Gaming the System: Case Study in Investigative Journalism and Playful Interactive Narrative Design to Explain Systemic Bias in Immigration Policy

Lindsay D. Grace 1[0000-0002-0417-453X]

¹ University of Miami, Coral Gables, FL, 33146 L.Grace@Miami.edu

Abstract. Drawing from the theoretical underpinnings of prior work in interactive narratives to explain complexity, playable explanations, and newsgames this work aims to expand the impact and accessibility of comprehensive investigate journalism to a wide audience of North, Central and South Americans. The goal was to apply the benefits of ludic interactive narratives to explain the complexities and systemic biases in the United States immigration system for differing immigration scenarios between 2017-2021. The game combines elements of documentary games, persuasive play, and the fundamentals of interactive narrative to provide a playful explanation of explicit and implicit policy. It is, in short, an interactive system about a system. This interpretation of the system was derived not from a top-down view of the system, but by the reverse engineered understanding informed by two years of investigative journalism research informed by the data in both the Panama Papers and Paradise Papers. This paper articulates the development process, release, and subsequent observations from an experienced engaged by more than 45,000 players. This case study is understood as the first ever playful interactive based on the Panama Papers and Paradise Papers investigations.

Keywords: Playful Interactive Narrative, Investigative Journalism, Panama Papers, Paradise Papers, Immigration and Borders.

1 Introduction

In an increasingly complex world, the propensity for interactive narrative to explore and explain seems evident. In some contexts, complexity is the result of a delicate balance of systems upon systems, such as balancing homeostasis in the natural world of an organism or the balance of environmental factors that govern the earth's weather. In other cases, complexity is an act of obscuring rules, to mask biases in systems or otherwise hide a truth. The potential of interactive narratives is that they can expose these and other factors of a system, simply by modeling them and offering these models as playful experiences from which such character can be interpreted. In the least, such narratives provide an opportunity to explore complexity in a way that supports examination across a wide audience [11]. Where the legal language of a government policy,

for example, may not be easily understood by an audience untrained in law, the narrative version of the system can make the system's relationships apparent and explorable. This work applies interactive narrative to a complex system, leaning heavily on Koenitiz's notion that interactive narrative can help users interpret complexity [19].

The primary aim of this work is to provide case study in playful interactive narrative to explore the complexity of a large-scale system, involving multiple federal governments, local governments, and international agreements. It offers an interactive narrative modeled from the 2017-2021 foreign immigration and fiscal policies that manage the porosity of the United States borders. This model is derived from a multi-year investigative reporting project first launched in response to the Panama Papers [16] and Paradise Papers [1]. Its complexity is a product of law, finance and the prior lack of a single resource explaining the intersection of these. It is further complicated by nuances that are more apparent through case study, than the apparent systems reveal.

The Panama Papers (also less commonly known as the Mossack Fonseca papers) refers to the more than 11 million documents leaked to the German newspaper, Süddeutsche Zeitung outlining attorney-client privileged financial information about offshore accounts. This leak resulted in an investigative journalism initiative involving over 100 media organizations across more than 80 countries. The historical moment and resulting research culminated in a global data journalism effort, which outlined global injustice and income inequality ensnaring political figures in fraud allegations and revealing the systems that protect financial assets for a wealthy few. The Paradise Papers refers to a similar information exposure. In contrast, the Paradise Papers were not leaked by a single source and have resulted in litigation involving corporations and media organizations. In general, the Paradise Papers offered more data, but the Panama Papers resulted in more legal action. In both cases, these data collections exposed the legal, illegal, and gray areas of wealth transfer, management, and multinational government policies. They provided the real-world case studies to illustrate the nuance and complexity of the global systems shaping migration of people and wealth.

The method used to turn this data into understanding, was investigative journalism. As a practice, it is a form of journalism requiring deep investigation for months or even years of researching and report preparation. This form of journalism has been remarkably effective at identifying large-scale crime and systemic problems in political systems [7]. Its purpose is to report the truth as contrasted with perception, in much the way a regulatory body or other watchdog might research, identify, and announce such discrepancies. In the context of the reporting for both the Panama Papers and Paradise Papers, the clear challenge is that the subjects work between regulatory bodies. The ambiguities of these analogously international waters mean there is little regulation and oversight between them. In this case, investigative reporting functioned across geopolitical borders, through the International Consortium of Investigative Journalism (https://www.icij.org/), in the absence of a regulatory body. It is one of the many reasons these reports are unique and important to an increasingly complex world whose borders can be crossed digitally [1].

