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See Appendix IP – Interventions Reference Sheet

Catherine Sakai: *While I was out there, I saw something. What was it?*

G'Kar: [pointing to a nearby flower] *What is this?* [upon closer inspection, an insect is visible]

Catherine: *An ant.*

G'Kar: *"Ant"!*

Catherine: *So much gets shipped up from Earth on commercial transports, it's hard to keep them out.*

[As Catherine is talking, G'Kar carefully picks up the ant.]

G'Kar: *I have just picked it up on the tip of my glove. If I put it down again* [replacing the ant on the flower] *and it asks another ant, "What was that?" …how would it explain? There are things in the universe billions of years older than either of our races. They are vast, timeless. And if they are aware of us at all, it is as little more than ants…and we have as much chance of communicating with them as an ant has with us. We know. We've tried. And we've learned we can either stay out from underfoot, or be stepped on.*

Catherine: *That's it? That's all you know?*

G'Kar: *Yes. They are a mystery. And I am both terrified and reassured to know that there are still wonders in the universe…that we have not yet explained everything. Whatever they are, Ms. Sakai, they walk near Sigma 957. They must walk there alone.*

– Babylon 5, "Mindwar" (1994)

Ants!: The idea of ants gaining technology has rightfully scared the bejesus out of us since we first understood the power of humans plus knowledge. Many ancient cultures were impressed by ants, the ancient-Greek derived *myrmidon* is associated with ant-like subordination to the hive.

- ✓ "'It's the highest form of sociality,' he said, 'and it's what enables the ants to dominate the tropics. No organism but man so dominates everything that goes on in a tropical rain forest.' Dr. [William D.] Hamilton [Oxford University] attributes the ants' success to their ability to organize their activities." – Carol Kaesuk Yoon, "Social Castes Found to be Not So Rare in Nature," New York Times Archives, 1993.

The idea has been explored in many movies and short stories (for schlock horror rather than philosophical purposes) since H.G. Wells introduced it in his famous 1905 short story, "The Empire of the Ants." The appearance of advanced intelligence "Phase IV" (1974) ants on Earth (especially if they happen to be starfaring) would be an event for humanity of epochal proportions.[1]

Entropy Is...: Entropy is the pervasive natural tendency of the universe, it is the chaos that exists just beyond order. Order and systems are imposed by intelligent life and some other natural forces of the universe, but as any system expands, as the universe continues to expand (and become less and less absolute), entropy seeps in and breaks down order.

- ✓ Rhetorical Questions: Is the modern general concept of Entropy, as applied to all things, a form of Camus philosophical suicide? Are they in the pale of this world, or do we treat them as something transcendent? Is Entropy like ambient noise or is it the modern *sacrificium intellectus*? See 3 Kairotic Moment, p. 1450, *infra*.

- ➢ Entropy Is Not Constant: Entropy is both a low-level corrosion and a sudden, explosive systemic collapse. It is the pebble that starts the avalanche, and it is also the avalanche. Entropy is not constant in application but it is always there.

1 Entropy – Entropy Is

- ✓ The implicit suggestion here is that we will never eliminate all of the problems – there is no utopian society waiting for our future generations. Rather, society has to decide what problems to eliminate and what social problems are tolerable; how to allocate resources. Solving one social problem creates another.

The Concierge applies Entropy creatively in different ways for the benefit of the game.

- ✓ Interventions should rely significantly upon and frequently reinforce the position's ***Fundamental Realities*** either as historical echoes or as reactions to departures violations by the position during play. During the game, it is probable that many players will forget about their Fundamental Realities, they will fade into the background.
    - Example, during Season 1 of The Man in the High Castle, Smith and Kido are presented as humans, with human problems, and so much happens, so many tortured twists and turns in the story, that it becomes easy to forget they are both cold-blooded murderers, each personally responsible for multiple deaths either through their authority or by their own hands.

  It is the providence of the Concierge to keep the Fundamental Realities *in play* alongside Interventions based on the unfolding events of the game and the storytelling arc.
- ✓ See also Stewed, Brewed, Baked, Boiled or Fried, 1 Disruption, p. 258, *infra*.

Players might not always appreciate the application of entropy to their position, however, players are encouraged to take a longer view of the game as a story arc.

- ✓ Stories (even comedies) where nothing bad or unusual happens are not usually very interesting; all of our stories are primarily about or contain an element of bad things happening to good people or sometimes bad people, e.g., Alfred Hitchcock's 1960 movie, Psycho, where the *original* morally compromised protagonist has fled to the Bates Hotel, setting up the 'she had it coming' archetype in horror films, basically desperate thief meets psycho serial killer.
    - This is one of the reasons, for example, why GDW decided to shatter the seemingly stable (and somewhat boring) Third Imperium setting of Traveller RPG to create the more open and adventurous setting of the Shattered Imperium for MegaTraveller RPG. The carnage of the Imperium civil war began the inevitable road to the Asimovian Long Night. The AI Virus (Traveller: New Era or the third edition of the game), inadvertently created by Imperium researchers, finished the job, leaving a cluster of highly developed interstellar civilizations in ruins. And many places, of many flavors, for RPG adventure.
- ✓ Similarly, most of what we call 'news' are reports of bad things happening to other people (cynically: "if it bleeds, it leads"). History can be viewed in one sense as the story of bad things happening. So can our lives.
- ✓ Stories about normal people having normal days and lives aren't interesting.
- ✓ And 'bad things' happening to anyone in our stories, excepting the natural disaster movies, usually equates to either bad people doing bad things or people doing bad things to others out of ignorance.
- ✓ Thus, in GGDM, someone will become or will need to be the Bad Guy in the story (as discussed in 3 Beginnings, EN 10, p. 45, *supra*). It takes a special kind of player (or actor) to become the Memorable Bad Guy.[2]

1 Entropy – Entropy Is

- "The difference between life and the movies is that a script has to make sense, and life doesn't." – Joseph Mankiewicz.

➢ The Devil's Argument: [Navarre approaches the Bishop with his sword drawn] **Bishop:** "But kill me, Navarre, and the curse will go on forever. You must think of Isabeau." – Lady Hawke (movie, 1985). Without bad guys, there wouldn't be much news or many movies.

And this is always the difficult part, the 'devil's argument' if you like: Without racism, we would not have the wisdom of opposing racism, without sexism, we would not have the argument for equality of the sexes, without the experience of war, especially in the mid-20th Century, and it's generational aftereffects, there would be no modern pacifist argument, without alcohol, cigarette smoking and drug abuse, we would know significantly less about humanity; without Victorian morality, there would be no modern medical study of psychology. No one is in 'favor' of these 'evils,' but no one can seriously imagine a world where they never existed and can hardly imagine a future where they don't still exist.

A utopian world would be, of necessity, perfect, and because it is perfect, nothing can change, otherwise it would no longer be perfect. This is the problem with the utopian argument. ***An author quote is like utopia***, it is perfect because it is a quote, if anything is changed, it is not a quote any longer, but perhaps a paraphrase.

So in the GGDM game, players, like fiction authors, must let bad things into the game to move the story along the track; they must assume that their races are not perfect beings, but rather, filled with pregame fallacies and vulnerabilities.[3]

➢ Crappy Things Must Happen: What we forget when we fall into a big budget movie is that for the story to work, *really crappy things* must be assumed to have happened to a lot of people, to our world, to specific people, before the story begins (i.e. the background) and/or will happen during the story, and possibly afterward as a result of the story. We forget these things in the moment, let them pass over us, *because it is exactly what we expect*, nothing new here – just as we don't notice people coming and going in a crowded public place, unless there is something different. It is only a matter of what flavor of bad we prefer.

