The evolution of general information systems through the example of video game

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Author's note: This is an opinion piece, and the presented conceptualization is subjective. The metaphor of gaming is for demonstrative purposes, thus practical contextual elements are ignored.

Step 1. Nothing

+ Gaming's case: No content of the game exists yet. A designer can think of almost endless possible scenarios, mechanics, presentations, etc.

+ Information system: There are infinite possibilities of potential subsystems, but no interactions (zero net energy) of such hypothetical subsystems. There are no constraints, yet also no experience (in the form of interaction).

Step 2. Preparing platform

+ Gaming's case: A certain game engine is selected or developed. Basic constraints are set, determining what kinds of content are possible or impossible to implement. The direction toward the final product becomes relatively clearer.

+ Information system: Universal rules are set internally, which serve as "hard boundaries" for future progression. Basic laws of interactions may include aspects such as spatial dimensions, energy and matter conversion, matter forms, chronological (changing) order(s), statistic and deterministic rules, etc. Possibility decreases as experience starts to emerge.

Step 3. Developing

+ Gaming's case: Developers work on building the game. More constraints are added in the forms of parameters, value ranges, logical connections, conditional triggers, pre-coded events, audiovisual presentations, etc. Developers conduct various rounds of playtesting throughout the development process.

+ Information system: More detailed rules are set internally based on former rules, which serve as "soft boundaries" for future progression. These derived rules are the blueprints for generating orderly interactions. As a result, the complexity of the system is vastly increased. Possibility further decreases as experience increases.

Step 4. First run

+ Gaming's case: The 1.0 version of the game is now complete. Players play the game in a "vanilla" manner. Many aspects of the game's content are unfamiliar to players. Critical adjustments are made by the developers to fix common bugs and problems through the first updates.

+ Information system: The structures and functions of subsystems are now sufficient. Internal dedicated observers may emerge (e.g. individual-based processors, consciousness, etc.) to directly monitor (experience) the interactions, creating more efficient information feedback loops. Complexity is high, experience vastly increases, and possibility is likely at the lowest point in the progression cycle.

Step 5. Breaking and improving

+ Gaming's case: Players have now become familiar with and skillful toward the game's various aspects. Speed runs, challenge runs, meme runs, etc. are conducted. These interactions deepen and expand the possible interactions with the game. New bugs and game-breaking interactions are discovered. The developers continue to patch the game while gamers continue to find new exploitations.

+ Information system: Intrinsic mutation from the system's processing introduces unprecedented interactions that break priorly established constraints. Energy imbalance forces the system to adapt by forming new constraints, and subsequently creating new mutations. The accelerating internal constraint-breaking feedback loops further increase complexity and experience, and also start to raise possibilities back up.

Step 6. Modifying

+ Gaming's case: Players now make and add mods to the game, altering and adding core or minor features. Modding reflects a deep understanding and high skill level of the community related to the game on multiple levels. Modded gameplay also adds a huge variety of new content to the gaming experience. Sometimes, modding can introduce new features even exceeding the priorly assumed capabilities of the vanilla game. In theory, the game's content will continue to be indefinitely developed by the community as long as engagement is sustained.

+ Information system: Subsystems now have the ability to change certain rules in a controlled manner, starting from the "softer" end of the boundary gradient. Complexity has reached a sufficient level, allowing for the directional generation of new qualities that break priorly established constraints (compared to a more "random" manner of mutation in the earlier stage). As the system continues to progress (assumed without existential disruption), constraints gradually cease while possibilities approach infinity. However, unlike in the primordial stage, here, internal observation is highly efficient. In other words, the system has evolved to reach mastery of itself. From there, new cycles of more advanced evolution can begin.