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*"Let me say quite categorically that there is no such thing as a fuzzy concept...
We do talk about fuzzy things but they are not scientific concepts. Some people
in the past have discovered certain interesting things, formulated their findings
in a non-fuzzy way, and therefore we have progressed in science."*

– Rudolf E. Kálmán

The Fuzzy Game Engine: The core concept of the GestaltGenesis-DayMillion (GGDM) game rules is the ability of players to collectively change the game, to shape the game universe, and the emergent playing experience. Unlike most other game systems, particularly those of computer moderated games or most high-end manufactured board and card games, the rules of this game are not eternally absolute in any sense and the system is not 'closed' or 'contained.' Even victory is negotiable. Such a system requires a different approach to playing this game, and perhaps greater effort than many players are used to putting forth in systems where the rules are absolute and externally defined (i.e. the printed rule book or computer game program).

GGDM is a space opera wargame, with a strong Nomic element introduced and interwoven into the game. Or perhaps it's a Nomic in the form of a space opera wargame; either could be true. The vehicle for the Nomic element of the game is the Interpretations by which players manipulate the game reality and change the rules. Other players may not like the way the rules or game reality are being manipulated or changed, and try to change the game in another way. So, in the end, GGDM is also a wargame, of sorts.

- ✓ Although Merriam-Webster online dictionary uses the word "fantasy" in the definition of *space opera* – fantasy settings have certainly tried space opera, e.g., D&D and Magic the Gathering – **space opera** in GGDM is treated as a sub-genre of *science-fiction literature*.

- ✓ "The two essays that make up the fourth section of the book, 'Psychopolitics' and 'Science Fiction,' address an issue that has long concerned Spinrad in his fiction as well as his criticism: the militaristic power fantasies that seem inherent in SF's most basic narrative structures. He tells the story of how he nearly bludgeoned readers with irony in The Iron Dream – only to find the novel placed on the American Nazi Party's recommended reading list." – Gary K. Wolfe, "Writers as Critics," reviewing Norman Spinrad's Science Fiction in the Real World, Science Fiction Studies, Vol. 17, November 1990.

  - ▪ It would be an interesting dynamic if some players/positions in GGDM wanted to play it as a vast interstellar wargame while a majority of the players/positions did not (call them the *Spinrad faction*) desire a wargame. But it would be hard to say no to the wargamers once the shooting starts! See additional discussion in The Come As You Are Party, 1 Combat, p. 932, *infra*.[1]

- ➢ Fuzzy Logic: Fuzzy Logic is defined as "a system of logic in which statements can be true, false, or any continuum of values in between."[2] Fuzzy logic represents the way humans think as opposed to the way computers 'think' or operate. The classic example of fuzzy logic is the traffic light, which has red, amber and green signal lights. The red light clearly means stop, so in binary terms, it is assigned a "0" value. The green light means go, so in binary terms, it is assigned a "1" value. What then does the amber light mean? Slow down because the light is going to change to red in the near future. But it is neither a stop nor a go, neither "0" nor "1." Modern traffic control systems are built on fuzzy logic.

Alternatively, imagine you had a bucket full of red and blue balls. Not all red balls are exactly red, or the same color of red, or the same hue or texture red. The same is true of the blue balls. A computer asked to sort the balls would not be able to do it, because not all balls are "true red" as define in the computer's operating parameters, nor are all of the balls "true blue" as define in the computer's operating parameters. A human would have little problem in sorting the balls, because a human is not strictly logical or strictly limited, a human can recognize 'sort of red-ish,' pink and 'sort of blu-ish,' powder-blue balls and sort them appropriately. A more complex computer program might accomplish the same, eventually, but in doing so, the operational definitions of red and blue have to be widened for the computer to do this, so that red is less 'true' and blue is less 'true,' and thus the computer acquires a sort of 'fuzzy logic' through human intervention, the computer becomes 'more intelligent.'