✓ "Every account of a higher power that I've seen described, of all religions that I've seen, include many statements with regard to the benevolence of that power. When I look at the universe and all the ways the universe wants to kill us, I find it hard to reconcile that with statements of beneficence." – Neil deGrasse Tyson, at the University at Buffalo, Q & A session, April 9, 2010, video on YouTube as of September 2018.

Bad things are always necessary to create an interesting background.

✓ Example, **alien** Colony Ship arrives at the Earth, aliens want to settle on Earth, humans allow some settlement, negotiations continue, humans and aliens reach an agreement for mass settlement of a million aliens on Earth, the alien ship explodes, killing most of the alien population, the sides blame each other, debris from alien ark ships fall to Earth, alien terraforming technology is loosed, uncontrolled, massively alters the Earth, billions of humans die, there is a war, Earth is unrecognizable when it ends...

This is the ketchup ... uh, setup for the 2013 TV series, Defiance. It allows the writers to do whatever they want, just as the space-opera setting of GGDM allows participants wide lati-

tude (almost) without historical constraint. It is also the requirement for every post-apocalyptic setting (Ark II, Twilight 2000, Mad Max, Gamma World, Jericho), to have a post-apocalyptic setting, one must have an apocalypse and Defiance is an example of the post-Cold War sort now that the threat of global thermonuclear war has receded. And sometimes the bad guy is right and makes the most sense too:

- ✓ "The plot has a raggedy quality.... At its worst, it raises basic creative questions that are a far cry from its philosophical and moral concerns: *Is the heroine special because she truly has special qualities, or because the 'You are the chosen one' thing lets [Brad] Bird barrel through two hours without having to give Casey any traits besides spunk? Is it a problem, story-wise and message-wise, that Frank's chief antagonist ... makes more sense than the heroes who oppose him?"* – Matt Zoller Seitz, review of Tomorrowland on rogerebert.com, March 18, 2015 (emphasis in original).
- ✓ "It is also a fallacious *ad hominem* argument to argue that a person presenting statements lacks authority and thus their arguments do not need to be considered. As appeals to a perceived lack of authority, these types of argument are fallacious for much the same reasons as an appeal to authority." – from Wikipedia article, "Argument from Authority," captured April 7, 2020.

"I want to talk about Feng Shui, which is something I know very little about, but there's been a lot of talk about it recently in terms of figuring out how a building should be designed, built, situated, decorated and so on. Apparently, we need to think about the building being inhabited by dragons and look at it in terms of how a dragon would move around it. So, if a dragon wouldn't be happy in the house, you have to put a red fish bowl here or a window there. This sounds like complete and utter nonsense, because anything involving dragons must be nonsense – there aren't any dragons, so any theory based on how dragons behave is nonsense. What are these silly people doing, imagining that dragons can tell you how to build your house?

Nevertheless, it occurs to me if you disregard for a moment the explanation that's actually offered for it, it may be there is something interesting going on that goes like this: we all know from buildings that we've lived in, worked in, been in or stayed in, that some are more comfortable, more pleasant and more agreeable to live in than others. We haven't had a real way of quantifying this, but in this century we've had an awful lot of architects who think they know how to do it, so we've had the horrible idea of the house as a machine for living in, we've had Mies van der Roe and others putting up glass stumps and strangely shaped things that are supposed to form some theory or other. It's all carefully engineered, but nonetheless, their buildings are not actually very nice to live in."

– Douglas Adams, "Is there an Artificial God?" speech at Digital Biota 2, Cambridge U.K., September 1998

Flipping (off) Modernity: Entropy and the four Constructural Elements in GGDM are probably broadly (and unintentionally) functionally similar or analogous to in many ways *yin-yang* and the Five Elements of *Wuxing* (Chinese philosophy). See 1 Constructural Elements, p. 180, *supra*.

- ✓ You may be familiar with the West's poor cousin: Earth, Wind, Fire and Water. The five elements of *Wuxing* are Wood, Fire, Earth, Metal and Water (various orderings).

It's a matter of worldview – how one slices the pie – as both are deductive, the difference being what is attempted to be described or explained and the starting point from which it is deduced,

e.g., if one were to try to deduce the parts of a modern automobile as opposed to beginning with deducing the parts of the passenger cabin or engine without looking farther. Both *Wuxing* and GGDM describe relationships between humans and the universe and between each other, *Wuxing* begins appropriately with the cosmos *down* to Earth, whereas GGDM begins with the Earth *up* to the cosmos. It's a matter of view, ancient mythopoeic vs. modernity, top-down or bottom-up. Taken in this sense, we have completely 'flipped the script' in modernity and that is the essence of the three-century dispute between religion globally and modernity.

- ✓ Continuing: "An awful lot of theory has been poured into this, but if you sit and work with an architect ... then when you are trying to figure out how a room should work you're trying to integrate all kinds of things about lighting, about angles, about how people move and how people live – and an awful lot of other things you don't know about that get left out. You don't know what importance to attach to one thing or another; you're trying to, very consciously, figure out something when you haven't really got much of a clue, but there's this theory and that theory, this bit of engineering practice and that bit of architectural practice; you don't really know what to make of them." *Id.*
- ✓ "Another approach to Western esotericism has treated it as a world view that embraces 'enchantment' in contrast to world views influenced by post-Cartesian, post-Newtonian, and positivist science which have sought to 'disenchant' the world. Esotericism is therefore understood as comprising those world views which eschew a belief in instrumental causality and instead adopt a belief that all parts of the universe are interrelated without a need for causal chains. It therefore stands as a radical alternative to the disenchanted world views which have dominated Western culture since the scientific revolution, and must therefore always be at odds with secular culture." – from Wikipedia article, "Western esotericism," February 20, 2019, citing to Wouter Hanegraaff, Western Esotericism: A Guide for the Perplexed (2013).

"Many arc-based series in past decades, such as V, were often short-lived and found it difficult to attract new viewers; they also rarely appear in traditional syndication (one notable example being the science fiction 'novel for television' Babylon 5). However, the rise of DVD retail and DVR of television series has worked in arc-based productions' favor as the standard season collection format allows the viewer to have easy access to the relevant episodes. One area of television where story arcs have always thrived, however, is in the realm of the soap opera, and often episodic series have been derisively referred to as 'soap operas' when they have adopted story arcs.

Arc-based series draw and reward dedicated viewers, and fans of a particular show follow and discuss different story arcs independently from particular episodes. Story arcs are sometimes split into subarcs, if deemed significant by fans, making it easy to refer to certain episodes if their production order titles are unknown. Episodes not relevant to story arcs (such as 'monsters of the week') are sometimes dismissed as filler by fans, but might be referred to as self-contained or stand-alone episodes by producers."

– from Wikipedia article, "Story Arc"

Arc Covenant: Story arc is a relatively recent development in television programming. A story arc in a program is a covenant with the viewer to which television people were hesitant to enter.

Three features distinguished American television series up to the late 1980s: they were formulaic, episodic, and written for a very low common denominator. That is, the premise and main characters were established in the pilot, each episode was predictable, nothing ever changed (everything was reset at the end of each episode), no one ever died or was seriously hurt, rarely were social controversies raised, *rarely did the characters display any memory of previous episodes* (thus the episodes could be viewed/aired in any order), and shows were suitable for an 8 year old to watch, possibly understand, and be amused (i.e. the lowest common denominator).

