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Technodiscursive Analysis of Twitterbot Poetry

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Abstract: Literature in the Twitterverse emerges through two cyber-species: the tweeter and the Twitterbot. Both are fighting for relevance in digital creative writing to win the reader's attention. They tweet, read, and write to each other remotely, and they correct each other as an algorithmic sharpening symbiosis. This essay will analyse the symmetrical linguistics of Twitterbot poetry that incorporates critical code studies of its source code as a subset of technodiscursive analysis to decipher the meanings of the tweet-poems produced by Leonardo Flores' *@Protestitas.* This text contextualises itself in a genre of generative electronic literature with multiple interdisciplinary approaches. Our study focuses on this Twitterbot poetry and its relation to socio-technological communication. We also seek to capture the intention of the Twitterary robopoet *@Protestitas* through a technodiscursive analysis that consists of what we call "Four-Dimensional Analysis (henceforth 4DAs)" of the Twitterbot poetry. How does Twitterbot produce its output as executed codes? How do we read the language of the tweet-poem? Our study seeks to demystify these phenomena in this article. The analysis deciphers Twitterbot poetry in the manner of the rebus, deconstructing the four semantic elements of the ten excerpts of *@Protestitas* with its source code. We have compared the source codes with the output on the screen. Therein, we discovered that both of them project the same literary spark.

Keywords: Twitterature; Twitterbot poetry; *@Protestitas*; Leonardo Flores; technodiscursive analysis; critical code studies

1 Introduction

In the digital era, text and its materiality reflect everything about this postmodern generation. It is now characterised by "hypertext, algorithms, generativity, digital

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coding, computability, interactivity, ubiquity, and malleability" (Bootz 2011, 206–53). This means that digital literary texts are born within their own ecosystem through programming or dematerialisation. At times, it is imbued with the potential to interact kinetically with the reader through hyperlinks, touch, mouse interactions, VR headsets, glasses and controllers. The physical appearance of digital texts changes when it is displayed on different compatible digital devices due to its unique lability (Bootz 2022, 2023). However, the printed texts on paper remains unchanged. For instance, the same composite tweets in the Microsoft Edge browser do not display the same way in the Firefox browser, either on smartphones or computers. In social media such as Twitter, text is often written in multimodal form, combining text with audio, video, images, macros, stickers, GIFs, emoticons, or emojis. Just like cuneiform, hieroglyphics, or printed text on paper were to traditional readers, tweets are to Twitter users, known as "twitterers" (Paveau 2017, 126). A tweet is a micro-text written on a Twitter handle, which Fréchette and Côté called "twittext" (2013, 44). It represents literary tweets or literary twittexts, and from there emerged "Twitterature" in a polymorphic constraint form of traditional nanoliterature (Waliya 2023). Twittexts are written by Twitterers just like text messages in WhatsApp forums are most of the times multimodal. Minimalist-cyber poem, nano-text, nano-poetry, micro-text, and tweet-poem will be used interchangeably to refer to Twitter literary text in this research.

2 Related Works

Today, tweets are not only posted by Twitterers but also by Twitterbots; automated accounts that tweet like regular Twitter users to the extent of producing creative literary masterpiece. Twitterbot literature or Twitterbot-written works trace their roots back to 20th century French literature, particularly the Ouvroir de Littérature Potentielle (OuLiPo) of the 1960s. OuLiPo members used algorithmic permutation in literary creation (Motte 2015; Oulipo 1973). Twitterbot poetry as generative poetry is also inherited from the French literary movement called Atelier de Littérature Assistée par Mathématiques et Ordinateur (A.L.A.M.O.) of late 1980s (Bootz 2007). Both OuLiPo and A.L.A.M.O. created algorithmic combinatorial works, as it is in the case of Twitterbot poetry in this study that loops randomly. In the same vein, Jhave (2016) and Veale, Alessandro, and Guofu (2015) equally established the root of literary Twitterbots as generative literature from some of these groups above and included Philippe Bootz's ALIRE. According to them, Twitterbots run on the same random methods and combinatorial poetics, such as those popularised by the early surrealists and beat poets William Burroughs and Brion Gysin, cut-up newspaper techniques of the Dadaists, Oulipian constrained techniques, and the codification of the poem by ALIRE. Again, it can be traced to American Uncreative Writing championed

by Kenneth Goldsmith (Kaufmann 2017). In addition, Twitterbots seek to create a utopian world in the footsteps of great writers, appropriating the world's vision in literary creation. Twitterbot-poets act like traditional poets, expressing their political affiliations and social aspirations (Olayiwola 2012). Parrish (2016) shares Olayiwola's idea, stating that poets express political and social aspirations in poems. According to Parrish (2016), these attributes also exist in literary Twitterbots. She assures us that bots have the ability to discover and produce new ideas, concluding that they are similar to other human artists in that they are fundamentally political innovators. They express their perspectives on how the world should be in relation to the actual world (Parrish 2016). They depict a utopian world, either in poetry or interactive digital literary narratives, as they desire, thanks to the era of algorithms. Because of this, many follow Twitterbots without realising it because their aesthetic creations are attractive even to the global community of researchers investigating the ontology of Twitterbot poetry in the digital ecosystem. *@Protestitas* is also presented as literary political engagement Twitterbot (Ortega 2020). This is the reason this research seeks to investigate *@Protestitas* by Leonardo Flores.