In the spirit of this pioneering first at the apex of international collaboration, technological innovation through data journalism and disclosure to a wide audience, the team behind this work aimed to create an experience that demonstrates the

complexity unveiled through the investigative reporting from Panama Papers and the Paradise Papers. The work applies the investigative research of pioneering Hispanic journalist, Romina Ruiz Goiriena, a member of the project team and one of the 300 or more journalist involved in the collaborative investigation of both data sources. It aims to make the previously non-transparent relationship of US immigration policy, wealth, and immigration more transparent via the outcome of investigative journalism.

As such, this project represents the first known game produced from investigative journalism on the Panama Papers or Paradise Papers. It is also understood to be the first such playful experience designed on the topic. The case study may prove useful in informing future work that seeks to combine investigate journalism to playful interactive narratives. The aim is to tell the story of a complex system, revealing their nuance and supporting journalism's aim to reveal truth. The work was conducting in paralleled to a 3-part reporting series published by the English language newspaper Miami Herald and the Spanish language news source El Nuevo Herald by the collaborating journalist. The resulting interactive narrative, which accompanied the series is archived at https://gamingthesystem.journalismgames.com/ and https://juegodelsistema.journalismgames.com/ to support future research.

2 Playful Interactive Design Process

While those familiar with early work in digital news games would be tempted to reference early work in newsgames [1][3] and the work of Gonzalo Frasca [10], this particular work is aligned less with that research than with the notion of playable explanations and narrative infographics. The relatively recent design practices of creating digital play extend the more generalizable elements of captology [9] with the rhetorical potential of ludic interactive experiences. While a potential outcome of this work, the aim was to work less toward the political cartoon concept of newsgames [21] and more toward playable models or parables [6] and infographics [8] with narratives. Work in this domain includes Parable of the Polygons [17], The Evolution of Trust [5], How Does an Autonomous Car Work? [20] and others[11].

To remain true to the aims of journalism, this work does not strive to provide fictionalized elements or rhetorically based game mechanics. It is at best aligned with Bogost's et al.'s notion of reportage games [4], although it extends them by turning an investigative journalism derived understanding of a system into a digital tool that allows any player the ability to explore that system. In this way the effort is more akin to efforts in playable explanations, as described by Nicky Case [5] and Ciccoricco [6].

The work was designed with a model-first approach. This model was built using months of data driven analysis and the team's reporter outlined collection of if-thenelse cases by which individuals were successful and unsuccessful in emigrating from their countries into the United States. The investigative journalists focused on the patterns, revealed in the data, for those seeking citizenship in the United States from countries in Central and South America.

The resulting research found sharp contrast between two groups - asylum seekers and wealthy emigres. The research revealed clear paths for each in policy and contrasted those with practice. These dichotomies were demonstrated, through data, as further amplified when each group joined the US population. Most notably, the investigative journalist identified a systemic bias that seems to ignore the source of certain types of income beyond specific wealth minimums. This revelation of kleptocratic emigration was the focus of much of the reporting research.

Based on these investigative reporting findings, an interactive narrative was designed to demonstrate two archetypal routes for immigration. The original model on which the design was based is shown in figure 1. These rough notes on the gates that typically determined success or failure for a given population in the immigration process informed the design of the final game. They were created from investigative journalism research from the aforementioned leaked documents and augmented with personal interviews.

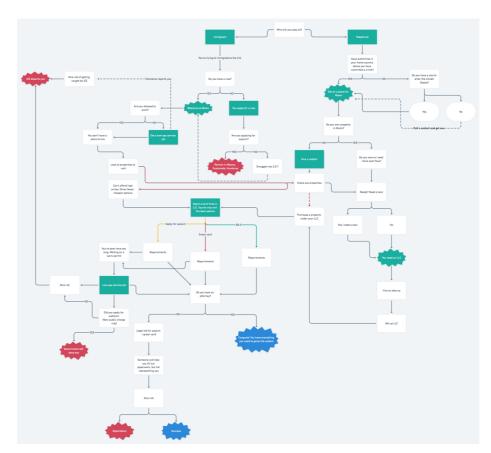


Fig. 1. The original decision tree forming the logical paths for the immigration narrative.

