

Dino Buzzati Interpreter of Silvio Ceccato: Il grande ritratto and Its Debt to Cybernetics

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Article abstract

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DINO BUZZATI INTERPRETER OF SILVIO CECCATO: *IL GRANDE RITRATTO* AND ITS DEBT TO CYBERNETICS

ELEONORA LIMA

Abstract: This essay examines the impact of the studies conducted by cybernetician Silvio Ceccato on Buzzati's novella *Il grande ritratto* (1959). While the link connecting Buzzati's fictional rendition of an artificial intelligence (AI) in the novella and Ceccato's theories have previously been established by the critics, this study explores in-depth and for the first time how truly knowledgeable and receptive the author was to the then new field of cybernetics. By cross-referencing *Il grande ritratto* against Ceccato's work, and Buzzati's own newspaper articles dedicated to it, this study demonstrates how the novella's techno-scientific substratum is fundamental to understand why Buzzati chose to write the character of Numero Uno, the AI, the way he did. Indeed, the story departs from the traditional depiction of humanoid robots and anticipates some of the contemporary issues concerning AI, from the "black box problem" and autonomy in neural networks, to biases in data. The purpose of this essay is to situate *Il grande ritratto* within Buzzati's well-informed curiosity for Ceccato's theories, while also showing how the author's engagement with cybernetics was not at all atypical, but rather in line with the enthusiastic interest for the field animating many Italian artists between the late 1950s and early 1960s.

Introduction

A bodiless artificial intelligence (AI), created by the capricious mind of a recently widowed scientist in the attempt to bring back to life his late and beloved wife, longs for embodied, real-life experiences and rebels to its fate. As in the story of the Golem of Jewish folklore, its maker—here also its "husband"—is forced to destroy the creature and, together with it, his own dreams of artificially recreating

not simply a human-like functioning brain but an entire personality, with feelings, memories, inclinations.

This is the plot of Dino Buzzati's 1959 novella *Il grande ritratto* (*Larger than Life*),¹ which at the time received quite a few negative critical reviews as it was considered a guilty concession to the then relatively new popular genre of science fiction, generally despised in literary circles (Colombo). Indeed, in *Il grande ritratto* Buzzati plays with all the main conventions of the genre: the setting is an undisclosed location where the army is conducting top secret research, the character is a mad scientist, whose conflict between scientific duties and irrational passions leads to disaster, and, finally, the story features futuristic technologies in the form of an artificial intelligence that threatens to overpower its human creators.

There are two main reasons why Buzzati decided to venture into the forbidden territory of science fiction: first, he must have found the topoi of this genre congenial to his literary vein and considered an artificially resuscitated—or better reprogrammed—lover as rightfully belonging to the list of eerie creatures populating his works (Lazzarin). Second, the author was deeply fascinated with and widely knowledgeable about the research conducted by the cybernetician Silvio Ceccato, which aimed at exploring the possibility of artificially recreating humans' mental life. Buzzati's self-professed interest in Ceccato's theories, as well as the corpus of texts—mainly newspaper articles—in which the author demonstrates his familiarity with it have already been identified by the critics (De Turreis; Atzori "Quel giorno" and "Buzzati in crisi?"). However, what is still missing is a deeper analysis of the impact of Ceccato's theories on the depiction of AI in *Il grande ritratto*, whose peculiar traits, as this study aims to demonstrate, strictly depend on Buzzati's familiarity with Ceccato's approach to cybernetics. Indeed, the story departs from the traditional depiction of humanoid robots and anticipates some of the contemporary issues concerning AI, from the "black box problem" and autonomy in neural networks to biases in data. The purpose of this essay is thus to situate *Il grande ritratto* within Buzzati's well-informed curiosity for Ceccato's theories, while also showing how the author's engagement with cybernetics was not at all atypical, but rather in line with the enthusiastic interest for the field animating many Italian artists between the late 1950s and early 1960s.

¹ The text was first published in episodes under the title *Il grande incantesimo* between July and August 1959 in the weekly magazine *Oggi*, and again with the current title for Mondadori in 1960 (Atzori, "Buzzati in crisi?" 65–67).

Silvio Ceccato and his humanities-led approach to cybernetics

Before delving into the analysis of *Il grande ritratto* and its debt to cybernetics, a brief introduction of Silvio Ceccato is necessary. After studying music composition at the Conservatory Giuseppe Verdi in Milan and briefly embarking in a college degree in law, Ceccato turned to cybernetics when, wanting to explore the scientific origins of his synesthesia (Forleo 53), he saw in the new field the possibility of exploring the functioning of the mind by means of its mechanical reproduction. This initial motive is the reason why Ceccato's particular contribution to cybernetics cuts across the philosophy of science and the philosophy of language, and why his inventions and prototypes—discussed in detail hereinafter—aim at identifying patterns for cognitive operations, such as sensory perception, thought processing, and verbalization, as well as exploring the linguistic nature of human intelligence. Ceccato pursued this specific approach to cybernetics in collaboration with two philosophers of science, Vittorio Somenzi and Giuseppe Vaccarino, with whom, in 1952, he founded the Scuola Operativa Italiana, a research group based in Milan, shaped on the model of the Parisian collective of mathematicians known as Nicolas Bourbaki (Accame 33). He also edited two important academic journals dedicated to logics, *Sigma* (1946–48) and *Methodos* (1949–65) (Forleo 41; Pogliano, “Periphery” 120–21).