@Protestitas is a Spanish version of *@TinyProtests,* a minimalist visual Twitterbot poetry launched by Leonardo Flores on 28 May, 2018. It tweets protest poetry every 3 hours (Waliya 2020) before it became obsolete on 27 July, 2021. *@Protestitas* embodies economic, socio-cultural, and political contestation targeting campaign against the Donald Trump regime and Hurricane Maria that killed a lot of Puerto Ricans (Ortega 2020; Waliya 2020). It tweeted from 2018 to 2021 upholding Black Lives Matter and health care during the COVID-19 pandemic surge in America. Twitterbot poetry is a visual nano-poetry generated on Twitter as the technology of discourse. It implies that the Twitterbot owns the particularity of tweeting instantly and automatically generates not only literary work as an act of technographism in the case of this study but also arts, political propaganda, philosophical beliefs, social digital activism, advertisements, fake news, etc. This botification of poetry is suitable for this type of tweeting since it favours the propagation of literary creativity worldwide at the speed of light.

Secondly, the tweet-poem in question depends on the Twitter configuration that reveals the regime of the internet-connected generation, where the meta-poet of *@Protestitas* loses control over tweets to the Twitterbot. It means he allocates or distributes to the Twitterbot the proper authorship copyright by employing the recursive and generative code mechanism of randomness supported by Internet non-linear narrative or hybrid discourse (mixed of linearized and non-linearized) thanks to the hypertext links (Bootz 2004; Pisarski 2022). Twitter, as a technology of discourse, limits tweets in its build view, following the technical and linguistic constraints.

It is not our intention to present the various scientific approaches to the Twitterbot. This Twitterbot automatically generates poetic icono-twittexts, which can be described as composite Twitter poetry. According to Flores (2018a), *@Protestitas* is integrated into the tiny universe of Twitterbots, differing from @tiny_star_field by Katie Rose Pipkin, which generates small stars with asterisks in American Standard Code for Information Interchange (ASCII) characters. As for Enström (2019), Twitterbot's content is a form of concrete poetry. *@Protestitas* also uses the Cheap Bots Done Quick (CBDQ) web server, like other Twitterbots in this category of tiny-like bots. Some of these tiny-affixed bots include @petitsmotifs, which produces environmental graphic elements in ASCII characters every hour; @infinitedeserts, which auto-generates desert emojis in ASCII characters as Twitter art; @tiny_astro_naut by Eli Brody; Emma Winston's series of @tiny_cityscapes, @tiny_gardens, @tiny_bus_stop, @thetinygallery, @tiny_s@tiny_stiny_forests; @tinyrelations by Élika Ortega; Amanda Glosson's @tinyneighbor and @tinyspires; @TinySubversion by Darius Kazemi; and @TinyAdv by Kate Compton, which generates texts embedded in images. All of these Twitterbots mentioned above are part of the approximately 7,000 Twitterbots that were active on the CBDQ server (Flores 2016). Ortega (2020) argues in her review of *@Protestitas* that it is noteworthy that as a general observation, other bots within the miniature realm desist from participating in political discussions like *@Protestitas*, instead mostly focusing on generating immersive environments reminiscent of various settings such as art galleries, zoos, gardens, dungeons, residences, islands, bus stops, and similar locales. From its both English and Spanish title, it is obvious *@Protestitas* is a protest in the Twitterverse space. Unfortunately, the CBDQ server that hosted them was stopped on 6 April, 2023, when Elon Musk ended all large-scale API usage, asserted Buckenham (2023), co-founder of the CBDQ. All these tiny-universe Twitterbots mentioned above generate some emojis automatically as a form of experimental tweet-poetry (Enström 2019), except for *@Protestitas,* which, on the other hand, produces icono-twittexts at regular intervals of one to three hours, depending on the web browser, the web server hosting the bots, and the memory of the technodiscursive device (Waliya 2020). Another Twitterbot poem that closely resembles the nomenclature of *@Protestitas* is the multilingual Twitterbot *@TinyKorczak* by Yohanna Joseph Waliya. It automatically generates tweets in English, French, Hebrew, Spanish, and Polish, incorporating dynamic emojis.

Consequently, *@Protestitas* and similar Twitterbots explore the realm of generative and poetic expressions, creating a unique and evolving form of digital literary art. However, their non-interactive discourse remains logocentric, in contrast to the dynamic, interactive nature of digital discourse typically exhibited by Twitter and other similar platforms. Paveau (2013) opines that these features affect the very nature of language as it is part of technology. We must now recognise that there is no more language only. Bootz (2016) took up this debate, saying that the depth

of device, which is the set of discourse technologies, states the author's intention as a discourse element. Indeed, it acts in the communicative situation of e-poetry.

Therefore, the Twitterbot understudied, *@Protestitas*, energises its automatic, time-bound tweets for semantic fluidity. In this case, the production of meaning is flexible to make the diverse hermeneutic inclinations for the Twitterbot poetry.