Change, increased maturity level (lowest common denominator perhaps hovers around 10 to 12 years old now), increased complexity, and social issues in television coincide approximately with the end of the Cold War and increasing audience education level (i.e. a surge in college graduates) and sophistication.

- ✓ "In order to understand how 'Babylon 5' changed the rules of dramatic television, it is important to first understand the evolution of dramatic television over the last two decades. Up until the late 1970s, most prime-time dramas on American television consisted of a series of standalone episodes with very little continuity between each show (the events on one episode rarely had an impact on the events in subsequent ones). In addition, the events portrayed in the series usually revolved around a central character. The original 'Star Trek' is a good illustration of this, as you can watch the majority of the episodes in any order without any continuity issues, and the stories tended to revolve around its lead character, Captain Kirk.

  However, at the latter end of 1970s, a number of 'prime-time soaps' emerged ('Dallas,' 'Dynasty,' etc.), which brought the ongoing and multi-episodic narratives of daytime soap operas to mainstream audiences. Furthermore, these 'primetime soaps' were characterized by 'community creation,' in which the action revolved around a number of individual characters related to one another through some means, and the dramatic conflict was often derived from the interactions between these characters. The popularity of the prime-time soaps soon begat the 'ensemble drama,' which combined the multi-episodic story arcs and community of characters with decidedly more serious thematic content. The first ensemble drama that exhibited these characteristics was 'Hill Street Blues,' which was cited as a 'groundbreaking show' and helped to pave the way for other ensemble dramas such as 'St. Elsewhere,' 'L.A. Law,' 'Twin Peaks,' and yes, even 'Star Trek: The Next Generation. ...

  In many genre programs (and numerous 'old school' television dramas for that matter), the main character usually remained static over the life of the series. For example, Detective Columbo was the same person from week-to-week and only the situations he was in differed.'" – Anthony Leong, "Babylon 5: Triumph and Tragedy in Three Acts," Frontier: the Australian Science-Fiction Media Magazine, April/June 1999 (article is available free online).

  - To this list, I might add one of my multi-episodic story arc favorites from the ensemble drama era, Wiseguy, 1987-1990 (not to be confused with that awful episodic series, The Fallguy, 1981-1986). Another ♥, Forever Knight (1992-1996), was a dark-themed episodic late 1980s style series (including prime-time hair) with pretensions of being an ensemble drama, that desperately wanted to have a story arc, but eventually just wore itself (and the actors) out and tried to revive with a sudden change in the third season.

"Social Entropy Theory (SET) is a very general macrosociological systems theory."

– Kenneth D. Bailey, from Abstract of "Social Entropy Theory: An overview," Systems Practice, Vol. 3, Is. 4, August 1990

SETiGGDM: Entropy as used in GGDM is primarily an application of Social Entropy Theory salted with a little 'stupid crap happens' for storytelling purposes.

- ✓ "Our goal in Social Entropy Theory is to construct an adequate model of complex society. It is taken as axiomatic that to understand complex society adequately, we must have a complex model. More specifically, the model must be isomorphic with the society, and, so, must be as complex as the society that it models." – Kenneth D. Bailey, "Social Entropy Theory: An overview," Systems Practice, Vol. 3, Is. 4, p. 365, August 1990 (was he talking about GGDM? ☺).
- ✓ "A pseudo state function, the **'*Social Entropy*' (SE)** is defined in order to show the application of the second law of thermodynamics to the human social behavior. This is achieved under the assumption that such property (SE) is equivalent to the degree of ***social dissatisfaction (SD)***, of certain social, economic, or political system. Hence, a Boltzmann type equation is used after simplifying it with Stirling formula, to obtain a rough estimative of the amount of the relative **SE** in a determined place and moment of history. A case study related to the Peruvian society has been used here to demonstrate our hypothesis that the ***social entropy*** tends to increase with time. Similarly the **degree of disorder** of a thermodynamic system increases with time. Generally speaking we observe so far that the degree of disorder is a manifestation of the social dissatisfaction within the limits of the system." – Alfredo Palomino Infante and James H.L. Lawler, "Social Entropy: A Paradigmatic Approach of the Second Law of Thermodynamics to an Unusual Domain," Nexial Institute, 2002 (http://www.nexialinstitute.com/social_entropy.htm).

While I have little to no chance of understanding the math of Social Entropy Theory, the basic concept resonates in GGDM: 'Increase' in entropy is change from low- to high-probability states (like your cup of coffee getting 'cold' over time), in the GGDM setting, population movement from the single homeworld to the stars. The Entropy rules in GGDM are both a simulation of SET and a storytelling tool in the game (what's the difference anyway? What is history?).

"The student of mathematics does not, as a mathematician, know anything whatsoever about the world of concrete reality. This is true because mathematics is not a body of knowledge with respect to any of the order of phenomena in the objective world. It deals with concepts and is a kind of quantitative logic, purely subjective in its essential nature. But that is not to say that it is not an immensely valuable discipline.

Quite the contrary. While one who knew only mathematics, even if he mastered it all, would know nothing about the objective, phenomenal world, he would be in command of an incomparable mental equipment for the accurate explanation of natural phenomena if he were to turn his mathematically equipped mind to their systematic investigation. Thus it is that pure mathematics, far from being a single science, is no science at all. It is, however, the measure of accuracy for all sciences, or the 'standard of positivity,' as Comte expressed it."

– Clarence Marsh Case, Outlines of Introductory Sociology (1924), p. xvi

Math Boy: I did not grasp math as "quantitative logic" when I was young; if I had thought of it or been taught and internalized it in that way, the outcome might have been different. My main memories of math are memorizing multiplication tables in elementary school and failing math (but somehow passing) every year in high school.[4] I knew I was lost and failing, but somehow passing onto the next course each year in high school, and passing toward graduation (or at least not getting into trouble for failing a course) was all I cared about in high school.

- ✓ In high school, I think my math teacher assumed you'd either 'get it' or not get it, and it didn't matter which; thus no effort was made to frame 'what is math' or to pull the most dimwitted students up to the shelf where they 'got it'. The same was true later in college, but the difference is that not getting it blocked progression in my majors; *understanding* is the difference between college and mandatory public high school.

I think in my youth, math was a sort of mystical thing that kids smarter than I was understood (for example, the girl in the orchestra with whom I was infatuated), I don't know that I really could have said what math was when I was young (any more than I could have said what literature was at that time). Maybe this is middle-age excuse-making, but if you are teaching math, perhaps it is better to start students with this concept and keep repeating until they internalize it.

- ✓ "Who does not know, as regards to the so-called mathematicians, what very obscure subjects, and how abstruse, manifold, and exact an art they are engaged in? Yet in this pursuit so many men have displayed outstanding excellence, that hardly one seems to have worked in real earnest at this branch of knowledge without attaining the object of his desire." – Marcus Tullius Cicero, Of Oratory (55 B.C.), Bk. 1 (trans. E. W. Sutton and H. Rackham) from Patricia Bizzell and Bruce Herzberg, The Rhetorical Tradition (1990), p. 201.

In college it might have been better had I begun with the question, 'what can calculus do that math cannot?' But it was ever presented that way; they simply began teaching calculus as if students already knew that answer or would figure it out.[5] Similar questions are asked on the internet even now; e.g., on Quora in 2013, "How is calculus different from algebra?" and a redux in 2017, "What is the difference between maths and calculus?" There are many sites dedicated to explaining what is calculus; this is the one I wished I had been able to read back around 1990:

- ✓ "For over seven hundred years algebra and geometry coexisted but were not well linked. Geometry describes the physical nature of our world while algebra is a sophisticated tool for mathematical analysis. Due to the Greek influence on Persian (or Islamic) mathematics geometry was successfully used to verify some of their algebraic methods, but there was no known way to harness the analytical power of algebra to analyze geometry.