The centrality of epistemology and the attention to issues concerning perception and language processing in this “Italian way” to cybernetics is undoubtedly the reason why Ceccato and the Scuola Operativa sparked the interest of many artists and led to a number of fascinating collaborations (Ceccato, *La fabbrica*). The best known is certainly the one with the engineer-turned-poet Leonardo Sinisgalli, who, as editor in chief of the magazine *Civiltà delle macchine*, managed to procure the necessary funds and sponsorship to support Ceccato's first “mechanical brain” from Finmeccanica, Italy's state-owned mechanical engineering company and the magazine's commissioner. Ceccato's machine was presented in 1956 at the Fiera dell'Automatismo (Automation Fair) in Milan and was meant to provide a practical demonstration of Ceccato's language theory by reproducing twenty-three mental operations through which the automaton composed three famous philosophical sentences (Pogliano, “Periphery” 133).² The humanist and engineer Sinisgalli,

² The sentences composed were Descartes' “Cogito ergo sum,” Vico's “Verum et factum convertuntur,” and Hegel's “Das Für-sich-sein im Andersein ist der Prozess” (Pogliano, “Periphery” 133).

fascinated by the mechanical as well as the linguistic implications of the experiment, acted like a godfather to the machine and provocatively named it Adamo II. He also published a number of articles dedicated to Adamo II in *Civiltà delle macchine* (Pogliano, “Leonardo Sinisgalli” 679; Ceccato, “Leonardo Sinisgalli”).

Not only did Ceccato’s research attract the curiosity of Italian artists like Sinisgalli but it also inspired new creative approaches, as in the case of the Rimini-based group of visual artists Gruppo V (1963–67)—where V stands for “vision”—and later renamed Gruppo di ricerca cibernetica (Cybernetics Research Group) (1968). Supported by Lucio Fontana and led by the painter Pino Parini, the group closely collaborated with Ceccato’s Centro di Cibernetica e di Attività Linguistiche (Cybernetics and Linguistic Studies Centre), affiliated with the University of Milan, in order to develop an interdisciplinary approach to the study of cognitive aspects of visual perception (Nicolini and Semprini; Rosen 554). However, programmed art was not the only creative language the cybernetician’s theories infiltrated: in the field of concrete poetry, particularly sensitive to cybernetics and computer aesthetics in general, Ceccato’s teachings inspired some of the poetic experiments of *Ana eccetera*, a niche magazine founded in 1958 in Genoa by Martino Oberto, Anna Oberto, Ugo Carrega, and Gabriele Stocchi (Spatola 111–17). A recurring contributor of the publication was Felice Accame, one of Ceccato’s students and closest collaborators, whose approach to concrete and visual poetry was influenced by the maestro’s study on human perception and verbal processing.³

The writer and the scientist: Buzzati as friend and commentator of Ceccato

Given Ceccato’s direct contacts with Italian artists of the late 1950s, Buzzati’s deep interest in his cybernetic research would appear less surprising, though not less intriguing. What distinguishes his curiosity from that of the just-mentioned poets and painters is that Buzzati’s work does not usually fall under the critical label of “literature and science” and, furthermore, he was not at all interested in vanguardist experimentations with computer technologies. His encounter with the world of cybernetics, instead, might have happened by chance, possibly through his brother, the geneticist Adriano Buzzati-Traverso, who knew Ceccato personally and

³ The connections between Ceccato’s Scuola Operativa and Italian concrete and visual poetry through Felice Accame—also brother of another visual poet, Vincenzo Accame—are still unresearched. An essay on the topic is in preparation by the author of this study.

professionally. Both Ceccato and Buzzati-Traverso were involved with Euratom, the European research programme for atomic energy: Buzzati-Traverso helped to establish Euratom in 1957 (Cassata 98) and Ceccato worked in one of its biggest research centres in Ispra, Lombardy, which was a lab equipped with a \$3-million IBM 7090 computer (Busa 106).

While the specific circumstances of their first encounter are a matter of conjecture, it is a well-established fact that Buzzati and Ceccato developed an amical bond that can further explain the author's sustained interest and familiarity with the cyberneticist's work, to which he devoted eight newspaper articles (Atzori "Quel giorno").⁴ Documenting this friendship is a brief but affectionate note that Buzzati sent to Ceccato a few days before Christmas, on 20 December 1955, almost four years before the first publication of *Il grande ritratto*. In the letter, the author mentions his brother, thus confirming their mutual relationship, and expresses a burning desire to receive one of Ceccato's latest papers:

Creatura diabolica e pericolosissima,
certo che ambisco alla primizia. Mandami immediatamente il testo.
Meglio se, passando da Milano, tu potessi parlarmi, tanto più che il
Traverso sarà a Milano il 23. O da Vicenza ti trasferisci a Roma per
negromanzia, librato a mezz'aria?
Buon Natale! (Bellaspiga 91)

Diabolical and overly dangerous creature,
Of course I yearn to know the news. Send me the text immediately.
Even better if, when you stop over in Milan, we can talk in person,
since Traverso will also be in Milan on the 23rd. Or are you going to
travel from Vicenza to Roma by the power of necromancy, floating
in mid-air?
Merry Christmas! (my trans.)