The question whether a (ro)bot is a poet or not has been solved by Louis Couffignal's test since 1965 during an international conference in Geneva titled *Le robot, la bête et l'homme*. It is obviously proven beyond reasonable doubt today with the advent of large language models and skilful fine-tuning and prompting (ChatGPT, Rogers, and Hart 2023). Couffignal explained that the task of the human being in procedural literary creativity is to input into computer some vocabulary and the algorithmic grammatical rules so that it makes correct sentences. If one accepts this fact, the choice of ideas that the words express is delegated entirely to the discretion of the machine (Couffignal 1965). Stanislaw Lem in the 1970s and Jean-Pierre Balpe in the late 1990s justified this postulation in the theory of meta-author, which attributes to the robots the authorship of masterpiece (Balpe 2021; Swirski 2013). The Twitterbot-poet functions similarly to produce its poems just as human aptness can produce languages, music, poetries, and the literary ecosystem. This same process gives rise to a simulation of literary creativity through creative coding. Bootz (2011) affirms that human beings create a technological thought after their own image to manipulate better this free digital world. When Couffignal presented two poems, one by Éluard and the other by robo-poet, many participants in this international conference confirmed that the robo-poet's poem was more aesthetically poetic than Éluard's (Couffignal 1965). As for Escaja (2019, 10), she asserts that the robot learns like a human being: "The robot would acquire form and consciousness through the poem, while at the same time constituting a poetic artefact in and of itself …". Therefore, it is possible to affirm that bot or algorithm is the poet of our tweet-poem to be analysed in this essay. Even Pisarski (2017) buttressed the fact that the modern authors have sold their literary creativity and authorship to algorithms and bots. Our *@Protestitas* produces meaningful twittext complimented by emojis. This is what invokes four dimensions analysis (4DAs).

2.1 Research Question and Objectives

Our study focuses on this Twitterbot poetry and its relation to socio-technological communication. We also seek to capture the intention of the Twitterary robopoet *@Protestitas* through a technodiscursive analysis that consists of what we call "Four-Dimensional Analysis" of the Twitterbot-poetry. How does Twitterbot produce its

output as executed codes? How do we read the language of the tweet-poem? Our study seeks to demystify these phenomena in the paragraphs below.

3 Methodology: Technodiscursive Analysis

It is worth mentioning again that the Twitterary genre under investigation is multimodal since it extends its tweets with emojis and empty spaces. Sometimes, it tweets only some micro-text or emojis alone depending on the stochastic source code execution. The source code is a fundamental part of the production of the heuristic semantic structure in creative critical code studies (Glazier 2002) such as technodiscursive analysis which encompasses symmetrical linguistic approach.

Wardrip-Fruin (2010, 49) also asserts that the analysis or hermeneutics of digital literature "employs data (image, text, video, audio) and the process of data production, which is the algorithm". We are approaching this analysis from the same angle. This is the reason we employ this conceptual digital discourse model – 4DAs. It deals with four intertwined elements: technology, semiotics, art, and language. In other words, the technology of discourse, the emojis/stickers/memes/macros, the source code (computer programming language), and the Twitterary texts that constitute technogenre: Certainly, the communication axis is in these elements, forming discourse owing to the affordances of the Twitter ecosystem.

This analysis is limited mainly to the discourses tweeted in composite form (tweets complemented with emojis) and the technology of discourse itself, a productive semantic part of the tweets that a media expert identifies as a message (McLuhan and Fiore 2011). In the same sense, Barbosa (2014, 144) affirms that: "now the computer appears as a manipulator and […] even a semantically creative instrument that promotes new meanings and new semiotic re-combinations".

Therefore, technodiscourse or 4DAs incorporates multimedia and the language it produces or manipulates. The analysis deciphers Twitterbot poetry in the manner of the rebus (Wicke 2017), deconstructing the four semantic elements of the ten excerpts of *@Protestitas*. Let us examine the source codes and the displayed output to determine if they evoke the same literary essence by exploring the emojis that enhance our tweet-poem.

4 Emojis of *@Protestitas*' Protestitas

An emoji is an iconic, pictographic, and lexical writing system at the same time. Although emoji is a very recent orthographic system on the social network, it was used in the multimodal orthographic system in Africa by the Egyptians as

hieroglyphs three millennia ago. It existed then as a hybrid writing system before being popularized by Japanese telecommunication companies in 1999 (Abel 2020; Danisi 2017). Danisi (2017, 77) added that: "Like any natural language grammar, the distribution of emoji in texts, as well as the construction of phrases and sentences with emoji symbols in them, implies a systematic structure". In icono-tweet poetry, emojis contract the cultural emotional perception and cognition, pathos, rhythm, rhyme, and ethos to interpret the spirit of the text. The functionality of the collocation of emojis in the tweet-poems of *@Protestitas* manifests itself as independent visual linguistic systems, illustration, referents, complements, and translation of the generated tweets. Wicke (2017, 20) points out that emojis are icons that produce meaning: "They are pictograms and such as emoji are not explicitly semantic primes but denote and connote concepts visually, and those ideas might be semantic primes for the building of complex meanings". Thus, emojis in the composite poetic or prosaic tweet envision four linguistic functionalities, as can be seen in our technodiscursive analysis of *@Protestitas* below.

4.1 Emoji as an Independent Language

The emoji in Twitterbot-poetry functions as an independent semiotic meaning, that is, it is a visual language with grammatical rules like any other language. It requires inter/intralingual translation. The necessity of translation is evident in *@Protestitas*' tweet-poem (Figure 1).

Figure 1: Image captured of *@Protestitas*' Protestitas: https://twitter.com/Protestitas/status/1249227275876405248, accessed 12 April 2020.