After referring to examples provided through repositories of newsgames [15] the project's lead, a single game designer and a single investigative journalist paired to producing a playful interaction. The aim was to make these findings more easily understood by a wider audience and augment the traditional news reporting. Beyond the assumed appeal of playful interactions, the core motivation for a ludic experience comes from players' willingness to try and try again. As explained in Doing Things with Games: Social Impact through Play [14], the notion is that players are willing to work through problems they might not otherwise engage when framed as playful experiences. A core design assumption that leads to these decisions was that the maze of policy, situation, timing, and opportunity that results in success or failure in the immigration system is best understood through repeated attempts. Games and play, propelled by a narrative, were assumed to be a good way to encourage people to try more than once to succeed.

Multiple game concepts solutions were considered for implementation including an action focused role-playing game and an analog board game. To determine the optimal solution, a list of possible game solutions was created and roughly sketched. The final solution was subsequently aimed to impart the system through narrative that encouraged its audience to engage and reengage with the different paths to success and failure. The simplest solution for a widely distributed, reporter-informed narrative, and appropriate exploration was a kind of a choose-your-own-adventure that mapped to diagrams the investigative journalist had already created. Precedence, like the British Broadcasting Corporation's Syrian Journey (https://www.bbc.com/news/world-middle-east-32057601) helped frame this work.

Before embarking on any such development, it is extremely important to respect the challenges of the real-world lived experience. This constraint emphasized that the design needed to allow space for emotional decisions and the conflicts of human experience. This includes real struggle and potential payoff. It also means avoiding trivializing important decisions, disrespecting the subject with comical depictions, or otherwise failing to offer appropriate tone. To do so, the team decided on a kind of role-play, based on the archetypal amalgamation of the two distinct populations that demonstrated the sharpest contrast in immigration policy.

Compiling observations from interviews by the investigative journalist, two roles were created for the narrative spine of the experience. The first was a low to moderate income asylum seeker, aiming for political refuge in the US. The second was a wealthy immigrant, who's riches may have been generated at the expense of those who now seek asylum (e.g., ambiguous kleptocrat). These archetypes were informed by the concurrent traditional reporting research conducted to understand the individual lives that were shaped by these policies.

While much of investigative reporting involves exhaustive data analysis, the reality of these systems is apparent in the ways in which it shapes individual lives. Because the work was completed in collaboration with a journalist conducting interviews with people who experienced the system, the team was able to create case scenarios that reflect real-world experience. The roles, resulting decision and outcomes were informed by those interviews. For this reason, although obviously not a true documentary

game [2] (also referred to as docu-game or docugame) it is informed by documentary research involving archival content [13].

The final design reflects the character archetypes, financial, political, and legal systems employed between 2017-2019. It seeks to explain the then contemporary US Immigration system as informed by the period the Panama Papers and Paradise Papers reveal. The resulting playable system aimed to illustrate the injustice of recent US policies for immigration, particularly in the politics of those seeking asylum versus those that may have created the need for others to seek asylum. It was also designed to demonstrate the systems that exacerbate immense economic disparity between people in urban centers in the US. It attempts to reveal the biases in US immigration policy that support foreign kleptocracy by creating systems that are less than critical of wealthy foreign nationals during this period. It uses a basic narrative to provide an archetypal set of case studies, based on journalist research, of five groups of immigrant populations: wealthy kleptocrats; wealthy politically linked expatriates, middle and lower socio-economic status asylum seekers; legal immigrants; illegal immigrants.

3 Implementation

The project was designed to be released in conjunction with a multi-part traditional journalism news series. The total production timeline for the project was three months, largely constrained by the publication date for the final, non-interactive reporting project and the need to disseminate information about contemporary policies quickly. Prior work in producing games at the pace of news [12] helped frame the technical implementation and set expectations for such an experiment.

Given the limited budget, the game was produced as a prototype between a single game designer and one investigative journalist. The initial prototype was implemented in a single week, by first mapping simple decisions to the previously demonstrated decision tree. In the first prototype, players were asked basic questions without a narrative overlay. The first prototype was more like a quiz, asking players questions like whether they'd like to apply for asylum or create a limited liability company (LLC) in the US. This first prototype was designed simply to assure that the logical consequences of the experience mapped appropriately to the journalist's model.

Once all logical relationships were confirmed to be accurate, the narrative layer was added in much the way a game might move from abstract visual elements (e.g., circles and squares) to higher quality final art (e.g., sprites or 3D models). Questions like "would you like to form a Limited Liability Corporation", became, "your lawyer suggests creating an LLC, would you like to do so?" Later iterations add more narrative elements (e.g., character, setting, etc.), with a friend character suggesting a player speak with a lawyer and then that lawyer offering the suggestion for a cost. Elements of traditional storytelling, like setting, were also added both with meaningful (.i.e., narrative shaping) and meaningless choices (i.e., non-consequential). Players could choose specific neighborhoods in which to live which has the meaningful choice of shaping their monthly budget but does not shape the player's chances of being deported. The

meaning or meaninglessness of these choices was adjusted to shape the narrative and remain true to the original model.

