

Part 4
**Binary Encoding, Artificial Intelligence and the
Dissolution of the Visual Object**

Chapter 11

Semioethics of the Visual Fake

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*Una de multis face nuptiali
digna periurum fuit in parentem
splendide mendax et in omne virgo
nobilis aevum.*
(Horace, *Carmina*, III, 11)

I. The Intimate Nature of the Visual Fake

The ethics of images and fakes are intimately related. Through images, the human species can represent and evoke not only what is, but also what is not, giving rise to illusions. That is also the case for the verbal language, as words too allow human beings to describe what is not. Yet an essential semiotic difference subsists between the fakes found in images and those in words. It can be appropriately explained by Charles S. Peirce's semiotics theory. Images are predominantly iconic; their fabric can be in part conventional, yet the core of them is motivated. What they represent is recognized out of material similarity with how they represent it. Words, on the contrary, are largely symbolic: it is through a silent convention that they confer meaning. This difference lies in the foundation of language and is crucial regarding the fake in images. Albeit blatantly preposterous, images are inherently truthful, and this reverberates upon what they tell. For example, the counterfeited photograph of a political leader supposedly caught in obscene behavior could be recognized as farfetched, either because of its material qualities (when the forgery's quality is poor) or because of its genre (such as a caricature), yet it still confers meaning derived from its motivation. Thus, even a fake image of an event that has never taken place is a true image because it represents it through a materiality that follows the semiotic rules of iconicity.

The intrinsic motivation of an image also subsists when it lacks a proper figurative level. This occurs when the image fails to represent any recognizable objects through verbal language. Indeed, one can always recognize a

shape, a topology, or a color (or even a component of it, like a hue, a level of brightness or saturation). An abstract painting, from this point of view, entails an ontology that an abstract word (a nonsensical neologism, for instance), does not. It consists of a materiality that always refers to the primary existence of shaped light, to a pre-existing matter. Words too, in both their written and oral expression, must rely on matter, such as the light contrasts of typography, or those of sound, yet this reference is already a symbolical one, not an iconic one like in images. The light patterns that underpin the shape, topology, and colors of an image already hold an iconic relation with what they might mean. This is because the human species perceives the world *inter alia* through images, though such characteristics are only partially matched by primitive image-making technologies such as drawing or painting (lack of color, lack of three dimensions, etc.). Even in the most extreme case, such as abstract paintings consisting of white canvases, the frame designates them as images by distinguishing them as signs from an external reality. Whereas the simple white color references the subjacent matter of light, the frame transforms the light into an image that resembles it.

II. The Visual Fake, Technology, and Evolution

It follows that the motivation of images is inevitably impacted by the evolution of technology. Today a prehistoric cave painting of a buffalo is still considered quite realistic as humans recognize a buffalo in the image and additionally, through its semiotic meaning. They are even surprised by the level of iconicity that the image displays. Yet, this surprise is always temporally qualified. Should a buffalo be drawn similarly today, it would be received as an expression of primitive art, not as a realistic representation. The reason is simple: image technology has evolved. Cave paintings may astonish for their primitive realism, yet 3D virtual moving images of buffalos are now marveled at for their *current* realism. Technological evolution can be seen through different semiotic ideologies. Humanities and social sciences, with notable exceptions, generally adopt an ideology of culturalization: phenomena involving human beings and their societies are such because of their contextual circumstances. From this perspective, digital virtual reality is no more realistic than cave paintings, but just differently so; cave paintings were, *mutatis mutandis*, the virtual reality of prehistorical times.

This view has an advantage. It helps contextualize and therefore, relativize the power of images. It underlines that, no matter how motivat-

ed they might look, their iconicity always at least partially results from language, from a convention. As the convention changes, the level of perceived realism of the image also changes. This phenomenon is evident especially in those epochs where the development of technology of representation is fast in relation to the average span of human life. The prehistorical human might have experienced this change too, for instance when first a certain pigment was used in cave paintings, yet it is unlikely that, in such a human's lifetime, this experience of radical technological change might have been encountered repeatedly. For the present-day human being, on the contrary, technology changes on a monthly, if not, daily basis. In the domain of representation, many of those who were born when color television had not yet been diffused are still alive, and in the meantime have experienced the advent of digital screens, flat screens, skyrocketing image resolution, virtual reality, augmented reality, and so on.