The Twitterbot tweets horizontally the sun behind a cloud and a dove above a bank, an office building, a park, a palm tree, a departmental store, and a stadium. In the second row, in front of the buildings in the urban area are three white detectives, an oncoming police car a white detective, a brown policewoman, a black detective, a white policewoman, along with 37 Latin characters and seven blank spaces. This distribution of icons is identical to hieroglyphics, a pictographic and logogram system where each icon represents a unit of an important idea. To express oneself, one needs many icons (Evans 2017). Therefore, the meaning of this Twitterbot poetry could be deduced from grouping the units of emojis. The intention of the Twitterbot poet via the 17 emojis is evident that the government (the referent of the sun behind a cloud with a dove, which also indicates weather and climate) lives in a pleasant and peaceful atmosphere; nevertheless, the mass is impoverished. The police and detective emojis depict agendas of the national security is protecting the rich (biased toward America), higher officials, and wealthy people in business and their properties. They pay proportionally less tax than the middle and lower classes. Leonardo Flores' *@Protestitas* is a revolutionary Twitterbot, as contesting bots depends on staging protest using real data-based. They are repetitive self-generators, provocation agents, and strange, opined Sample (2015). Through Twitterbot poetry, the socio-economic injustice of the neoliberalism that floods society is held circumspect today. Twitterbot poetry's nano-texts appeared as transpositions of emojis, translating the universal language to French or Spanish.

Currently, ecological linguistics convinces us that the image leads to the meaning of a visual enunciation, rather than the sentence structure that creates a psychological image. Paveau (2019) affirms that in linguistic terms, it is the image that drives the meaning primarily, no longer the language forms. In a nutshell, the differential semiotic perception of the iconic images in robotic Twitter-poetry is the exact deictic of the literary tweet-poem's spirit. That is why we perceive emojis and the poetic tweets as translations or referents of each other.

4.2 Emoji as a Referent of the Twittext

Emojis are a referent of the twittext. Consider, for example, the Twitter poetry in Figure 2.

It presents the emojis of the flag of Puerto Rico with a raised fist as an emblematic profile image designating that the revolt was taking place in Puerto Rico. It is automatically translated by the Google Translate bot from a Spanish version as "No to educational deformation!". This tweet-poetry for digital activism with 42 signs

Figure 2: Image captured of *@Protestitas*' Protestitas: https://twitter.com/Protestitas/status/1251130331358470145, accessed 17 April 2020.

appeared on the screen on a white background as icono-twittext-to-be-seen. In the transient observable, one reads the icono-twittext-to-be-seen and the blank spaces. One must also include "space-to-be-seen" in the transient observable as Bootz's conceptual framework for the procedural model theory. With Twitter's maximum of 280 characters, the Twitterbot has only used 36 characters out of 280, leaving the blank space signs that suggest 12.9 % of the population controls national affairs compare to the 87.1 % that struggle with emptiness, i.e., poverty caused by right-wing politics. The blank spaces reveal a gap between the government and the masses, as well as between the Puerto Rican government, which assigns responsibilities to the masses while dealing with trivial responsibilities itself. That is why this Twitterbot is armed to denounce the educational deformation in Puerto Rico, where neoliberalists reign to favour a few citizens, for example, in the Third World and the developing countries in Africa.

This Tweet-poetry is a world nanoliterature designed to denounce school injustice against poor students, as the metapoet is a university lecturer. Apart from the space, the signs, and the punctuation, this tweet-poem consists of ten emojis: there is a sun behind a cloud 🌥 appearing above nine emojis. There are also emojis of a white detective 🕵, a policewoman 👮, and a black detective 🕵 in the first row. In the second row are the emojis of a policewoman, a classic building 🏛, and a policeman, while in the third row are the emojis of a white detective, a black detective, and a white policewoman. The colours or completion of the emojis may denote racial diversity in Puerto Rico. The rising sun and classical buildings in this nanoliterature symbolize the elite or governmental leaders and geopolitical climate and natural ecosystem. The cloud blocks the sun's rays 🌥, representing the

government's duties that are subverted, and the government shirking their duty, refusing to defend the citizens. The emoji of the sun rising behind a cloud is positioned in the upper right, distancing itself from the rest of the emojis, suggesting that the government is distancing itself from the masses it leads, or it could signify another day of rioting or revolting under sunshine and rainy day. Even though the climate is not favourable, the citizens are fed up with the government, which shows little concern for the education and welfare of lower-class children. The signs of blank spaces surpass those of the emojis; the stimulus indicates that the government is a fiasco, unfit to equalize the compatriots before the law. It continues to enrich itself, surrounding itself with national security 🕵️👮🕵️, which means fascism as a metaphoric figure of speech, with the classical building 🏛️ surrounded by emojis of police officers and detectives. It also means that social security belongs only to the affluent classes and their children. The school of rich children is safe. This injustice is typical in emerging countries in Africa, such as Nigeria. The emojis, therefore, function compare to the tweets as referents.

4.3 Emoji as a Complement to the Tweet

The robotic tweet-poem in Figure 3 features emojis of a helicopter hovering in the air 🚁, a bright sun ☀️, an eagle above a vast space 🦅, an office building 🏢 and a classical building 🏛️ above the stadium 🏟️, a virtue tree 🌲, a stadium 🏟️, and a classical building 🏛️. All these are enclosed within a wall and an ASCII art

Figure 3: Image captured of *@Protestitas*' Protestitas: https://twitter.com/Protestitas/status/1249770747230326790, accessed 13 April 2020.

gate ____[|||\\]_____, and at the bottom appears the 17-character micro-text excluding spaces.

This cyber-minimalist poem uses the emojis of a helicopter 🚁 shining sun 🌞, and eagle 🦅 to symbolise the oppressive urban government, which exerts power through overwork and low pay – a neocolonialist mindset rooted in capitalism. The intention of the Twitterbot *@Protestitas* as the word is the tiny protests; it is the revolt against the socio-economic injustice in relation to the employment policy. The jobs offered here are for urban places designating that the protests are taking place in big cities at that time because the two classical buildings 🏛️ 🏛️, the two stadia 🏟️ 🏟️, the fountain ⛲, the closed gate _____[|||\\]_____, the evergreen tree or virtue tree 🌲 and the office building 🏢 are objects, whose variables indicate urban areas. These emojis complement the microtext "zero subcontracts!", to denote that the civil servants never agree with the subcontracting policy that the government was inflicting on them. As a result, they shut down the offices. They go on strike. The emojis express the emotional action of the civil servants while the twittext proclaims the withdrawal of the work policy called "subcontract". The emojis represent the emotional actions of both the government and the Puerto Ricans.