This process, which involved several prototype iterations, allowed for accurate representation, and re-representation of the journalist's report while adding narrative elements that support player understanding. These additions included adding specific locations, financial costs for process, calculations, and others. Variables such as the player's chosen name and inventory management like the amount of money the player has in the bank were also added in subsequent iterations. These variables added some of the most depth to the experience. As an example, on essential decision for an asylum seeker who already works in the United States would be to go to work or not. The variable of a work visit has the probability of losing the job or being caught by immigration agents for working illegally while seeking citizenship. The probability for positive and negative outcomes for the player are never explicitly outlined for the player. Instead, like life, they learn from the experience. Practically, each visit to work is calculated as a 1:7 chance of being caught without a work visa for a player who elects to go to work and does not have a work visa. The player on this path would typically need to go to work at least 7 times to earn enough to afford the legal support to continue their asylum application. Hence a kind of procedural catch-22 occurs, as it is highly likely an asylum seeker without a work visa will be caught before they earn enough to complete their application for asylum.

Iteratively, each protype was first evaluated for fidelity to the model, then for engagement. The final prototype iteration involved adding images to illustrate the situations at each decision point. To do so and to remain within budget, creative commons photography was manipulated using Adobe Photoshop filters to apply a graphic novel aesthetic.

Before release, the project's prototypes, which were created using Twine 2.6 and Adobe Photoshop filters, were subject to several editorial reviews by the collaborating journalist and the supporting media organizations. The final release was an iteration on the prototypes, applying both the aesthetic stylistic conventions of the publishing newspaper and revision to the images by the media organization's artist. Like other such projects, the team size scaled as the project's scope scaled. The project's prototyping phases were conducted by a mere 2-person collaboration. The final product, including translation, accessibility standardization, visual standardization, and editing were the result of a part-time team exceeding 10 news professionals.

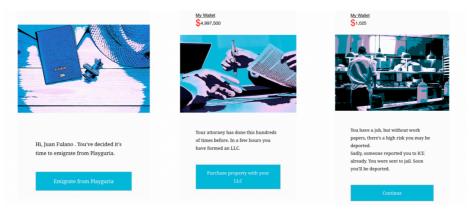


Fig. 2. The final version of the experience as a screenshot on desktop and mobile view, in three panels. First is the starting screen for both player roles, the second is a panel from the kleptocratic role play and the 3rd is from the asylum seeker with visa path (no work permit).

By design, the game incorporates a variety of real-world data sources to substantiate examples in the game. These were typically offered as more information boxes or in the context of warnings for pivotal decisions. These were designed to invite the player toward long-tail investigations, like the work of an investigative journalist. The sources provided for this data were produced by bipartisan and non-profit organizations about immigration. They were directly linked so that players could follow them to the original source.

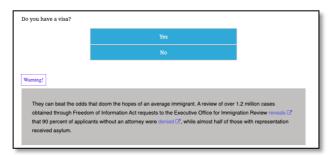


Fig. 3. Details for more information and external data source sidebars.

Likewise, because it is a playable system, based on real world data it was important to expose data sources within the narrative. This included links to journalism and official announcements with explanations about important policy changes and the way that they have shaped the player's choices.

4 Reception

The web-based experiences were offered for mobile and desktop browsers via Miami-Herald.com and its Spanish language equivalent. It was embedded with each article published by the Miami Herald and El Nuevo Herald on their respective website for this investigative reporting project. It was also shared via news outlets alongside the multipart investigative journalism piece of the same name and related press. English and Spanish language versions were publicly available. Translation was completed by the investigative journalist. Data on user sessions was tracked using embedded standard web analytics, provided through the site's internet hosting service. Given the large number of players and their geographic diversity it was decided pretest and posttest surveys would diminish appeal and complicate the experience.

Between its October 19, 2021, launch and January 1, 2022, the game received 47, 321 individual players. Peak interest, coincided with the three publications of the news report, but a steady expected decline followed. October 2021 was the highest player activity with 44,212 monthly players. November saw 906, December 245 and a mere 116 by the end of January 2022. Player interest, like news topics, declined sharply in a short time.



Fig. 4. Charts indicating where players came from to play the game and the operating systems they used to play.