  In the late 1500's the French philosopher and mathematician, Rene Descartes, had a profound breakthrough when he realized he could describe position on a plane using a pair of numbers associated with a horizontal axis and a vertical axis. By describing, say, the horizontal measurement with x's and the vertical measurement with y's, Descartes was able to give geometric objects such as lines and circles representation as algebraic equations. This seminal construction of what we call graphs is, arguably, the cornerstone without which our modern technology would not be possible. Des-

> cartes thus united the analytical power of algebra with the descriptive power of geometry into a branch of mathematics he called analytic geometry. This term is sometimes seen in textbooks with titles such as 'Calculus with Analytic Geometry.' ...
>
> The next major breakthrough in mathematics was the discovery (or creation) of calculus around the 1670's. Sir Isaac Newton of England, and a German, Gottfried Wilhelm Leibnitz, deserve equal credit for independently coming up with calculus. Each accused the other of plagiarism for the rest of their lives, but for what it's worth, the world largely adopted Leibnitz's calculus symbols. Calculus did allow Newton to establish physics principles which remained uncontested until the year 1900 and which in our ordinary scale world still suffice to explain physics to excellent accuracy.
>
> Calculus was developed out of a need to understand continuously changing quantities. Newton, for example, was trying to understand the effect of gravity which causes falling objects to constantly accelerate. The speed of an object increases constantly every split second as it falls. How can one, for example, determine the speed of a falling object at a frozen instant in time, such as its speed when it strikes the ground? *No mathematics prior to Newton and Leibnitz's time could answer such a question, which appeared to amount to the impossibility of dividing zero by zero.* The solution to this type of issue came to be known as the derivative. Derivatives are slopes of particular lines called tangent lines, and the reader may recall that slope of a line is a concept from Descartes' graphing." – Jon Davidson, "What is Calculus," Southern State Community College (Ohio), undated article (emphasis added).[6]

So calculus solved a problem that seemed previously impossible. Ok. And the solution is precisely and accurately applicable to modern physics and graphic visualization problems. Even better. Would the impossible framework problem of quantum physics likewise be solved by a new form of math? That seems to be the strong underlying assumption of most who understand the problem far better than I; it is implied in much of modern science-fiction literature.

- ✓ Rhetorical Question: What 'impossible' problem has GGDM solved or not solved? Or is that not the correct framework for discussing human civilizations? Or GGDM?

The Stargate Universe series character Eliot ("Eli"), an apathetic MIT dropout and 'math boy' as he called himself in the episode "Light" (2009) is the epitome of Mr. Case's preceding description of a mathematician. It is not likely that the SGU staff ever heard of Mr. Case or read his books; it is most likely that Eli's character is derived from a long-running sci-fi stereotype.

- ✓ "The origin of the mathematization of economics is traced back to Swiss mathematical genius Daniel Bernoulli, who precisely conceived of utility in terms of the intensity of psychic effect. Murray Rothbard elaborated on the foundation of mathematical economics ... but it is worth noting that two hundred and fifty years after his death, Bernoulli's probabilistic insights are also getting criticized by Nobel Prize winner Daniel Kahneman." – Michael Accad, M.D., "An introduction to praxeology and Austrian school economics," alertandoriented.com (blog), April 13, 2016.
- ✓ See Unsolved Problems discussion, 3 Constructural Elements, p. 209, *supra*.

➢ The Other View: There was debate in the early 20th Century about whether mathematics was a science; there are other views that are contrary to the ones expressed by Mr. Case:

- ✓ "Mathematical science is in my opinion an indivisible whole, an organism whose vitality is conditioned upon the connection of its parts. For with all the variety of mathematical knowledge, we are still clearly conscious of the similarity of the logical devices, the relationship of the ideas in mathematics as a whole and the numerous analogies in its different departments. We also notice that, the farther a mathematical theory is developed, the more harmoniously and uniformly does its construction proceed, and unsuspected relations are disclosed between hitherto separate branches of the science. So it happens that, with the extension of mathematics, its organic character is not lost but only manifests itself the more clearly." – David Hilbert, "Mathematical Problems," an address to the International Congress of Mathematicians at Paris (1900), translated by Maby Winton Newson for the Bulletin of the American Mathematical Society 8 (1902).

Thus, it seems that Mr. Hilbert, a mathematician, who is considered one of the greatest mathematicians of the 20th Century, would disagree with Mr. Case, a sociologist, on that point. But there are other statements from the address in which Messrs. Hilbert and Case would seem to be in agreement, e.g.:

- ✓ "The organic unity of mathematics is inherent in the nature of this science, for mathematics is the foundation of all exact knowledge of natural phenomena. That it may completely fulfil this high mission, may the new century bring it gifted masters and many zealous and enthusiastic disciples!" *Id.*

I still think the view of mathematics as "a kind of quantitative logic" is and would have been far more useful. But math is now unanimously presented as a 'science.'

"Some say the wind just stoppered.
Others reckon it were a gang called Turbulence!"

– The Tell of Captain Walker, Mad Max: Beyond the Thunderdome (1985) [7]

...Turbulence of Being: Beyond entropy, the universe seems to have a quota for stupidity, pettiness and annoyance of which it is mine and humanity's designated role to fulfill (I call it the 'To Screw List'). What would happen, if for once, when there is a probability that the cat food can with a spoon in it would not fall over, if, in fact, it didn't fall over? Would the universe collapse into chaos? Would the universe cease to exist as we know it?

We will never find out because the stupidity quota insures that the can of cat food with the spoon in it, will always fall over regardless, especially if doing so is to our greatest annoyance. Or under the Many Worlds Interpretation of quantum mechanics, it always 'happens' because we never see the universe where it doesn't happen. What's the difference? It's like an executing computer program. Although these questions might be regarded as humor, they are equally part serious,[8] to wit:

- ✓ Is it the basis of our science and technology that observed phenomenon are repeatable, and if they are repeatable, then they can be tested and eventually, we obtain a natural law by which they operate, and are predictable? I am waiting for science to explain the preceding to me (and other related commentaries in GGDM, e.g., top of 3 Entropy, 1 Temporal Technology, 2 Fallen to Earth, 3 Colleges, etc. *infra*, a theme

running through GGDM), why this always happens? Science cannot even frame the problem, the observed phenomena, in fact, it will be dismissed instead as just my mental state, my negative interpretation, when everyone who is paying attention can see it happening every day. We write songs about it, e.g., what happens when you play a country song backwards (old joke)?[9] I feel that it is at least colorable that the phenomena will be understandable when we have the proper framework in which to ask quantum questions:

- "Unlike classical physical processes, some quantum mechanical processes (such as quantum teleportation arising from quantum entanglement) cannot be simultaneously 'local,' 'causal,' and 'real,' but it is not obvious which of these properties must be sacrificed, or if an attempt to describe quantum mechanical processes in these senses is a category error such that a proper understanding of quantum mechanics would render the question meaningless." – Wikipedia, "List of Unsolved Problems in Physics," captured June 18, 2018.
    - This quantum quandary is mirrored in GGDM game mechanics.
    - See also Peek-a-Boo, 2 Expansion, p. 893, *infra*.
- "As time travel films get more complex, however, we need new models to think through their mechanics, and *new ways to think about the ways they produce meanings*. A recent and quite impressive addition to the genre is Rian Johnson's 2012 film Looper. And as with many such films, soon after release, there were a panoply of explanations, diagrams, and attempts to explain its time-travel dynamics, many on the Internet. While most praised the film in one form or another, many argued that the presentation of time travel in the film is in some senses sloppy, because it mixes and matches various theories of time travel, and hence sacrifices structure for character development. This reading of the film has in some senses been supported by the director, who implied in at least one interview that he went with his gut rather than work out the details. Despite this, there's actually some very strong reasons to see Johnson's gut instinct as having a lot going for it. *For when contextualized by aspects of contemporary quantum mechanics, the fuzzy logics of Looper are hardly inconsistent.* In fact, this film can be seen as actually advances the time travel genre to a new level of complexity." – Christopher Vitale, "Collapsing the Fuzzy Wave: Rian Johnson's 'Looper' (2012), Quantum Logics, and the Structures of Time Travel Films," networkologies (blog), written in 2012, updated and reposted, October 31, 2014 (emphasis added).
- When this occurs, the results will be epochal, emergent throughout humanity. See continued epochal evolution discussions in 1 Order, 1 Stardrive, and 1 Reformation, *infra*.

These are questions I have asked myself over and over again for years and years (it might be somewhat evident in the design of GGDM).

- ✓ You are free, of course, to dismiss my unfavorable views in GGDM as confirmation bias (the modern pat on the head). As self-fulfilling prophecy. The glass half-full or

half-empty, and all that. We can all go on pretending that the causality around humans is coincidental, random, that the universe loves us and is our intellectual playground (like kids who don't know snakes bite). And all that. Because of course, I am nuts. Santa Claus is watching, you had better look happy, innocent and harmless.

- Sometimes I feel like Paul Simon's "Something so Right" (1973).

✓ You may think that like Pangloss, I am confusing causes with effect. That because the universe annoys me, I think that it is the intent of the universe to annoy us. I can only shrug at such a suggestion, "you may be right, I may be crazy, I may be just the lunatic you are looking for!" (Billy Joel, "You May be Right" (1980)). But that is what the universe means to me, and to many others if they stop to think of it. And the only way you can dismiss my thoughts is to believe that what I think has no meaning or effect on the universe, is not a fact equivalent to or the same as say, a lightning strike that blew off the corner roof of my grandmother's garage in 1996.

➢ A Simple Proof: If I hold and release a ball, it falls to the ground. If I do it 100 times, in exactly the same way, applying no other forces, it falls to the ground 100 times, in exactly the same way. How many times does this need to happen before you decide it is not a coincidence, even if you do not have modern knowledge?

✓ *Why* did an egg (have to) drop on the floor while I was making breakfast this morning? Well, you might say, you were careless or you didn't have a good grip on the egg when you took it out of the carton. Those are answers to *how* the egg dropped on the floor, who is responsible, blameworthy, not why the egg dropped on the floor (the 'have to' part is a separate issue). So you say, ok gravity caused it to fall to the ground and it broke. Again, this is the mechanics, a *how* answer. Since we never get an answer to the why, *we have become accustomed to interpreting how answers as whys*. Our language actually makes it difficult to directly express the real question, and very easy to fumble about hows, responsibility, causal chains, and blame. Thus we live in confusion and ask confused questions. Can physics solve this?

✓ That is the question we must resolve: How many times does entropy – either petty or large – have to happen before we resolve that it is not a coincidence? And if it is not a coincidence then it is either natural law or malicious agency, and what is the difference? Treatment of natural laws as neutral is just a mental trick to keep us from losing our minds, to keep it empirical; no one can prove that natural laws are neither benevolent nor malevolent though science so asserts. The best that science can argue is that they are neutral in application from a strictly empirical perspective.

- See also UNITY OF OPPOSITES discussion, 5 Fallen to Earth, p. 1570, *infra*.

The ancients didn't think for a moment that gravity was a coincidence and expressed it in their own framework, their own terms. They also used it, giving it military and engineering applications, just as they did the wind and the currents. Phenomenology and ontology are not so separated from empirical science as they would like; to be empirical, it must both exist and appear, from which we derive facts such as measurements, behavior, natural laws.

✓ Long ago, I read a story that I think was titled, "The Girl Who Lied to Save the Earth." I cannot locate it now, but the gist of the story was that an extradimensional explorer crossed over to Earth. The explorer noticed that there was much chaos in humanity and asked a girl if this was normal. She lied. Thinking that it had disturbed

this dimension, the extradimensional explorer removed itself back to the origin, and made 'repairs' of the damage to our planet that it thought it caused.

- Fourth Frame: Turning to a different framework, it 'feels' or 'seems' as though the idiot, petty entropy in our daily lives is a form of 'turbulence' (I have no other suitable term, so that will have to do) from the very fact that we exist. Of course, science holds that everything in the universe experiences entropy, that is, that entropy migration to high entropy is a universal process the same as gravity, magnetic attraction and so on. But there seems to be something different about the way humans experience petty entropy in their daily lives.

  - ✓ One colorable possibility is that the low entropy state, the existence of anything in this universe interrupts something that we have not yet identified, or perhaps the successive emergences of the natural orders (see discussions 2 Culture and 1 Order, *infra*) has 'violated' some laws of the universe, but not in the sense that they would be prohibited (again, we really lack the vocabulary) or perhaps the laws were changed by the emergences. We live in a fractured universe, so to speak.
    - However, there is possibly a circular argument that could occur here: That the fractures are the cause of entropy, but then, what else – other than entropy – would we call the process that caused the fractures? Or more precisely, is an emergent event entropic? Which comes first, the chicken or the egg?
    - See also discussion of paradoxes, 2 Temporal Technology generally, *infra*, and opposites, 5 Fallen to Earth, p. 1570, *infra*.

Humans experience entropic events in an emergent way. What among the first order of natural phenomenon laws (i.e., the physical universe) known to us dictates that an entropic event should cause anger, annoyance, cognitive dissonance in human observers? Gravity, magnetism, electron spin? Within the framework of the second order of natural phenomenon (i.e. the organic), we find some cause in organic reaction to entropic events that are negative stimuli, but that is still a far cry from human reaction (of all types) to entropic events. It is only within the third and fourth orders of natural phenomenon (i.e. the mental and the super-organic, respectively), that human reactions to entropic events become frameable and to these, we hardly have developed any natural laws in the sense of the first/second order sciences.

- ✓ The orders of natural phenomenon described by sociologist Clarence Marsh Case in 1924 are discussed throughout GGDM, see especially 2 Culture and 1 Order, *infra*.
- ✓ Entropy is relative to the environment. If you lived in the ocean, dry would be a very low entropy state and wet would be the high entropy state (like the distribution of air molecules in a room). In fact, fish would never know they are 'wet' without an opposite state. However, in physics lectures and videos, it is not presented this way, rather, high and low entropy are always presented as either a room full of air or against the ultimately objective background state of the universe beyond the Earth and Sun. Physics is in love with the ultimate objective reality, which is the background state of the entire known universe and every argument flows from there. But not human arguments. Human experiences flow from the *ought* and *not*. Or the *ought*, the *is*, and the *not*. Relativity is the recent interloper into the world of physics.