The note ends with a postscript in which Buzzati jokingly threatens his friend with sending him a terrible curse in case he misses their meeting, thus successfully

⁴ For the list of Buzzati's articles, see Works Cited. I would like to thank Gianclaudio Lopez, Ceccato's collaborator, friend and director of the Centro Studi Silvio Ceccato, for the archival material and generous support provided. The idea for this essay indeed comes from his unpublished play script "Dino Buzzati-Silvio Ceccato due sognatori."

painting the picture of a close relationship, based on familiarity and intellectual curiosity. Moreover, the adverb “immediately” that the writer adds to the plea of sending him the manuscript indicates his genuine interest in the scientist’s work. The same kind of investment was shown in the already-mentioned newspaper articles dedicated to Ceccato, written between 1956 and 1964, which constitute a useful paratext to *Il grande ritratto*. Not exactly a source, as the novella predates most of them, they are nonetheless a commentary, a further testament to Buzzati’s reflection on cybernetics.

The article that is particularly important to situating the text within the author’s lived experiences is “La macchina riceve: ‘Celovek’ la macchina risponde: ‘È l’uomo’” (The machine receives the signal ‘Celovek’, the machine answers: ‘It’s a human’) published in *Corriere della Sera* in 1963. Here Buzzati recounts his visit to the Euratom research centre in Ispra, upon being invited by Ceccato to witness the working of his latest invention: a system for automatic language translation between Italian, Russian, and German. Buzzati offers a description of the centre that is the exact replica of the one in the novella: a mysterious and eerie place lost in the mountains, populated by a team of international scientists hired to conduct secret projects in collaboration with armies and secret services, in which the clash between the still natural landscape with the buzzing machines and futuristic glass buildings fills him with a sense of disquiet. Without ever mentioning *Il grande ritratto*, it is clear that the author is struck by his own clairvoyance and, even more, by the adherence between reality and its fictional transposition:

Forse per aver letto troppe storie di fantascienza mi ero immaginato Ispra così. E quando ci sono arrivato sono rimasto di sasso per lo stupore. Perché la fantasia viene rigorosamente smentita dalla realtà. Mentre qui a Ispra le cose stanno esattamente come me le ero figurate: con il recinto, il verde, il silenzio, i tipi strani, il segreto, il duemila. (Buzzati, “La macchina”)

Maybe I imagined Ispra this way because of the too many science fiction stories I had read before. When I arrived, I was left astonished. Imagination is always proved wrong by reality. Here in Ispra, instead, things are exactly how I pictured them: the fence, the greenery, the silence, the weird fellows, the secret, the year two thousand. (my trans.)

Upon entering the centre, Buzzati meets his guide, Ceccato, as well as another cybernetician working for Euratom, someone who also played a very important role in bridging the gap between the literary and the technological world: Paul Braffort. Braffort was a French computer scientist, poet, chansonnier, member of the Oulipo, and later founder of the Alamo (Atelier de littérature assistée par la mathématique et les ordinateurs) who assisted Italo Calvino in his—failed—project for a computer-generated novel (Cronin). Another tale of Italian writers and cybernetics for another time. While this precise visit cannot possibly have inspired Buzzati's novella, it is undeniable that *Il grande ritratto* was born under the sign of Ceccato and therefore the characterization of AI in the story is heavily inspired by his theories.

***Il grande ritratto* and Ceccato's "cybernetics of the mind"**

As already mentioned, what distinguishes Numero Uno—or Laura, as its Pygmalion Endriade calls it—from the more traditional humanoid robots is that Buzzati chooses to describe it as a disembodied AI system, an artificial brain capable of replicating all human mental operations and experiences, including the sensorial ones, but without the intercession of the body. Everything is "mental" in Numero Uno/Laura, even the most sensual experiences, such as when Olga, the wife of one of the scientists, presses her bare breasts against the walls of the building hosting the AI so as to jokingly arouse the machine, which she believes to be "male." This physical experience is processed by Numero Uno through its antennae, which poke from the roof to inspect the woman's body and transmit back the information to the central brain.