III. Conventionality and Motivation in the Technology of the Visual Fake

On the one hand, the increasing development of technology of representation seems to confirm the hypothesis of those who embrace a culturalist ideology: once a spectator is accustomed to the resolution of a 4K screen, setting the standard of ultimate realism, television watched with previous technology inevitably gives an impression of unrealism. This effect of 'vintage vision', however, is increasingly common. That means that, whereas conventionality has codetermined the reception of iconicity throughout the evolution of the species, the speed of its change has shown a tendency to increase along human history, probably out of cumulative impact: new technology begets newer technology, and so on and so forth. Thus far, in the domain of the technology of representation, this acceleration has been linear: the conventionality that frames the resemblance of images is changing at increasing pace. On the other hand, the alternative ideology considers that technology of representation does not only change but also evolves. It proposes that new representation and display technology allows one not simply to see differently, but also to see better. Improvement is generally defined in terms of realism: the less a gap is perceived between reality (or, rather, the non-technologically mediated perception of it) and representation (or, rather, the technologically mediated perception of reality), the better.

Supporters of the culturalist stance, traditionally including most semioticians, usually deconstruct this view. In their mind, there is not such a thing as a non-technologically mediated perception of reality. Reality

is always perceived according to some habits, as the father of semiotics, Charles S. Peirce, would suggest. Further, these habits are shaped through social interactions within a community of interpreters, giving rise to a perceptual common sense. According to this view, we do not see better through new digital technology, but we get used to seeing better through it. There is no difference, then, between the realism of the cave painting and that of virtual reality since they both result from a cultural construction. Although there is some truth in this statement (iconicity always implies a frame of conventionality) and evidence tends to confirm it (perfectly realistic representation technology becomes vintage when supplanted by new devices), this view too, when expressed in extreme terms, becomes unreasonable. Denying any cultural conventionality in technological iconicity ultimately entails absurd consequences; but denying any natural iconicity in it also does. There is, indeed, a dimension of semiotic habit in perception, yet perception is not only that, for its conventionality must root itself in a neurophysiological ground shaped through natural evolution. On the one hand, it is true that humans get used to new representation technology, often yielding to the rhetoric of their perceptual proficiency. On the other hand, it is also true that they also get surprised by it, finding that novel devices for visual representation and display allow them, the human beings, to sensorially and mentally access images with unprecedented realism. The “reality effect” of representations is always a matter of conventions and habits, a symbolical matter; yet it is also a matter of material relations and prompts, an indexical matter.

The iconicity of images stems at the crossroad between these two dimensions: an image seems real because observers are used to its reality effect, but also because it matches the physiology of the human perception as resulting from a natural, biological evolution. History confirms it even better than anthropology. When the first Jesuits started proselytizing in 16th-century theretofore secluded Japan, they often displayed Christian paintings that shocked the audience. The reason, however, was not the content but the form. The Japanese were struck, and sometimes even converted, by Renaissance perspective, by the realism of its three-dimensional illusion. The reality effect of the representation relied on a convention, yet it did not solely rely on it. Even Japanese observers who had never been in contact with this optical and representative device could realize that it was able to construct images in an unprecedented way and impress the perception of the audience so that the realism of the representation could be transferred to the realism of the represented. In some cases, conversions took place because the Christian deities seemed to jump out of the canvases and share the same physical space of the observers.

IV. *The Third Way of Semiotics*

Between an ideology of radical cultural contextualization and one of radical naturality, semiotics proposes a reasonable midway, suggesting that iconicity is a cultural phenomenon, yet it is influenced by technological change, and in particular, by its speed and relation to the physiology of perception. Increasing pace in the advent of ever new technologies of representation and display implies a more rapid destabilization of perceptual habits, begetting in turn an effect of surprise and reality that is often naturalized also for commercial and persuasive purposes. Semiotics is called to debunk the pseudo-natural allure of new technology. It is also expected to somehow debunk the debunking. That means that, in certain circumstances, new technology actually increases the realism of representation not only in terms of cultural iconicity but also in those of indexical iconicity. Humans must certainly become accustomed to wearing a virtual reality helmet, yet what they are become familiarized to is the unprecedented representation of a three-dimensional, immersive space. Its persuasive power, in many cases, works exactly like it worked in the perspective of 16th-century Jesuit paintings in Japan: matching the physiology of perception, it induces a disrupting suspension of disbelief. On the one hand, semiotics must unveil the cultural conventions that underpin the reality effect of technology of representation and display. On the other hand, it should not overemphasize the rhetorical dimension of technology, either. The conclusion that observers do not actually see what they see is absurd and somewhat frustrating, and so is the hint that, if they were aware of the secret conventional roots of the lures of representation, they would see differently.