4.4 Emoji as an Interlingual Translation of the Twittext

Google's bot initially translated the composite of the poem with icons: "No more corruption!" (see Figure 4) from Spanish on 11 April, 2020.

This tweet-poem consists of 28 signs – 11 emoji characters as well as 17 Latin signs. Between the emojis, the sun rising behind a cloud 🌥️ and the rushing rain cloud 🌧️ are above nine others, three emojis in three rows and three columns: a white policewoman officer 👮‍♀️, a white detective 🕵️‍♀️, and a brown policewoman 👮🏾‍♀️ are in the first row. In the second row is a black policewoman 👮🏿‍♀️, a classical building 🏛️, and an ambulance 🚑. In the third row are emojis of an ambulance 🚑, a white detective 🕵🏻‍♀️, and a black detective 🕵🏿‍♀️. Vertically in the columns, there is white police officer 👮‍♀️ above a black policewoman 👮🏿‍♀️ and an ambulance 🚑 in the first column. Then, a white detective 🕵🏻‍♀️ above the classical building 🏛️ and a white detective 🕵🏻‍♀️. In the last column, there is a Brown policewoman 👮🏾‍♀️ above an ambulance 🚑 and a Black detective 🕵🏿‍♀️. This visual poem requires a polysemic hermeneutics because the materiality of its graphemes invokes the complexity of meaning, as Bransford (2011) opined. The collocation of the emojis of the sun rising behind a cloud with a raining cloud reveals that more corruption flows from high places to lowly people. Therefore, the Twitterbot poet revolts, chanting, "No more corruption!" The vertical observation of the icons interprets that Blacks in Puerto Rico are still oppressed compare to other races in the civil service, the economy, and

Figure 4: Image captured of *@Protestitas*' Protestitas: https://twitter.com/Protestitas/status/1249000903488782341, accessed 11 April 2020.

social security, especially Black women. That is why the revolt comes out on the streets, which informed Twitterverse space.

This poem is read equally in a synecdochic manner because it is a generative algorithm production with frequent variations in time intervals in the Twitterverse. Twitter as digital platform is globally accessible. We deduce that the e-poem is synecdochically addressing the whole world, exposing the oppressions of the masses in the two countries concerned and extending to the whole virtual world, which has collapsed time and space. Even its interpretation is also synecdochic because the racial situation affects the global village. This marginalisation of Black people is a common issue in both the United States and Puerto Rico. The tweet-poem first addresses these two countries before expanding its critique of racism on a global scale, highlighting the power and impact of its message. Emojis function here as iconemes of the transposition of the tweets, not as complements. The programmer-artist of *@Protestitas* stated clearly that:

> For the past few years, these bots have been informed by real protests, incorporating different protest configurations and slogans to highlight the poetic qualities of real protest language, as it is chanted, carried in signs, and circulated in social media … We are united in a struggle against the same social ills our right-wing governments currently support – racism… (Flores 2018b)

It means in both Puerto Rico and the United State of America, racism is institutionalised by the right-wing government. Just as it is depicted above in the visual tweet-poem. Therefore, the poetic expression points out the gravity of this social malady whereby people of colour are subjugated to.

5 Icono-Twittext-to-be-Seen of *@Protestitas*

The icono-twittext-to-be-seen in the transient observable is composed of emojis, spaces, punctuation, and nano-texts. These signs on the screen occupy perceptibly and cognitively reading act of the reader. The icono-twittext-to-be-seen produces automatically thanks to the algorithm of synthesis of the generator on which all twittexts depend. The semiotic interpretation of the emojis of *@Protestitas* is semantically dynamic and polysemous, while the slogans remain repetitive and monosemic when it generates the Twitterbot-poem. Therefore, we established as an interpretation that the "No more corruption!" slogan could be implied undoubtedly in the linguistic context as a poetic tweet against corruption, yet strictly "anti-capitalists" and "anti-fascists". It is also evident that there is corruption in liberal democracies and communist countries too.

In this regard, Odom (2020, 133) believes that "symbols are polysemous throughout cross-cultural interpretation within a larger society-at-large, the combined denoted and connoted message is ultimately an interpretive connotation". The polysemy of signs such as emojis is sometimes culturally dependent on visual language. It is positioned in autonomous connotative and denotative meanings like all lexicons in language. The semantic of the group of emojis compliments the post changes with its generation influenced by random execution of codes as does the poem in the case of *@Protestitas*. The semantic transformation shifts the functional semantics of emojis in Twitterbot-poetry. Sometimes they play the role of complements, referents, and sometimes transposition. What Bouchardon (2006, 86) "calls the Spatiotemporal dynamics of display" of emoji energises the poem's meaning when the Twitterbot displays the poetic tweets at intervals of 3 hours. For example, consider the Twitterbot-poet's two tweets from 23 February, and 11 April, 2020: "¡No mas corruption!" automatically transposed by the Google bot: "No more corruption!". Note that, "if the expression changes, the content changes […] in poetry" (Lemelin 2011). Therefore, the display of three posts in the transient observable reveals that the emojis positioned above the tweets change the composite expression of the poems due to changes in interfacial content. These drive the new distinct semantics of the analogous poem, as seen in Figures 5 and 6. For example, angry people represented

Figure 5: Image captured of *@Protestitas*' Protestitas: https://twitter.com/Protestitas/status/1231652308531978241, accessed 23 February 2020.