Pursuing the invention of an intelligent machine capable of replicating mental operations, rather than mechanical tasks, was precisely Ceccato's mission (Ceccato, *La terza*). Furthermore, the shift in focus from the mechanical reproduction of physical embodiment to the one of mental life was at the core of his personal understanding of cybernetics, which he developed in contrast with Norbert Wiener, the founding father of the field, who famously coined the name "cybernetics" and defined it as "the scientific study of control and communication in the animal and the machine" (Wiener, *Cybernetics* 2). In Ceccato's opinion, this approach was somehow mechanistic and reduced the field to the mere study of biology—hence his labelling of Wiener's cybernetics "bionics"—to which he opposed his own "cybernetics of the mind," or "logonica" (Ceccato, *La mente*

12). These “bionic” cyberneticians built automata capable of reproducing intelligent tasks, communicating with, and adapting to the external environment, on the model of the thermostat. It was, for instance, the case of Wiener’s robotic “moth” and “bed bug,” which follow or flee the light; William Walter Grey’s turtle robots; Claude Shannon’s maze-solving mechanical rat (Johnston 25–64); and Albert Ducrocq’s electronic fox (Riskin 328–29). Ceccato did not care for these experiments as he believed that they proceeded from a wrongful assumption, one that considered the brain, not the mind, the true object of study for cybernetics: he was not interested in biology, but rather in logic, and thus his machines, such as Adamo II, were motionless and bodiless—all brains and no brawn.

Ceccato’s dismissive opinion of traditional cybernetic automata is expressed by the character of Strobele, one of the scientists in the novella. During a first visit to the plant, organized for the newly arrived team member, Ismani, and his wife, Elisa, Strobele’s wife, Olga, also a guest, enquires about the nature of the AI. At first, she is puzzled by the fact that the “bestione” (“beast”; Buzzati, *Il grande* 73; Reed 68), as Strobele calls it, is said to be equal to a human being and yet it has neither a head nor limbs. Then, she asks her husband whether the machine, which is supposed to understand human language, can also reply back. In so doing, Olga unknowingly refers to one of the fundamental principles in Wiener’s cybernetics, that of “feedback,” according to which cybernetic automata, unlike mechanical ones, are capable of communicating with the external environment (Wiener, *Human* 21–27). Strobele, in line with Ceccato’s approach, explains that such expectations are long surpassed when it comes to their superior prototype:

Olga: “A parlargli, lui risponde?” e rise ambigua.

“Proverei. Ma ha un interesse relativo. Automi che reagiscono alla luce, per esempio, al suono, o ai colori, ai contatti, con un comportamento logico sono usuali, ormai. Qui abbiamo fatto, direi, qualcosa di più.” (Buzzati, *Il grande* 73)

Olga: “If you speak to him, does he answer?” And she laughs enigmatically.

“Just try. But that’s only of minor interest. Automata that react to light, for example, or sound, with a logical response, are quite commonplace nowadays. But here, I think, we’ve achieved something more [...]” (Reed 68)

Strobele's statement that human-machine communication is beyond the scope of the experiment of course serves the plot structure, as the almost impossible task of understanding *Numero Uno* is what put the entire drama in motion: only Endriande, Ismani's wife Elisa, and the warden can communicate with the AI and thus recognize—or rather mistake—its identity as the one of the deceased Laura, while the other characters remain unaware.

Aside from the literary merits of this characterization, it is important to acknowledge that, for the consideration of *Numero Uno*'s ability to communicate without using any codified human language, Buzzati follows, once again, Ceccato's theories. It is Strobele who explains to his inquisitive wife—whose character is the symbol of sensual vitality, opposed to the bodyless and brainiac AI—the reasons behind their informed choice not to teach the automaton any language: “Lingue non ne conosce. Su questo siamo stati categorici. Guai se gli avessimo insegnato una lingua. Il linguaggio è il peggior nemico della chiarezza mentale” (“It doesn't know languages. We've been firm about that. It would have been fatal if we've taught it a language. Speech is the greatest enemy of mental clarity”; Buzzati, *Il grande* 78; Reed 72). The statement, which succeeds in deepening the mystery concerning the real nature and capabilities of the automaton, leaves the reader with more questions than answers, as it is unclear why verbal languages are an impediment to mental clarity. A more articulated explanation is provided later in the text by Endriade during a private meeting with Ismani, when, in the absence of the wives, the two scientists feel free to delve into more technical questions. The head scientist proudly declares to have invented “una macchina che riproduce la nostra attività mentale senza la palla di piombo al piede di un determinato linguaggio” (“a machine that will reproduce our mental activity, and avoid hamstringing it with a definite language”; Buzzati, *Il grande* 87; Reed 80), to which Ismani, still perplexed, asks:

“E come fa ad esprimersi? In che lingua?”

“Nessuna lingua. Ogni lingua è un trabocchetto, per il pensiero. Abbiamo riprodotto, partendo dagli elementi primi, il funzionamento della mente umana. Alla descrizione del rapporto fra le parole e le cose nominate è stata sostituita una descrizione in termini di attività. È ancora il vecchio geniale sistema di Cecatieff [*sic*]. Ogni combinazione mentale si traduce in un grafico che ne mantiene integralmente la storia, pur permettendo di abbracciarla di un colpo. È l'impronta

stessa del pensiero, senza alcun riferimento con questa o quella lingua.” (Buzzati, *Il grande* 89–90)

“And how does it express itself. In what language?”