- ✓ What is blue is both objectively true in terms of light frequencies and true also as a matter of subjective judgment or even social consensus in terms of range, shade, hue, etc. deviance that is still considered "blue." That we called certain light frequencies blue is purely arbitrary, we might instead have called them ঙ③❶≈ and it would have been just as well, if unpronounceable. What you consider blue is to you absolutely true, while others might violate your absolute truth (or even social consensus) of what is blue by what they proclaim as blue or not blue.[3]

➢ <u>Things that are True, Things that are False</u>: The game rules are considered to be absolutely True, and things that directly contradict the game rules are absolutely False. For example, if there were a rule, 'Starships may not travel at a speed of greater than 2,' that would be absolutely True. Any other statement, such as 'Starships may travel at a speed of 3' would be absolutely False. The concept of pairs of absolutely True and absolutely False statements is the touchstone of the Interpretations that players create during the game; each Interpretation will require absolutely True and absolutely False statements that define the Interpretation, within the rules governing creation and operation of that kind of Interpretation. The absolutely True and absolutely False statement of any Interpretation may not directly contradict any game rule or previous Interpretation, but obviously, they don't have to completely agree with the game rule or previous Interpretation either. But they do have to be reasonably close, and not in complete contradiction. It is thus that slow change occurs.

- ✓ Generally, these rules, especially as applied to News Events later, are intended to curb or prevent retcon (retroactive continuity) in the game. History in the game should not flow from the future into the past. It is necessary and desirable in the long-term play of a game that participants generally avoid turning the game into a comic book serial or pulp fiction, where the past is changed to fit the current scheme. However, it's all a bit fuzzy.

➢ <u>Matters by Degrees</u>: The game rules are each considered an absolute Truth ("each" being a complete rule or sentence, as necessary), and each Interpretation is defined by absolute True and absolute False statements but they are not the 'whole truth' of anything, rather, they serve as a structure from which the fuzzy logic of the game players works. Absolutely True or False statements cannot be directly contradicted by other statements (otherwise they are not "absolute") but they can be modified by other Absolutely True or False statements. Players must take care when issuing Absolutely True or False statements as truths and falsities cannot be simply discarded or ignored when no longer convenient.

'No absolutes. There are exceptions in varying degrees to any rule.'
– Steve Blass (Pirates Broadcaster), May 8, 2019, talking about baseball pitching and hitting

A priori Truth Function: There is little or no relationship between the amount of 'truth' in anything and its value toward human understanding; patently false things can be useful as well.

    ✓ Often the converse of something is more useful in understanding the something; e.g., compatibilism is perhaps best understood by reading the criticisms of the anti-compatibilist. The same is true of fallibilism/infallibilism and probably also criticism of the Theory of Relativity. Perhaps this is the refuge of a lesser mind, since others must have understood it initially in order to criticize or oppose it?

GGDM may still be useful covering the bottom of the bird cage.

    ✓ I have written in GGDM what I think. You may of course, disagree with me – I am not Jesus, Muad'Dib, or Buddha – but only if you have read what I have written. Even if you disagree, there may still be value in what has been written here.

Absolutely True Mechanics: The concept of absolute True and absolute False statements is merely a game mechanic. I, the game designer, personally tend to regard ideas, statements, and such as more or less probable, creditable, believable, or useful. Belief in absolutely True or absolutely False statements, principles, and such are simply not useful outside of very limited contexts. Most statements, ideas, or beliefs contain some element of truth, or at least enough truth to be useful toward an understanding of the subject or issues they address.

➢ Judgment: Understanding the truth or falsity of anything is an act of judgment, that is, sapience, even when the matter is purely empirical. Animals, especially cats and dogs, seem to be able to sense in some immediate situations when you are attempting to deceive them; whether this is a judgment on what we are trying to show them, or a clue from our body language is debatable. But in any event, sapience is not something confined to higher cognition, rather, it appears to be an evolutionary development, an adaptive and enhanced survival trait (related possibly to group problem solving). Now, the ability to handle truth and falsity as an abstraction, as an object onto itself, is another matter entirely confined to humans and their machines, a level of sapience akin to understanding zero as a numerical operator.