The Spanish language version aggregated the most players, 45,420 players, while the English language had 1901 players between launch, October 19, 2020, and January 1st, 2021. Traffic to the game started spiking the day after launch, changing from primary sources, the newspaper's websites, to secondary sources and social media thereafter. Incoming traffic switched from the original links, to shared content, primarily through personal accounts on the social media sites for Facebook and Twitter. The project employed no marketing to promote the work, so any social media spread was entirely organic. Over the long run, however, daily traffic settled to a regular 20-25 players through April 2022. After that day daily visits are between 0-10 across both languages and remain so with brief spikes of 30-50 players into the year 2023.

The mean for each player session was 3 minutes per game session. The median was 6. This may indicate that some players failed to succeed, failed to read all statements, read less carefully on subsequent tries, or were satisficing some solutions. The longest player profiles exceeded 10–15-minute play sessions, which at scale may also be any-

thing from incomplete sessions that were no longer continued (e.g., left a browser window open but stopped playing the game) to the more optimistic further investigations and conversations that may have slowed player performance.

Players visited from 29 countries in total, with the largest share from networks in Mexico (63%), the USA (25%), Colombia (3%) and Guatemala (2.5%). The top 10 countries by number of players are listed in the following table:

Table 1. Top 10 player populations by country.

Mexico	32,001	70.22%
Colombia	5,790	12.71%
United States of America	5,484	12.03%
Canada	459	1.01%
Guatemala	194	0.43%
Spain	193	0.42%
Germany	173	0.38%
France	105	0.23%
Ecuador	102	0.22%
Australia	99	0.22%

The technographic data on players matches global patterns for contemporary distribution of mobile platforms and social media preference. Hence, as might be expected, the game's largest single audience came from mobile users on Android devices 55%. Shared via the Facebook app (distinct from Facebook.com website) exceeded 63%. No Twitter shares were recorded directly from the Twitter application, although a small portion were shared via various web browsers.

5 Conclusion

The success in implementation is largely notable for scale. For a low budget project, focusing on a very specific topic, more than 45,000 play session in a single month is a respectable engagement. This is further emphasized by the amount of time each player spent and in the voluntarily social media spread that occurred organically. From these perspectives there is success in the project's ability to meet its goals.

While by design the aim was objective reporting of the model derived from data via investigative journalism, it did prove very difficult to avoid editorial tone while also offering an engaging narrative. The element of tone, and perhaps the structure of playful experiences in which the obstacle is a policy, necessitated some editorial tone. This is where playable models, or playable explanations or the notion of reportage games is

complicated by the reality of implementation. In concept, keeping interactive narrative's objective through data informed models should be relatively simply. In practice, the narrative frame itself, may inadvertently introduce biases, just as any system might. While the creators of the project endeavored to offer a playable model, that playable model is of course subject to the ways in which the problem is framed. In this case, the problem is a system, and the players are allowed to explore that system as any of a myriad of people most affected by it. This is clearly not a practical situation, as few people can choose their lot in life, but this experiment was never designed to be a simulation. It was instead designed to investigate the practicality of converting an investigative journalist's interpreted model of a system reverse engineered from the data that system created. For this reason, it is hoped that such a case study is useful for further work.

From the perspective of persuasive play, the game's system itself obscures the statistical (and sometimes random) probabilities of a given path. Instead, players see only choice and its circumstance, via a simple web-playable chose your own adventure. Players can easily win with ill-gotten wealth but will struggle to succeed otherwise. This truth, derived from the data collected, and resulting model, may help identify structural inequality. In the least it's hoped that such work provides evidence of a process for blending interactive narrative with investigative journalism and reporting and its potential.

Further reflection on the process and potential pitfalls of this work is complicated by the myriad of stakeholders, legal concerns, and sensitives that arise from designing experiences about such topics. It should be sufficient to acknowledge that such work is often subject to an extensive editorial process that while common to quality journalism, may work counter to the efforts of game designers to produce timely newsgames. This is an important tension that exists across the common intersection of quality, rigor, and timeliness. Such work is often subject to the tongue-in-check expression - good, cheap, and fast, choose two. In the context of newsgames, this is further complicated by the structures of journalistic publication, which are appropriately risk-averse, and rigor focused. The culture of game making is sometimes at odds with this when facing the threat of technological atrophy and the challenges of rigorously examining an interactive system.