“No language. [Every] [...] language is a snare, so far as thought is concerned. Starting from the primary elements, we’ve reproduced the functioning of the human mind. In place of the description of the relation between the word and the object denoted by the word, we’ve substituted description in terms of activity. It’s still the inspired old system of Chekatiev [*sic*]. Every mental combination is translated into a graph, which preserves its complete history intact, while allowing it to be grasped in its entirety, at one go. It’s the actual imprint of thought itself, without reference to this or that language.” (Reed 82–83)

The debt to Ceccato is finally declared as Endriade mentions the “sistema di Ceccatieff” as the direct model for Numero Uno’s mental operation and non-human language. This system is basically a list of the main logical operations—the name Scuola Operativa Italiana comes from this—that structure any verbal language. It was published by Ceccato, together with an ample critical commentary, in his 1952 bilingual volume, in Italian and English, *Il linguaggio con la tabella di Ceccatieff—Language and the Table of Ceccatieff*. The story of the book also deserves to be briefly mentioned, as it is yet more proof of the interdisciplinary nature of early cybernetics. Ceccato’s volume was published by the Parisian house Hermann and Cie, run by Enrique Freymann, an eccentric Mexican man who made it his mission to publish books nobody else wanted to publish. Ceccato was introduced to Freymann by the poet Raymond Queneau, later to become president of the Oulipo, who was intrigued by the Italian scientist’s theories (Braffort). However, Ceccato was not the first cybernetician to be published by Hermann and Cie: in 1947, Freymann casually met Wiener, who was in Paris for a conference, and during their lunch together Freymann came to know about the scientist’s ideas for a new discipline. Excited, he encouraged Wiener to write about it and promised to publish the result: three months later the seminal study that created an entire new field, *Cybernetics: Or Control and Communication in the Animal and the Machine*, was in press (Geoghegan).

Intelligent machines and language theories in Ceccato and *Il grande ritratto*

To understand the reason why Buzzati's novella devotes so much attention to the theory of language at the base of Numero Uno's ability to communicate, we should return to the Ceccatieff system mentioned in the passage quoted above. With the Ceccatieff system Ceccato wanted to identify a set of logical rules that could describe mental operations and in turn be applied to illustrate the functioning of any language. For example, in the Ceccatieff table the use of different articles in Italian, English, and German is explained from a logical point of view, rather than a grammatical one (Ceccato, *Il linguaggio* 188). According to the table, there are three cases: the article can indicate a general idea or concept (*la sfera/ the sphere/ das Kugel*); a particular event within the general idea (*una sfera/ a sphere/ eine Kugel*); or a group made of many particular events (*le sfere/ the spheres/ die Kugeln*). The focus is not on the verbal output but rather on the mental operation that precedes the verbalization, because what Ceccato aimed at discovering, as Endriade explains in Buzzati's novella, was "l'impronta stessa del pensiero" ("the actual imprint of thought itself"; Buzzati, *Il grande* 90; Reed 83). This revolutionary approach also guided the cybernetician's research on automatic translations, as his strategy was in fact to program a computer so as to translate any given language into the basic mental operations that he identified in the Ceccatieff system. Then, once the initial text was mapped into its logical components, the machine could have easily translated it into any desired language. Extremely clear and lucid descriptions of Ceccato's automatic translator are to be found in many of Buzzati's newspaper articles, among which there is the one recounting his already mentioned visit to the Euratom centre in Ispra, where the author was invited precisely to witness the wonders of his friend's computerized translator.

Hence, behind Buzzati's characters' conviction that languages are untrustworthy there is not simply the romantic lament that words betray meanings, and that we are all destined to incommunicability, but rather—or, at least, partially—Ceccato's scientific meditation on the universal logic of mental operations, considered to be the backbone of languages, their true meaning. Even Endriade's claim that Numero Uno's mode of expression resembles the language of music more than the spoken language (*Il grande* 111; Reed 103) is again Buzzati's paraphrase of Ceccato's theories, while also, of course, a way to provide a poetic description of the voice of an AI who is ultimately the soul of a dead woman, trapped inside a metal cage. In the attempt to discover the mental structure organizing human

thought and expression, music offered the scientist, also a trained musician, an effective model of universal language (Ceccato, “Musica”). Especially important are the concepts of rhythm and polyphony that Ceccato employed to explain how the different mental operations combine. This “aspetto polifonico del pensiero” (“polyphonic aspect of thinking”; Ceccato, *La mente* 78; my trans.) is illustrated by Buzzati in his article “Da questa porta si è entrati nel fortilizio del pensiero umano” (From this door we enter the fortress that is human thought), published in *Corriere della Sera* on 3 April 1959, where he explains:

Quando si pensa—dice Ceccato—la mente non si limita ad allineare una dopo l'altra le cose che pensiamo. Ma [...] le mette in correlazione in un certo modo che può ricordare la polifonia, quando una nota della prima voce viene tenuta mentre la seconda voce, di note, ne fa due.

When we think—Ceccato explains—our mind does not simply line up one the things we think one after the other. Instead [...] it correlates them like in a polyphony, when the first voice holds one note while the second voice sings two notes at once. (my trans.)