➢ Relatively Absolute: The 2018 board game Cryptid has an interesting take on the concept of absolute truths. The object of the game is to find the location (lair or habitat) of a creature on a hexagonal map with different types of terrain, to which is added one colored pair of one standing stone and one abandoned shack (to act as additional terrain features) for each player, in different map locations. Each player is given one statement about the location of the creature's habitat that is *absolutely true*, e.g., the habitat is within 2 spaces of a standing stone or the habitat is not in a woods or swamp, or the habitat is within 1 space of water. Each player does not know the statements of the other players. Players ask questions of each other about whether the creature could be in a particular hex and the other player answers yes or no based on their 'absolutely true' statement.

Because the players do not know the statements of the other players, another player may answer yes or no to a location that would be different than your answer (based on your statement) if you had been asked; that is, the answers of other players to the question might well violate your absolutely true statement because it is unknown to them. Absolute truth in this is peculiarly both relative and universal, because in the end, there is only one space on the board – the actual habitat – that collectively satisfies all of the absolutely true statements individually known by the players.

"I would like to comment briefly on Professor Zadeh's presentation. His proposals could be severely, ferociously, even brutally criticized from a technical point of view. This would be out of place here. But a blunt question remains: Is professor Zadeh presenting important ideas or is he indulging in wishful thinking? No doubt Professor Zadeh's enthusiasm for fuzziness has been reinforced by the prevailing climate in the U.S. – one of unprecedented permissiveness. Fuzzification, is a kind of scientific permissiveness; it tends to result in socially appealing slogans unaccompanied by the discipline of hard scientific work and patient observation." – Rudolf E. Kálmán

Endnotes.

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[1] <u>Commentary & Citation</u>: Imagine this: You are hired to write a Christian spirituality/'faith-based' movie or a movie suitable to be shown on Hallmark channel or for some holiday special. To do so, you must create drama without violence, destruction, explosions, or introducing anything weird (all of which was normal in Saturday morning cartoons I watched growing up; there is a Looney Toons video on YouTube of Wile E. Coyote, 80 explosions in 11 minutes). It is difficult to create drama, let alone an adventure film, without violent conflict, mishaps, gadgets. Violence is adventure and gives a visceral edge to dramatic situations in between explosions and gunshots. Yet it is apparently done regularly, because the categories of films described above do exist, there is a Hallmark channel, there are holiday movies, and there are Christian spirituality/motivational movies. *Viewed in this light*, the typical militant sci-fi, fantasy, old Western movie, post-apoc movie, big screen space opera, or badass cop/special forces/espionage movie seems a lesser grade of writing. As Clint Eastwood said of Westerns, "The morality is in the gun play."

✓ Now, could a game of GGDM be played without interstellar wars, revolutions, extinction? Without an arms race? Would such a game be boring, would players drop from the game, or go back on their pregame agreement and start a big war? Is there anything in GGDM that is interesting other than big space battles?

✓ Babylon 5, for all of its fine attributes, was about big space wars, there was one before the series, there were many during the series, and there are hints of still more after the series. Just about all of the big space movies and sci-fi movie franchises required war and violence; e.g., Star Wars, The Matrix, Battlestar Galactica, the Aliens and Predator movies, Star Trek in all its incarnations, Star Gate in all its spinoffs to keep the audience engaged and punctuate the drama. Some, like Independence Day or Ender's Game are unapoligetically all in on the battles, explosions, sometimes in a not-to-be-taken-too-seriously sense and others with a profound message embedded. However, there are some different creatures out there, following the example of Close Encounters, Powder, etc. but even Arrival and Contact had to have at least one explosion each.

[2] <u>Citation</u>: Merriam-Webster's Collegiate Dictionary 11th Ed.

[3] <u>Commentary</u>: Personal experience: I complemented a young lady attorney many years ago (um, about 20+) on the striking color of her pink dress. She responded in a very offended manner, "It's fuchsia!" Well, ok then, it's fuchsia! I wasn't getting anywhere there, obviously, so I left and did something else. *Whatever*, I really don't care.

✓ In 2020, I encountered a design website article whose title is, "What color is fuchsia?" See previous discussion of the colored balls.