Figure 6: Image captured of *@Protestitas*' Protestitas: https://twitter.com/Protestitas/status/1249770747230326790, accessed 11 April 2020.

by the "sad face with tears 😢 🤧" emojis, blocked by police 👮 in the front of government offices shouting, "No more corruption!". Emojis here are illustrations of the horrendous act.

6 Critical Code Studies of the Source Code of *@Protestitas*' *Protestitas* as Technodiscursive Analysis

The source code is a machine language that facilitates communication between machine-to-machine interfaces and subsequently human-to-machine interfaces. This interaction renders computer language as a social, political, cultural, and philosophical tool, in which the metapoet or rather the programmer-artist encapsulates authorial intention: "Just as our everyday thoughts emerge in our natural language (such as English, French, or Japanese), and descriptions of quantitative phenomena are expressed with mathematical notations, our procedural thoughts will be expressed in Lisp" (Abelson, Sussman, and Sussman 1996, 3). Lisp is a programming language like Java or C++. We must analyse programming language as human language because it is also a medium of communication between humans and machines, as figured in the Twitterbot poetry codes. It is a metalinguistic phenomenon (Abelson, Sussman, and Sussman 1996, 488). In other words, computer programming languages exist multilingually in the programme.

The source code's relevant role in producing meaning invokes semiotic analysis as a sociolinguistic art. In this regard, Sire (2016, 6) adds that one must accept that "code is a text, a form of text, that says something and serves as the basis for performative statements, that is, both statements capable of producing reality and statements capable of changing, modifying, diminishing, amplifying, or distorting reality". Then, the semiotic analysis, or rather critical code studies, that we engage in focuses on the source code of *@Protestitas* to decipher the latent worldview, the cultural diversity that the programmer-artist has buried therein, and the authorial intention of the Twitterbot. Paillard (2013, 136) adds that "the practice implemented by an artist imposes its own logic". We deconstruct the mechanism of the text-author, i.e., the source code of *@Protestitas* before its update in 2020, then its content, and finally, a critical code studies method will be employed concerning the intentionality of the icono-twittext-to-be-seen and the blank space-to-be-seen on the screen as follows.

6.1 Critical Code Studies of the Code Processing

First of all, as mentioned above, the Twitterbot poetry by *@Protestitas* was informed by the real revolt in Puerto Rico against right-wing policies. The emotional slogans of citizens' cries emphasise the poetic quality of an engaged language recognised in the form of signs disseminated on the social media network (Flores 2018b). These are the sources of inspiration for *@Protestitas* "@TinyProtests". Then, to deconstruct the process of the distant writing of *@Protestitas*, one must first know the device's functionality. This poetry is programmed using the JavaScript language library, Tracery, invented by Kate Compton (@galaxykate). Tracery uses JavaScript Object Notation (JSON) as an understandable model to non-programmers. Kate invented the Tracery library to function in replacement generative grammar. The replacement means that values change as the variable itself remains constant, and the dynamics depend on the creative intention and the web browser configuration.

Generally, Kate Compton's replacement generative grammar is built on the syntagmatic and paradigmatic axes at the level of lexical replacement to form a syntactically sensible sentence via multiple-choices of the vocabularies (Moeschler and Auchlin 2009) stored in the dictionary array or list to foster one's style of speech. The principle of abstract relationships between these axes of linguistic units gives *@Protestitas* the appropriateness to infinitely auto-generate tweet-poems in a substitutional manner. The Twitterbot draws on its baggage of required vocabularies with the help of a digital dictionary built in the manner of a user when speaking. The Portuguese meta-poet called such digital dictionary "textual field or multi-text" (Barbosa 2020). The specific use of vocabulary is how the Tracery library works in the JavaScript digital procedure in collaboration with V. Buckenham's CBDQ, facilitating the creation of Twitterbots (Veale and Cook 2018).

The processing and synthetic algorithm of Twitterbot works in absolute servility to the computer logic following the grammatical syntax of the programming language. Symbolic notations are algorithmic logics that require the functionality of the code. For example, the English quotation notation mark "" is a string signifier that instructs the work of Twitterbots to display all the signs indicated between the single or double quotation marks as they are on the Web or in the terminal/console. The quotation marks rightly juxtapose to the colons ":" instruct the Twitterbot to recognise the signs indicated as variables. These variables invoke values utilised in displaying tweets on the screen, while the signs between the two hashtags and quotation marks are commands of random variation of the value chosen that must appear on the screen in a given spatiotemporal sequences. The square parenthesis "[]" structures the variable's values to define the limit of each variable in the code. Finally, the backslash signs with n "\n" instructs the Twitterbot to break up the long sentence by creating a separate slogan verse on the next line or paragraph. The colon ":" in other programming

languages such as Java, C++, or Processing is equivalent to the equal sign "=". Finally, the comma "," ends the process of a variable to start another one until the last variable executes.