To further explain this statement, Buzzati provides an example that he takes directly from Ceccato: when we say “bread,” “il pane,” our mind does not make any connection as the concept is concluded in itself. When, instead, we read or say the words “meat or fish,” “carne o pesce,” our mind does not simply consider one concept after the other, but the concept of “meat” remains suspended until defined by the second term, “fish.” In the middle, the coordinator “or” determines what type of logical connection links the two concepts, thus imposing a certain “rhythm.” If, instead of “or” we have the connector “and”—“meat *and* fish”—both terms are retained by our mind and left lingering, as “and” signals an addition and not a disjunction, thus creating a polyphony.

It would be certainly wrong to reduce *Il grande ritratto* to a fictional transposition of Ceccato's theories, as in the case of Laura/Numero Uno's musical language we ought to consider a multiplicity of other elements having possibly inspired Buzzati. For instance, when Endriade movingly tells Elisa of the first time he heard the machine communicating and exclaims: “Da questo orrendo fortilizio fabbricato con i numeri usciva il suono di una donna, di quella unica donna che per anni aveva divorato i miei pensieri” (“out of this terrible fortress

built with numbers came the sound of a woman, of the one woman who for years had consumed my thoughts"; Buzzati, *Il grande* 112–13; Reed 105), more than the Ceccatieff system, Buzzati is evoking a powerful image of a machine with a human conscience, a cybernetic singing stone. Indeed, the Italian writer was not alone in imagining a musical AI. In 1951, at the Computing Machine Laboratory at the University of Manchester, Christopher Strachey, member of the Alan Turing's team, programmed their Ferranti Mark I to "sing" the national anthem, along with other tunes, such as the nursery rhyme "Baa Baa Black Sheep" and Glenn Miller's "In the Mood," a performance that was recorded and broadcasted by the BBC (Copeland 164–67). In Italy, similar experiments with computer music were attempted in collaboration with Olivetti by the composer Pietro Grossi, also founder of the electronic music studio S 2F M in Florence (Giomi), and by Luciano Berio at the Studio di fonologia musicale Rai in Milan (Cremaschi and Giomi).

In the early years of cybernetics, the network of collaborations and connections between the artistic and the scientific world were indeed a rich tapestry, and the case of Buzzati certainly proves it. However, while not his sole source, Ceccato's machines and theories were a major inspiration for *Il grande ritratto*. Indeed, Numero Uno was not only a cybernetic mind without a body, like Adamo II, nor did it simply communicate using the Ceccatieff system, like Ceccato's automatic translator. It also resembled another of the scientist's famous cybernetic machines: the cronista meccanico, or mechanical reporter.

Lacking a human-like body, both Ceccato's and Buzzati's fictional automata were equipped with an apparatus responding to sensorial stimuli, which allowed them to experience their surroundings in order to acquire much-needed information. In the novella, it is Olga who is inspected by the jealous machine that, enamoured with the woman's husband, the scientist Strobele, wants to assess its rival in love. A mechanical arm with a multitude of strings attached to it, so as to resemble a brush, surrounds Olga's body before retracting annoyed, after having ascertained her intimidating beauty. Ceccato's mechanical reporter surely was immune from jealousy but functioned pretty much in the same way: its job, again described by Buzzati in one of his articles, was to approach with its mechanical arm a table, on which a number of objects were on display—a pear, an apple, a lemon, a plate, a glass, a mechanical tortoise—consider them, and finally describe the scene using the mental operations defined in the Ceccatieff system (Buzzati, "Il cronista"). Ceccato believed that, in forty-year's time, his cronista meccanico was destined to evolve into a machine capable of reporting news that only needed

an objective, factual description, similar to that of sports reporting (Ceccato, *La mente* 156). He was not too far off, as it was only in February 2020, sixty years after his prediction, that an AI system was used by Reuters to create the first-ever automated video reports of a football game (Chandler).

“Where cybernetics impinges on religion”: intelligent machines and the Catholic Church

Having now considered the prophetic traits of his theories and the eerie quality of his machines, which effectively challenged the definition of human consciousness and intelligence, it is easy to understand why Buzzati in his Christmas card chose to ironically call Ceccato a “diabolical and extremely dangerous creature.” Both friends were well aware of—and enticed by—the moral and religious implications of Ceccato’s work that, like any other research exploring the possibility to build an artificial intelligence, put into question the idea of divine creation. The importance attributed to this issue, which today might sound like an esoteric speculation with nothing to do with scientific discourse, is attested by Wiener’s 1962 *God & Golem, Inc.: A Comment on Certain Points Where Cybernetics Impinges on Religion*. In this book, the Jewish agnostic scientist reflected on the relationship between humans and intelligent machines through the lens of the monotheistic tradition. Similar issues were pondered by Ceccato, a type of sacrilegious scientist acting like God, and by Buzzati, whose attraction for ghosts, spirits, and esoterism in general (Biondi) made him the more curious toward the idea of instilling a soul into an inanimate machine. As a testament to their involvement, it is worth mentioning their presence as guest speakers at a conference titled “Elaboratori: macchine intelligenti?” (Computers: intelligent machines?) organized in 1960 by IBM in Florence (Zane 29). In a photograph of the concluding roundtable, the Jesuit Father Francesco Farusi, who was the broadcasting director for Radio Vaticana, can be seen giving his final remarks alongside Ceccato and Buzzati.⁵

