about the most likely explanations given the current evidence and then, aim for further theoretical refinement, as well as empirical methods for confirmation or falsification of the best theories at hand.

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