The next question is, does the universe have an emergent response to humanity? Does the emergence work both ways? In the same way perhaps that the Earth's gravitational pull moves the Sun very slightly due to the vast differences in mass? Or the way the Moon

causes tides on Earth? The problem is that for all of history, our experience of entropy, was just the way things were, the craziness of the world, and no one gave any thought to it (and it almost destroyed us, may in the future), instead, we learned to bump along on the waves. I have refused to accept that it is 'just the way it is' or that it's just the natural universe, I want a better understanding personally, and I believe if we are to survive in the next centuries, humanity needs to understand this (nay, *grok* this) better as a civilization.

The human experience of entropy, both individually and as civilization, is either then peculiar to the third and fourth orders of natural phenomenon and/or we are more likely to experience the 'turbulence' because we are more complex still than all of the other lifeforms on Earth (that is, the nail that sticks up most gets hammered down the hardest and first).

- ✓ Oddly, Douglas Adams said of the Infinite Improbability Drive in the Hitchhiker's Guide to the Galaxy (radio scripts 1978, novel 1979 *und so wieter*) books that the less probable your existence, the faster you can go. Though it was taken as some vaguely philosophical comedic comment, it has always been intriguing and who knows, maybe Mr. Adams sensed something of what I have noted above?
    - See also 'disturbulence modifier,' 2 Movement, p. 846, *infra*.
- ✓ I may, if you will pardon, be the sanest person on Earth for all of my eccentricities.

"But I know this: I have never believed much in conspiracy theories. Secrets are difficult to keep when they involve two or more people. My answer to questionable events aligns more with Peter Bergen's spot-on assessment: 'Incompetence is a better explanation than conspiracy in most human activity.'"

– James Gagliano (Ret. FBI), "The GOP uses FBI secret society charge to overplay its unbeatable hand," The Hill, January 25, 2018

"When nothing conspiratorial is revealed in the JFK files, the conspiracy theorists will insist the cover up continues. No point."

– David M. Drucker, from the Washington Examiner, on Twitter, October 25, 2017, as reported in the Washington Post, regarding the announced 2017 release of JFK investigation file materials from the National Archive

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[Interview] *"Could just be incompetence. Never underrate that possibility."*

– Richard Beeston, The Spy Who Went into the Cold: Kim Philby, Soviet Super Spy (documentary, 2013) [10]

Interventions: Entropy is the 'player position' of the Concierge; it is the means by which the Concierge can participate in the story of the game. The Concierge interacts with players in various ways while running the game (such as processing turns, News Events, and Patents), but Interventions provide a special ability for the Concierge to influence the game directly. Perhaps you guessed that Interventions happen without warning or permission of the position players...?

- ✓ The Concierge has thus progressed in these rules from being first an admin (set up and processing of turns) to being a mod (game forums and News Events) to a fully-empowered game master (Interventions) and participant in the game.

The Concierge is not beyond the Fourth Wall, is not lowered from the ceiling by ropes (*deus ex machina*) and is not the wizened little old guy emerging from behind the bush to dispense gentle moral wisdom;[11] the Concierge is standing on the stage with the rest of the actors – or at least off to the side with a Vaudeville Hook! In all sports, the referees standing on the field are considered to be part of the playing field, e.g., if they inadvertently get in the way or if the ball or puck hits them, they are part of the field.

- ✓ "All existential thinkers quoted by Camus have realized the futility of reason, all them are seen to have recourse to some transcendent entity as *raison d'être*: Husserl to his 'extratemporal essences' of innumerable phenomena, Chestov and Kierkegaard to a deity whose loftiness consists precisely of His incomprehensibility, indeed in His inconsistency, arbitrariness, inhumanity." – Erich Kahler, The Tower and the Abyss (1957) (see full quote, 3 Kairotic Moments, bottom p. 1450, *infra*).

- Interventional Potentials: The Concierge receives one Intervention Potential each time a Regular Turn is processed. Interventions should be used when appropriate but may be retained from turn to turn, indefinitely (i.e. they never 'age-out'). The Concierge may use any number of available Interventions in a Regular Turn or Turn Cycle. Interventions may be used freely and do not have to be directed to the position from which they were generated. They *should* be used, however, as there are few good reasons not to intervene regularly.

  It is possible that one Intervention Potential per turn will be insufficient later in the game, when the positions have grown. Other rules provide some ways that extra Potentials may be generated by player actions. It may be necessary to add Intervention Potentials to the game; hopefully, this can be done with consent and understanding of the players, and in a creative way that fits the style and story of the ongoing game.

  In the language of Entropy, Intervention Potentials represent any or all of the following: a measure of the unavailability of part of the system to do work, the increased amount of information needed to determine the exact state (i.e. Byzantine Fault), the increased range of possibilities arising from the uncertainty, the dispersal of social energy and parts toward unintended purposes, and conflicts arising between parts. Interventions can also be used to introduce external and random factors into an otherwise orderly appearing system.

- Intervention Bulletins: Each use of an Intervention requires a Special Bulletin news posting. All Special Bulletins by the Concierge are considered to be absolutely true, with the exception of Prose Bulletins. Of course, when using Interventions the Concierge will operate from their superior knowledge of the game.
  - ✓ The principles of the Special Bulletin are storytelling promotion and transparency even if unrealistic. Players may be upset if the Concierge constantly acts in secrecy.
  - ✓ Like Game Masters everywhere, the Concierge receives their superior knowledge of everything from a 6' 3.5" invisible rabbit named Harvey, who can stop the hands of the clock and go anywhere.

- Intemperance: The Concierge should avoid the appearance of pettiness and vindictiveness (or other intemperate acts) or impropriety in use of Interventions, nor should players feel

their positions are being constantly 'targeted' by the Concierge. Interventions should fit the *scale of the game* and advance the story or keep the game interesting with new twists.

- ✓ "Human beings are very bad at scale, and theories about the rigging of a presidential election make that clear. Maybe you can throw a mayoral race in a small town by getting a handful of people to go vote several times (assuming they can sneak past the protections in place to prevent such a thing). But presidential races involve millions of votes. That's a whole different ballgame." – Philip Bump, The Washington Post, October 17, 2016.
- ✓ "The Trump administration's May budget called for cutting *$1.2 billion* from the Centers for Disease Control and Prevention, which is part of HHS, including an *$82 million* cut at the center that works on vaccine-preventable and respiratory diseases.... Price's budget proposed a cut of *$186 million* from programs at CDC's center on HIV/AIDS, viral hepatitis, sexually transmitted infections and tuberculosis prevention. There was also *$222 million* in cuts to the agency's chronic disease prevention programs.... The agency's center on birth defects and developmental disabilities saw a 26 percent cut to its budget. ... Price's first budget also sought *$1 billion* in cuts for the National Cancer Institute, *$575 million* in cuts for the National Heart, Lung and Blood Institute and $*838 million* in cuts for the National Institute of Allergy and Infectious Diseases. The administration asked Congress to slash the overall National Institutes of Health budget from *$31.8 billion* to *$26 billion*. ...

  All these numbers are far more consequential to the long-term health, both fiscal and physical, of the United States than Price's private plane habit. But they are also way more abstract, and thus less sexy, than a million bucks spent on airfare. People are inclined to focus on relatively small expenditures because they sometimes struggle to wrap their heads around bigger numbers that underscore harder truths. A search of Lexis Nexis and Google News makes clear that Price's flights have garnered far more attention than the proposed HHS budget cuts in May or even the GOP's $1.5 trillion debt deal last week." – James Hohmann, The Washington Post, September 29, 2017 (emphasis in original)
  - User PelletFan on YouTube commented in regard to Stephen King's <u>The Stan</u> (1978), that loss of 99.4% of the U.S. population in 1990 still leaves 1.5 million people! Certainly, it is collapse, but not extinction. People don't *grok*.