The presence of a man of the Church to this kind of event should not solicit any surprise, as in the 1950–60s, the Vatican, and the Jesuits in particular, were extremely receptive of the new field of cybernetics. The most famous case is that of Father Roberto Busa who, upon having personally met IBM CEO Thomas J. Watson in 1949, convinced him to support his project of digitizing the complete opus of Thomas Aquinas, an endeavour that took the Jesuit and his team about

⁵ I would like to thank once again Gianclaudio Lopez for sharing this photograph with me.

thirty years and granted him the title of founding father of Digital Humanities (Jones). Busa presented his pioneering project to one of the most important academic events of the 1960s dedicated to cybernetics: the infamous 21st National Convention of the Italian Philosophical Society, that took place at the University of Pisa in 1967 (Pogliano, “Periphery” 138–46). During the conference, irreconcilable differences arose between supporters and detractors of the idea of a true artificial intelligence, analogous to humans. Among the speakers, four were Catholic priests and, interestingly enough, they were not the most critical toward the prospect of “sentient automata” (Società filosofica italiana).

Although open-minded, not all members of the Church were enthusiastic about Ceccato’s research. While being transported by train from Milan to Rome, to be stored at the headquarter of the magazine *Civiltà delle macchine* that had sponsored it, Adamo II mysteriously vanished and a voice started circulating that the Vatican, threatened by the blasphemous machine, was responsible for its disappearance. Ceccato, more pragmatically, believed instead that it had been stolen and sold for scrap (Ceccato, “Leonardo Sinisgalli” 182). However fanciful, this conjecture nonetheless supports the Church’s general attitude toward cybernetic research, which Buzzati did not forget to include in his novella. During the private tour of the plant that Endriadi gives to Ismani, the conversation moves from the considerations on the communicative skills of Numero Uno to the possibility that the machine could demonstrate consciousness and, thus, a true soul. Ismani, the sensible man that he is, immediately worries about what the Church might think of his boss’s heretical speculations:

Ismani scosse il capo: “Fosse qui ad ascoltarci monsignor Rizzieri.”
“Magari,” fece Endriade, sorridendo. “Non c’è nessuna difficoltà teologica. Dio per caso dovrebbe essere geloso? Non proviene ugualmente tutto da lui? Materialismo? Determinismo? È tutto un problema diverso. Niente eresie al cospetto dei padri della Chiesa. Anzi.”
“La natura profanata, direbbero. Il supremo peccato di orgoglio.”
(Buzzati, *Il grande* 88)

Ismani shook his head: “I wonder what Monsignor Rizzieri would say, if he heard you.”

“Let him!” said Endriade, smiling. “There’s no theological difficulty. God might be jealous, do you suppose? But doesn’t this, like everything else, com from Him too? Materialism? Determinism? It’s a completely different problem. There’s no heresy so far as the Fathers of the Church are concerned. None whatever.”

“Nature profaned, they’d say. The supreme sin of pride.” (Reed 81)

Buzzati here shapes the character of the defiant and ironic scientist, who takes pleasure in shocking his interlocutor with outrageous claims, on his friend Ceccato, always eager to provoke his employer, Father Agostino Gemelli, the Franciscan friar and physician, also founder and first Rector of Università Cattolica del Sacro Cuore of Milan. Father Gemelli, who had vouched for Ceccato when he was applying for a professorship in philosophy at his university, nonetheless experienced consternation in the face of the scientist’s amused insolence, as the latter recounts: “Gemelli era sconsolato: ‘Sei così buono, ma così eretico!’. Ribattevo: ‘Perché lei è cattolico ed io sono cristiano’” (“Father Gemelli was dispirited: ‘You are such a good man, but you are a heretic!’ I retorted: ‘Because you are Catholic and I am a Christian’”; Ceccato, *C’era una volta* 37; my trans.).

Heresy against religion, however, is not what finally condemns the character of Endriade and its monstrous machine to failure. Indeed, Buzzati’s preoccupations around AI, as they emerge from *Il grande ritratto*, concerned ethical rather than religious issues, and it is precisely this clairvoyant analysis around the fatal flaws of cybernetic automata that renders the novella uncannily current.

Reading Buzzati today: *Il grande ritratto* and the debate on ethics in AI

There are two main problems that the story considers and that are central in the contemporary debate on ethics in AI: the question of autonomy, and the issue of bias in data.

The question of autonomy is linked to the issues of transparency in human-machine communication that is today usually referred to as “the black box problem,” which indicates the opaque nature of AI systems and the often-impossible task for the human programmer to follow and explain how the machine reaches certain conclusions (Bleicher). The science fiction trope of the automaton outsmarting its creator is now a reality and the implications are very real and tangible rather than fictional, for example, when AI is used in the medical and judiciary

fields to make decisions regarding patients' treatments and court rulings (Gerke et al.; Završnik). The Ceccatieff system and its author's confidence in the possibility of mapping all mental operations to a point when every mystery of the human mind would become clear and quantifiable did not stand the test of time. Astoundingly, Buzzati seems to have foreseen this, and in his novella he reflected on the consequences of an impenetrable and autonomous AI. Tellingly, Ismani, perhaps a figure of the author, asks Endriade:

"E se un giorno il pensiero dell'automa sfuggisse ai vostri comandi e facesse da sé?"