The whole code is enclosed in square brackets. This structure reveals how the JavaScript Tracery library generator produces poetic tweets. *@Protestitas* relies on the replacement grammar that generates composite tweets by replacing the identified variable's values in the source code arrays at runtime. This process takes place in the obfuscation. Notably, in the *@Protestitas*, code fragment below, "origin" is a variable that the colon ":" correspond to the value of the variable in the hashtag ["#protesttype#"], i.e., "#protesttype#" is the only complex value of the variable "origin". In the third row, "#protesttype#" decomposes by becoming the variable. "origin" first invokes the value "#protesttype#", and this one which is also a "protesttype" variable in the third row replacing its values identified in the tag ["#infront#", "#march1faces#", "#facessurroundbuilding#", "#street1faces#", "#street2faces#", "#street3faces#", "#street4faces#", "#street5faces#", "#teargasfaces#", "#capitolioshoes#", "#blockedgates#"]. All these "protesttype" values have emojis as their values. That is the reason the Twitterbot displays them on the screen first followed by the nano-texts below them; with the exception of "#blockedgates#" which invokes "#slogan#". The "slogans" variable in the source code is responsible for generating the twittextual posts that display in the transient observable, as the value "#featuredslogans#" replaces itself with all Spanish digital protest slogans listed in the code database (Figure 7).

Figure 7: A snippet of Protestitas' code source: https://cheapbotsdonequick.com/source/Protestitas, accessed 28 June 2020.

6.2 Critical Code Studies of the Code Composition and the Database

@Protestitas increasingly tweets unlimited interlinked monostich (one-verse poem) by mimicking the logical programming algorithm in the linguistic calculation of variations. If we insist on deciphering the tweet-poems of *@Protestitas* produced at intervals of 3 hours, eight poems tweet per day. In one year, it auto-generates 8,760 poems while also depending on the web browser, the web server, internet connection, and the memory of digital devices since these contribute to the speed of the internet network (Waliya 2020). Twittexts are known as slogans in the source code of Twitterbot. The slogans generated with complementary emojis tweeted increase the poeticising of *@Protestitas*' Protestitas. There are 70 variables generally in the source code corresponding to the 1,005 emojis and 225 English-Spanish slogans, totalling 1,230 values of icono-nano-textual variables in the database dictionary that feeds the Twitterbot. Spanish lexicons are 512, whereas English lexicons are 452. These lexicons combine into slogans that the bot automatically generates. As a result, English has 100 slogans, which make it 44.4 % of the slogans (100 English slogans ÷225 total English and Spanish slogans ×100), compared to 125 Spanish slogans that are 55.6 % (125 Spanish slogans ÷225 total English and Spanish slogans ×100).

In other words, Spanish dominates English in the linguistic content of the database, but the algorithmic logic exists in English. It could mean that Spanish is spoken more than English in Puerto Rican society, but it is structured or fashioned after American life. Nevertheless, *@Protestitas*' database as a whole has 1,005 emojis (51.0 %) and 964 Anglo-Hispanic lexicons (49.0 %), summing up to 1,969 icono-microtext that correspond to the year 1969 when Puerto Rican students protested at the University of Puerto Rico against the authority of the school (The New York Times 1969). The metapoet relays the revolt that originated at the same University. However, on the other hand, 1969 symbolises the beginning of the fight for freedom that Puerto Rican students, Blacks, and women have not yet achieved. This author could be inspired by the protest that took place on 6 March, 1969, to denounce the government's apathy that does not seek to solve the age-long social inequality in the country. With inclusion of the notation symbols that fashion the mixed language-alphanumeric notation, Spanish and English in the programming, the holistic composition of the source code reveals that the United States of America, through the language and the policies as observed in the algorithm, still dominates Puerto Rico intrinsically.

Even though constitutionally, the country is independent; in the source code, Spanish represents Puerto Rico whilst English represents the United States of America. The presence of both languages in the architectural nomenclature of the source code also explains the solidarity of Puerto Ricans in activism because the English slogans address the United States of America, considered the chief stumbling

«‘’blockedgates":["#sky1#\n\n#campus#\n#campus#\n_____[|||||||]_____\n#protes
t1faces#\n#slogans#!"] ».

Figure 8: Snippet of *@Protestitas*' source code: https://cheapbotsdonequick.com/source/Protestitas, accessed 28 June 2020.

block of Puerto Rican politics, and the reason the poems are in Spanish too. Its poetic slogans particularly are intending to stimulate Puerto Rican activists into action. The meta-poet himself says it all in his creative statement published in Taper, an online literary magazine, as follows: "The bots frequently go on thematically focused solidarity protests with whatever real protests and marches in the US and PR." (Flores 2018a). This Twitterbot as technology of discourse is a meeting point as depicted in the code that the revolts were taking place on the streets of the cities in Puerto Rico. Flores has harmonised his thinking with the situation in Puerto Rico from the substitutional grammatical rules, variables, arrangement of lexicons in the electronic dictionary to the JSON code modelling.

There are 625 activists face emojis in the source code. Out of which 170 face emojis represent women of all professions, genders, family situations, and races who are revolting. In other words, women are 27.2 % of the people revolting compared to men with 72.8 %. However, this still indicates that in Puerto Rico, women are less involved in public engagement. The microtexts (slogans) have 13 variables that have 225 values of the variable. One hundred English slogan values correspond to five variables "guncontrolslogans": [29], "USslogans": [37], "scienceslogans [8], "educationslogans": [9], and "womenslogans": [19] which includes two Spanish slogan values in its table. There are also other eight variables with Spanish nano-textual values: "rickyslogans": [10], "rickyslogans2": [5], "postrickyslogans": [7], "PRslogans": [43], "UPRslogans": [19], "NORMALshortslogans": [20], "respuesta": [9], "respuestacovid": [10], which together constitute the 125 Spanish values. Thus, the variables are grouped according to their values. The variables with iconic values, for example: "urbanspaces": ("🌲", "🌳", "🌴", "😎"); variables with textual values as well as "featuredslogans": ["#PRslogans#", "#PRslogans#", "#PRslogans#", "#PRslogans##PRslogans#," ##postrickyslogans#]. Variables with various compound values nested in an array defined by the braces to indicate the oppression of Puerto Rican and United States of American citizens (see in Figure 8).