Mysterious losses of ships, for example, are acceptable on a certain number of occasions during the game (perhaps when the technology is new), but should not be the steady resort of Concierge Interventions unless doing so serves a much larger purpose in the game.

- ✓ The Concierge must be – like the Lawnmower Man (movie, 1992) – God in the game (and game program), both able to change anything in the game data, and of the wisdom to refrain from doing so unless there is a good long-term reason or necessity.

➢ <u>Indifference</u>: Interventions are not always negative, destructive, or 'bad' nor are they required to be. An Intervention can be positive, negative, or neutral, good, bad or just ugly; and the view depends on the observer.

- ✓ "And thus I clothe my naked villainy / With old odd ends stolen forth from holy writ / And seem a saint when most I play the devil." – William Shakespeare, "Richard III" (1597).

Interventions are not a form of 'justice' or 'retribution' or 'balancing' or 'leveling' as that implies that the Concierge has abandoned neutrality.

- ✓ "There is an artistic principle – not a rule – that volitionals should be treated consistently. But to insist on kindness would be to eliminate that degree of freedom for which volition in creatures was invented. Without the possibility of tragedy the volitionals might as well be golems." – The Entity *above* Yehwah talking about humans (i.e. 'volitionals') in Robert Heinlein's Job: A Comedy of Justice (1984).

Honor is something that only occurs when there is a choice and when some stupid situation arises among creatures with volition; if humans were computers, there would be no honor.

- ✓ ***Fundamental Realities*** are an important part of the Concierge's position in the game. Some Intervention Potentials should be used to prod a position to act within their Fundamental Realities and when the position is acting in ways inconsistent with their Fundamental Realities, these Interventions would be deemed helpful and good and not entropic and harmful. For example, a position whose Fundamental Reality says that its Native Population Type has a 'migration urge' might receive 'helpful' Interventions by the Concierge when Loading Population on Colony Ships. The Load Population mechanics (see Sardine Tins, 3 Expansion, pp. 911-912, *infra*) provide no bonuses or variance for Fundamental Realities, and thus it would be incumbent on the Concierge to possibly give a little boost so the Fundamental Reality has real effect.

➢ Inspiration: The daily news provides plenty of examples and inspirations for Interventions by the Concierge; knowledge and understanding of history and historical conditions adds nearly infinite options and ideas. Most good fiction comes from or is based more or less on history and reality; it helps with suspension of disbelief (see Grinding Chic Fact, 1 Dreamtime, p. 138, *supra*). Additionally, there is a general literary and anthropological consensus that there are 7 basic plots that describe all human stories, and 36 types of dramatic situations – that is, 36 types of human personal conflicts described in literature. All of this can be found easily on the internet by searching. *Google it*.

"The Little Ice Age, by anthropology professor Brian Fagan of the University of California at Santa Barbara, tells of the plight of European peasants during the 1300 to 1850 chill: famines, hypothermia, bread riots and the rise of despotic leaders brutalizing an increasingly dispirited peasantry. In the late 17th century, agriculture had dropped off dramatically: 'Alpine villagers lived on bread made from ground nutshells mixed with barley and oat flour.' Historian Wolfgang Behringer has linked intensive witch-hunting episodes in Europe to agricultural failures during the Little Ice Age."

– from Wikipedia article, "Little Ice Age," July 9, 2019

Merriam-Webster online dictionary at *Little Ice Age:* an episode of glacial expansion whose maximum extension occurred in the 17th and 18th centuries.

Sands & Seas: Some entropic events in history seem so perfect in hindsight that we imagine some supernatural intelligent agent at work, or if they weren't, they could not have done it better. Allow me to introduce the Concierge who has a handful of Intervention Potentials and probably had a bad or slow, boring day at work ... though that shouldn't have anything to do with it!:

- ✓ If you wanted to destroy the Minoan civilization, could you have done better than the volcanic eruption on the island of Thera, 100 km from Crete? Simple, really.
- ✓ If the Peloponnesian War (along with Socrates, Plato, and Aristotle, Alexander the Great) was your objective, could you have done better than the earthquake in Sparta in 464 B.C. and the Plague of Athens in 430 B.C.?
- ✓ If you wanted to destroy the late Roman Empire, could you do better than the Great Migration, would you have uprooted the Huns from the northern frontier of China?
- ✓ If your objective was the collapse of mound-building late Mississippian civilization in North America, how about starting the Little Ice Age?
- ✓ If weakening the Church to move Europe toward exploration and secularization or to make sure the printing press was not suppressed was your goal, was there any agent craftier than the Black Death?
- ✓ If you had wanted to destroy the Aztecs, Cortez was your man on the spot...

The tools of entropy are many and this list is, of course, Western-centric. Our ancestors made stories about the bad events that they felt were too perfect to be just chance, e.g., Iram of the Pillars, sometimes called Ubar, known in the West as the Atlantis of the Sands.

- In Our Puddle: This, of course, is the little cousin to the larger feeling of humanity that the universe must have been designed, even while religion has receded in the face of secularization. Although 'intelligent design' has been rejected by the Courts and media as a progeny of 'creation science,' which in turn has been rejected as any sort of science by everyone except creationist, still, it represents a lingering, persistent intuition or idea that the current universe could not have arisen to such complexity and form without some supreme intelligence.

  - ✓ "Occasionally someone remarks on what a lucky coincidence it is that the Earth is perfectly suitable for life – moderate temperature, liquid water, oxygen atmosphere, and so on. But this is, at least in part, a confusion of cause and effect. We earthlings are supremely well adapted to the environment of the Earth because we grew up here. Those earliest forms of life that were not well adapted died. We are descended from the organisms that did well. Organisms that evolve on a quite different world will doubtless sing its praises too..." – Carl Sagan, Cosmos, Episode 2.

  If the universe was designed by an intelligence, entropy must be intentional? And we were 'placed' in it – or at least entropy was a partial 'cause' of our existence. Why? Why Not?

  - ✓ "This is rather as if you imagine a puddle waking up one morning and thinking, 'This is an interesting world I find myself in – an interesting hole I find myself in – fits me rather neatly, doesn't it? In fact it fits me staggeringly well, must have been made to have me in it!' This is such a powerful idea that as the sun rises in the sky and the air heats up and as, gradually, the puddle gets smaller and smaller, it's still frantically hanging on to the notion that everything's going to be alright, because this world was meant to have him in it, was built to have him in it; so the moment he disappears catches him rather by surprise. I think this may be something we need to be on the

watch out for." – Douglas Adams, "Is there an Artificial God?" speech at Digital Biota 2, Cambridge U.K., September 1998 (transcript and audio recording of speech are available free at http://www.biota.org/people/douglasadams/).

These arguments by Carl Sagan and Douglas Adams seem designed to specifically refute self-fulfilling Christian intelligent design arguments about how perfect the Earth is for human life, e.g., see Christian exoplanets discussion, bottom 2 The Sidereal Stage, p. 117, *supra*.

- ✓ See also additional related Douglas Adams quote and Children & Puddles discussion, 3 Technology, p. 720, *infra*.

"Curious, I took a pencil from my pocket and touched a strand of the web. Immediately there was a response. The web, plucked by its menacing occupant, began to vibrate until it was a blur. Anything that had brushed claw or wing against that amazing snare would be thoroughly entrapped. As the vibrations slowed, I could see the owner fingering her guidelines for signs of struggle. A pencil point was an intrusion into this universe for which no precedent existed. Spider was circumscribed by spider ideas; its universe was spider universe. All outside was irrational, extraneous, at best raw material for spider. As I proceeded on my way along the gully, like a vast impossible shadow, I realized that in the world of spider I did not exist."