"È quello che si spera. Sarebbe la vittoria. Senza la libertà, che spirito sarebbe?"

"Ese, con un'anima a somiglianza della nostra, come noi si corrompesse? Si potrebbe intervenire per correggerlo? E non riuscirebbe con la sua tremenda intelligenza ad ingannarci?" (Buzzati, *Il grande* 89)

"And suppose one day the automaton's thought runs away from your orders and acts on its own?"

"That's what we hope for. That would be the victory. Without freedom, however, can there be spirit?"

"And what if, with a mind built like our own, it, like us, corrupts? Would we be able to intervene and correct it? And with its awful intelligence, might it not outwit us?" (Reed 82)

Narratively speaking, this is a crucial moment as Ismani anticipates the final tragedy, when Endriade is forced to destroy his raging creature, or better, to crash its egg-shaped soul to render it inert and thus unoffensive. Even this task, however, is not an easy one, because, as Ismani feared, the AI has become so cunning as to defy its own creators and has developed a volition of its own.

Numero Uno/Laura, longing for a full sensual life that it could never have, wishes to die. This, however, is against the interest of the army and of the scientific team running the plant, and, also, against Endriade's will, who has found in the machine a surrogate wife. Because the automaton needs to display free will so as to fully resemble a person, Numero Uno is equipped with a bomb and tricked into believing that it can detonate it, should it ever wish to "die." The bomb, however, is not armed because Endriade wants to absolutely exclude the possibility

of Numero Uno/Laura's suicide. Still, the automaton is aware of this trick and decides to befriend and then kill Ismani's wife, Elena, so as to leave Endriade no choice but to punish it by destroying its soul, which is exactly what happens, minus the killing of Elena. This means an important thing: that the story, while ending with the disruption of the automaton, proclaims its victory when humans, against their own interest, finally fulfil the machine's wish. The extreme consequence of an AI so self-directed to overrun human commands considered in the novella is another of the main problems currently being debated: the particular concern is for an intelligent system that, provided with a self-disrupting system for safety reasons—as in the case of an energy plant or an airplane—manages to circumvent the instructions and “survive” (Winfield and Jirotko).

The second extremely current issue considered in *Il grande ritratto* pertains to the quality of the information shared with the machine or, in modern terms, the data on which the neural network is trained. This is a crucial problem that has led to rightful claims against AI systems being guilty of reproducing oppressive structures and diminishing stereotypes; for example, the infamous 2015 case of the Google Photos image recognition software labelling the faces of Black people as “gorillas” (Simonite), which was directly derived from human biases passed on to the system (Howard and Bronstein). If a programmer holds bigoted views, or harvests data from the Web, where bigoted ideas prosper, the AI will spew out what it is fed, as was the case of Buzzati's Numero Uno/Laura. Although Endriade reassures Ismani of his automaton being “sinless”—“è nato puro. Esattamente come Adamo. Di qui la sua superiorità. Non porta il peccato originale” (“it is born pure. Exactly like Adam. That's the source of its superiority. It is free from original sin”; *Il grande*, 89; Reed 82)—Numero Uno laments that it was programmed to be a corrupt, evil creature:

Mi hanno insegnato anche a mentire. La loro grande vittoria. Perché fossi veramente uguale a voi. Ma io so mentire meglio di voi. Pura, lui voleva farmi buona e pura, te l'ha detto? Buona e pura come la sua perduta Laura! Per la somiglianza mi ha messo dentro le cose più stupide e più sozze. Di peccato originale, ne ho una riserva, io! Da riempire tutta la valle. Libidine e menzogna. (*Il grande* 160–61)

They've also taught me to tell lies. Their greatest achievement. So that I should really be like the rest of you. But I can tell lies better than

you can. Pure: he wanted to make me good and pure. Did he tell you?
Good and pure like his own Laura! He's crammed all sorts of stupid
rubbish in me to get the likeness. What a fine reserve of original sin
I've got inside me! Enough to fill the whole valley! Lust and lying.
(Reed 148–49)

Undeniably, the cybernetic automaton, becoming here the projection of male desire (Ross 226–30), allows Buzzati to reflect on the idea of the (male) author as a Pygmalion, and indeed the name of the AI, Laura, directly evokes Petrarch's lover and his *Canzoniere*, which can be interpreted as the literary equivalent of Endriade's technological endeavour. Nonetheless, what matters for our analysis of the impact of cybernetics on *Il grande ritratto*, is Buzzati's clarity in identifying crucial issues that, at the time, only belonged to the realm of science fiction. Such farsightedness might of course be considered a case of literary clairvoyance, a curious coincidence for which a fictional story has later turned into reality. Or, rather, we could consider Buzzati's deep knowledge and earnest curiosity for Ceccato's theories and the scientific background for his novella and dare to conclude that the contribution of literature to the debate on AI, and technology in general, is something more valuable than just entertaining flights of fancy.

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