6.3 Critical Code Studies Concerning the Authorial Intention

Generally, source code is composed of words, notation signs, emojis, data structure, and algorithmic grammatical rules, making it a subject of study because any text,

i.e., code, is a product of a civilised culture and a technology at a given time. The source code of *@Protestitas* is simplified due to the visual model of JSON, where each variable has its icons as values, or rather, its graphic simulacra. Therefore, the critical code study of this work encompasses the architecture (variables and values), symbolic notations, language, and computer language concerning the revelation of the meta-poet's intention. The elements mentioned above constitute the grammar of computer code (Berry 2008). Marino postulates that critical code studies could be applied to source code without dropping any sign that constitutes them. He calls the meaning emanating from this phenomenon "extra-functional meaning" (Marino 2020, 40, 44). However, this author's text is an undeniable indicator of the programmer-artist's socio-political commitment.

Berardi reinforces the idea that computer code speaks about us. Its implementation informs us of the environment and of the behaviours of the programmer-artist because it is creative writing inspired by social, political, cultural, and emotional processes like all other arts (Berardi 2013). The worldview hidden in this code is a culture of revolt against the current government of Puerto Rico alongside its counterpart in the United States in favour of Africans in the diaspora, Latinos, women, and other marginalised peoples in the global village because of Twitterverse. Our hermeneutics is dedicated to the parameter of criticism of the socio-political life of robotic literature in particular (Figure 9).

"Sun" is a variable, while the ideographs in parentheses are the values. In the prism of the socio-political semiotics of the code, the "sun" as linguistic sign represents leader metaphorically, and the simulacra of the sun (" ," " ," " ,") as extralinguistic signs are the subjects, distinct from each other. On the other hand, they are in the same code ecosystem of braces "{}" designating the country. The colon ":" the square brackets "[]" and the pictogram materiality (sun emojis) represent the socio-political division for brackets enclose objects within as well as exclude objects that are outside them. It interprets that obviously the leaders are barred from the compatriots, though they live in the analogous native country. It is this act that incited the critical spirit in the metapoet to revolt by demonstrating in the object codes that there are visual bodies such as buildings or cars represented in the programming as one of the ways of expression. A critical code analyst, Berry (2008) opined that "…the programmer begins to think in terms of everyday objects that are represented within the language structure, so rather than deal with 0s and 1s, instead he might manipulate another ideal type which I will call code objects – such as 'cars'

Figure 9: A snippet of *@Protestitas*' source code: https://cheapbotsdonequick.com/source/Protestitas, accessed 28 June 2020.

Figure 10: A snippet of *@Protestitas*' source code: https://cheapbotsdonequick.com/source/Protestitas, accessed 28 June 2020.

or 'airplanes'…". Likewise, Flores Leonardo manipulated the emojis of the concrete objects as code objects to facilitate reading and quick understanding of the tweets that extend his ideological tweet-poems (Figure 10).

The readable snippet of the visual code from Twitterbot above reveals that the revolt was in the urban area where the governmental, educational, medical, hospital, commercial, sports, and other facilities exist. These infrastructures of an area could be in the capital or one of the major cities of Puerto Rico where the socio-political infrastructures are available. However, the meta-poet has expressly relegated the fellow villagers in the rural area since there is no indication of the village in the source code. We can say that nothing happens in the villages of Puerto Rico because all the simulacra of the buildings (the department store "🏬", the office building "🏢," the hotel "🏨," or the stadium "🏟") are likely located in the urban areas "#urbanspaces#" according to the programming. Otherwise, the icon of the village or rural objects must have appeared there as lexicon or emoji. Therefore, code being a high-level language that communicates between the human language and the digital system, produces text as the basis of all computer action. In a nutshell, both the codes and the transient observable serve the same purpose of protest in the urban places involving visual languages (emojis) without confronting the issues in the rural areas. Could it be that Puerto Rico and the United States of America do not have rural areas or the injustices in the two countries are perpetrated only in the cities?

7 Conclusions

Finally, we found out that social communication is achieved using Twitterbot poetry *@Protestitas* from both the hidden source code with database and the tweet-poems displayed on the screen via Twitter API. The composite tweet-poems from *@Protestitas* are stochastically tweeted to the whole populace in the Twitterverse as blank spaces, twittexts, and emojis constitute the semantic units in the technodiscursive analysis-4DAs. Moreover, we discovered also that the whole fusion of Twitterbot, Twitter itself, tweets, emojis and source codes with in-built database share the same literary sparks. These sparks are politics, culture, and socio-economic struggles demonstrating the auctorial idiosyncrasies and the quiddities of both the Twitterbot

itself and the poet-programmer. We conclude from this technodiscursive analysis that employing the Twitterbot and the database, by extension source code, to protest continuously in the Twittersphere from May 2018 to July 2021 (when *@Protestitas* became obsolete) aided in distorting trumpism. This obsolescence of *@Protestitas* in July 2021 is probably because the Twitterbot has achieved its aims-relative stability in the polity of Puerto Rico and the United States of America. Hence, Twitterbot is recommended for social good because *@Protestitas* has demonstrated it via its discourses. It has contributed to the digital activism against neo-liberal right-wing government in the United States of America.

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