Since these tensions exists in simple projects involving the basic if/then structure of Twine games, the future for such work is complicated. As an example, generative artificial intelligence derived systems, for which interactive system interrogation becomes much more complex may present too great an obstacle to warrant their implementation in newsgames. Instead, perhaps, as has been done routinely in independent games community, the experimentation and exposition of such systems may remain an independent endeavor employed in the context of art and creative practice. In so doing, such work may flourish or fail without the edifice of journalistic structure and the power of news institutions.

6 Acknowledgements

This work was created with support from the University of Miami's School of Communication and University of Florida's Brechner Center for Freedom of Information. The Gaming the System series was produced by the Miami Herald and el Nuevo Herald in partnership with the Fund for Investigative Journalism and the National Association for Hispanic Journalists. Romina Ruiz-Goiriena initiated the project, lead the project concept and reporting and was essential to the project's success. The content of the game and this publication are solely the responsibility of the authors and does not necessarily represent the official views of the supporters.

References

- 1. Berglez, P., & Gearing, A. The Panama and Paradise Papers. The rise of a global fourth estate. *International Journal of Communication*, 12, 20 (2018).
- 2. Bogost, I, & Poremba, C. "Can games get real? A closer look at 'documentary' digital games." *Computer games as a sociocultural phenomenon: Games without frontiers war without tears* (2008): 12-21.
- 3. Bogost, I. Curiosity journalism, or the first decades of newsgames. *Convergence*, 26(3), 572-576 (2020).
- Bogost, Ian, Simon Ferrari, and Bobby Schweizer. Newsgames: Journalism at play. Mit Press, (2012).
- 5. Case, N. The Evolution of Trust. https://ncase.me/trust/, last accessed 2023/4/12
- Ciccoricco, D. How to Play a Parable. Storyworlds: A Journal of Narrative Studies, 10(1-2), 21-46. (2018)
- 7. De Burgh, H. Investigative journalism. Routledge. (2008)
- 8. Diakopoulos, N., Kivran-Swaine, F., & Naaman, M. Playable data: characterizing the design space of game-y infographics. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 1717-1726), (2011)
- 9. Fogg, B. J. "Persuasive computers: perspectives and research directions." *Proceedings of the SIGCHI conference on Human factors in computing systems* (1998)
- Frasca, G. Videogames of the oppressed: Critical thinking, education, tolerance, and other trivial issues. First person: New media as story, performance, and game, 85-94. (2004)
- 11. Gómez-García, Salvador, and Teresa de la Hera Conde-Pumpido. "Newsgames: The use of digital games by mass-media outlets to convey journalistic messages." *Games and Culture* 18.4 (2023): 449-474.
- Grace, L. D. Newsjam: Making games at the pace of news. In Proceedings of the International Conference on Game Jams, Hackathons, and Game Creation Events (pp. 17-20), (2018).
- 13. Grace, L. Gamifying archives, a study of docugames as a preservation medium. In 2011 16th International Conference on Computer Games (CGAMES) (pp. 172-176). IEEE. (2011)
- 14. Grace, L.D. Doing things with games: Social impact through play. CRC Press (2019)
- 15. Grace, L. & Haung, K.. "State of Newsgames 2020: Snapshot analysis of interactives, toy and games in journalism and allied industries." *JournalismGames. com, Miami, Florida* (2020).

- Graves, D., and N. Shabbir. "Gauging the Global Impacts of the 'Panama Papers' Three Years Later." Reuters Institute for the Study of Journalism, Reuters Institute for the Study of Journalism, (2019).
- 17. Hart, V & Case, N. Parable of the Polygons. https://ncase.me/polygons/, last accessed 2023/5/2
- 18. Koenitz, H., Barbara, J., & Palosaari Eladhari, M. "Interactive digital narratives (IDN) as representations of complexity: Lineage, opportunities and future work." *Interactive Storytelling: 14th International Conference on Interactive Digital Storytelling, ICIDS 2021, Tallinn, Estonia, December 7–10, 2021, Proceedings 14.* Springer International Publishing, (2021).
- 19. Koenitz, H. Understanding Interactive Digital Narrative: Immersive Expressions for a Complex Time. Taylor & Francis, (2023).
- Shin, Y. Alcanta, C. & Steckelberg, A. The Washington Post, How Does an Autonomous Car Work? https://www.washingtonpost.com/graphics/2019/business/how-does-an-autono-mous-car-work/ Last accessed, 2023/6/5
- 21. Treanor, M., & Mateas, M. Newsgames-Procedural Rhetoric Meets Political Cartoons. In *DiGRA Conference* (2009).