– Loren Eiseley, "The Hidden Teacher" (1969)

Endnotes.

[1] Citation: Phase IV is a very surreal movie from 1974 about ants who have suddenly developed collective intelligence. It was a box office flop but is a creepy cult classic now.

[2] Citation: "Bad people sometimes tell the truth, that is, bad people aren't always lying." – David Pakman, David Pakman Show, June 18, 2020.

- ✓ "It is not polite to assume someone is lying when you have only just met them." – Phillipe Gaston, Lady Hawke (1985).

[3] Citation: "A few weeks ago, Zeb Cook wandered into my office and told me that the Berlin Wall was coming down. I had been to both West and East Berlin in 1979 while I was in the Army, and I was staggered by the news. The world was miraculously made a better and brighter place – or so I certainly hoped. Shortly after that, I had a slightly twisted thought: This was probably *bad* news for all of the post-holocaust, nukes & mutants RPGs on the market. The rise of democracy and freedom across Eastern Europe makes it unlikely that we'll see those white mushrooms rise over our home towns in the near future. And that does take some of the thrill out of playing World War III games. I had to admit that hand-to-hand combat with a four-armed alligator over a box of stale Puppie Yummies in the radioactive sewers of New York now seemed a little less believable. In his editorial in GDW's *Challenge Magazine*, issue #41, Timothy Brown correctly pointed out that 'a peaceful world is a boring world – from a role-playing point of view.' I would personally never want to be within a light-year of a *real* nuclear exchange, but the *idea* has lots of entertainment value. Conflict and adventure are key elements in any role-playing scenario, and few modern-era events can dish out conflict and adventure like a nuclear war. Many gaming companies saw that and played up on it. ... The themes of the post-holocaust games probably reflected the changes in public opinion on nuclear war. Not many people ever really cared for the idea, but the longer we all lived with the Bomb, the less enthusiasm we had for it. Movies like *The Day After* and *Testament* certainly showed that. And now it seems that the collapse of the old order in Europe has given those nightmares a final kick in the head (again, so we hope)." – Roger Moore, Editor, "Bye-bye, WWIII," Dragon Magazine #154, February 1990 (emphasis in original).

- ✓ "After naming some of the current destabilizing factors at work in the world today, Allen [Varney] [Austin TX] wrote, 'this is no time for complacency.' I admit that the idea had occurred to me that I might not die from fallout, and I did feel pretty good about that. The thought had been with me since I watched Civil Defense supplies being stockpiled in my high school during the Cuban Missile Crisis in 1962. With regards to gaming, my main thesis was that gamers who wanted realistic scenarios would have to forget about the Big

> Nuke option. I did take pains to point out in my editorial that there were 'lots of believable bad things left to come for our gaming enjoyment.' I wasn't very specific about what bad things there were, though. I wasn't in the mood to think about them. In all that cheer, I missed a few things, like Iraq, and an Army buddy of mine is now in Saudi Arabia for the indefinite future. War has lost its 'gaming enjoyment' value for me. I certainly don't feel complacent about anything, either. And nukes? They never went away, did they? Submarines still cruise the seas. Bombers still fly. ICBMs still sleep in their silos. At least six nations have atomic weapons, and every one of them has been at war within the last 45 years. Many other countries would love to have the Bomb. Iraq sure would. No reason the Bomb can't hang around in games as well. I fooled myself, and I admit it. Sometimes you go with what you want rather than what's actually there. I'll avoid getting too wishful in my editorials in the future. Role-playing games are unrealistic and romantic. And that's a blessing, isn't it?" – Roger Moore, Editor, "Bye-bye, Complacency," Dragon Magazine #165, January 1991.

[4] Commentary: One alleged quote attributed to David Hilbert reminded me of what seems to be the attitude of mathematicians; he is reported to have said, upon hearing that one of his students quit the mathematics program to study poetry: "Good, he did not have enough imagination to become a mathematician." Some may take the statement as ironic humor, but it echoes what has seemed to me for a long time: To mathematicians ('math people') if you don't get mathematics, then you are just one of the dumb people; the world is divided into mathematicians and the dumb masses. And I think that describes the attitude of my high school math teacher in whose class I spent 10th, 11th, and 12th grades (so he well knew I was lost and clueless when he was passing me to the next grade).

- ✓ Hilbert's sentiments additionally express an attitude that is inappropriate for any teacher regardless of the subject; you should not be happy that someone has quit learning, quit your program – though I do know that several of my elementary school teachers were happy when I moved to a new school.
- ✓ "Mathematicians know that they are studying an objective reality. To an outsider, they seem to be engaged in an esoteric communion with themselves and a small clique of friends. How could we as mathematicians prove to a skeptical outsider that our theorems have meaning in the world outside our own fraternity? If such a person accepts our discipline, and goes through two or three years of graduate study in mathematics, he absorbs our way of thinking, and is no longer the critical outsider he once was. ... If the student is unable to absorb our way of thinking, we flunk him out, of course. If he gets through our obstacle course and then decides that our arguments are unclear or incorrect, we dismiss him as a crank, crackpot, or misfit. Of course, none of this proves that we are not correct in our self-perception that we have a reliable method for discovering objective truths. But we must pause to realize that, outside our coterie, much of what we do is incomprehensible. There is no way we could convince a self-confident skeptic that the things we are talking about make sense, let alone 'exist'" – Philip J. David & Reuben Hersch, "The Ideal Mathematician."

[5] Commentary: Not only didn't I understand this, I didn't even know to ask the question until much later in life; *this is a personal example of the* ***Dunning-Kruger effect***. They assumed that I knew at 21 years what calculus was and what we were trying to achieve, therefore, it was never explained. Had a competent instructor given my difficulty any thought, he who barely spoke English might have asked questions and revealed my incompetencies to me, but I don't think the instructor cared: either you got it or you didn't and you were just wasting tuition money.

[6] Commentary: René Descartes was a polymath. He is more famous for his philosophical musings, but he contributed to both math and philosophy in original ways, evinced by the fact that he is still relevant today.

[7] Commentary & Citation: From the Lost Tribe's (feral children's) account of the crash of the Boeing 747 piloted by Captain Walker that flew them and their parents away from the nuclear apocalypse (or "Pox-eclipse" in the language of the children) and into the Outback.

[8] Commentary: My personal journey has possibly been from disdain for the world I live in to despite for being in this universe. Which is the precise distance from Thomas Covenant the Unbeliever to Lord Foul.

[9] Citation: e.g., Rascal Flatts, "Backwards" (2006), Ryan Arklin, "Country Backwards" (2014) – two songs with amazingly similar concepts – videos on YouTube. And there is the ultimate kiss-off classic 'perfect country song,' David Allen Coe, "You Never Even Called Me by My Name" (1975).

[10] Citation: "No plot emerges, no premeditation ... Let the emphasis repose on ignorance – an accident is safer to invoke than design." – Sir Ronald Syme, quoted by C. L. Murison in "The Revolt of Saturninus in Upper Germany, A.D. 89," Echos du monde classique: Classical views, Vol. 29 No. 1, 1985, p. 31-49 (found on Project Muse).

[11] Citation: From the Dungeons & Dragons cartoon (1983-1985) that I used to watch on Saturday morning in high school. The timing coincided generally with my early interest in the basic Dungeons & Dragons game.