On the contrary, semiotics should encompass the idea that, if a community of perceivers, observers, and interpreters so promptly adopt a new representative convention, it is also the case because of the revolutionary way it interacts with the neurophysiology of perception in the species. This balanced approach entails important consequences as regards the ethics of images. It points at the necessity to develop a 'semioethics' of representation that is both culturally and biologically grounded. It considers, for instance, that images are what they are, and entail the potential ethical dangers that they entail, not only because of the symbolical conventions that underpin their iconicity, but also increasingly because of the impression of realism that they trigger in the human physiology of perception. Such composite reflection is urgent, especially regarding the persuasive effects that images can bring about. Considering images as exclusively based on cultural conventions is reductive, for it fails to explain both the

persistence of their phenomenological power and the impact of new technology of visual representation in relation to human perception. Indeed, the power of images is based also on the fact that they interact with a specific innate feature of human physiology and cognition, as well as on the fact that the quality of such interaction is modified by the specific nature of the technology that is used for the production and display of images themselves.

A crucial issue in this domain is how images contribute to what is popularly called a “suspension of disbelief”. That is, to obliterating the discrepancy between the representing image and the represented reality that the former signifies. When the represented image conveys stark realism, it replaces the same reality that they represent. Thus, the representing image appears as indistinguishable from the latter. Such is the case of every kind of *trompe-l’oeil* (a pictorial genre that seeks to give the illusion that a painting actually is what it represents): the reality effect of the image is such that iconicity is replaced by indexicality. What is seen does not only represent a signified reality, but *is* such reality, at least in the delusional observers’ eyes. Mentioning such an extreme case of suspension of disbelief is important here because it could be hypothesized that much of the most recent technological change in the domain of visual representation and display aims to increase proficient *trompe-l’oeil*. More and more, the digital image aims at eliminating any ‘uncanny valley’ effect to develop a sort of semiotic autonomy from the represented reality. That leads to the ethical issue of the fake: the present-day hyper-realistic digital image presents itself not as a fiction but as a fact and, therefore, as a fake.

Yet technological advancement makes this fake more and more indistinguishable from the reality it represents, and increasingly able to aptly dissimulate its own nature of representation. If the history of representation technology is conceived not only in cultural, but evolutionary terms, it becomes important to distinguish between the different kinds of *trompe-l’oeil* that have emerged throughout history. On the one hand, it is true that the hyper-realistic image of a digital face fabricated through contemporary artificial intelligence is an instance of *trompe-l’oeil* as much as a Renaissance *trompe-l’oeil* painting. Yet the technological difference between the two instances cannot be ignored either: the latter would hardly present itself as a perfect fake, as a completely illusory replica of the reality it represented. Rather, its purpose was to trigger a temporary suspension of perceptual disbelief, to extoll the skilfulness of the painter rather than permanently deceive the spectator. Proper fake paintings, conversely, started to be produced and circulated because they had a market and they were sold and bought. Their aim, however, was not to attract admiration for the

forger but to deceive the buyer. Giovanni Morelli's method of connoisseurship was specifically devised to unmask such forgeries and prevent buyers from acquiring fakes of great painters.

Yet in this case too, both a cultural and cognitive semiotics of the fake must emphasize not only similarities but also, and crucially, differences between the fake paintings of the pre-digital era and the fake images of the digital epoch. Advances in the digital technology of images has led to the creation of extreme *trompe-l'oeil*, to fakes that, unlike in the past, any human eye can no longer unmask. To detect the fake, the same machines that have contributed to create it must be invoked to unmask it. That leads to a whole new area of investigation, in the domain of the ethics of images, precisely concerning the ethics of digital fakes.

V. Semiotics as Discipline of the Fake

The fake is a key theme in several fields of investigation. In natural sciences, it defines the intentionally false: methodology and research must recognize it to gain a truthful understanding of reality. In the humanities, it is the counterpart of authenticity, the threatening shadow of western thought since its very onset: humanity should seek what is true and avoid falsity, treasure the authentic and ban the fake. Ethical doctrines and also religions emphasize the perniciousness of falsity and the dangerousness of forgery for social cohesion and harmony: Lies, that is, intentionally false but somehow believable representations of reality, must be avoided. Yet the possibility to represent, through language, not only what is, but also what is not, is a consubstantial feature of the human cognition. Humans are endowed with a unique capability for creating and using mendacious simulacra of the world, including the inner and invisible world of their emotions. After all, the human ability to create believable fictional representations of reality is parallel to the skill of creating believable fictional realities in the arts. Throughout history and across cultures, human communities have, therefore, devoted an immense amount of their energy to the central social issue of 'handling' the fake. Philosophers have sought to define falsity, stigmatizing it in most schools of thought. In some cases, however, they have also turned it into an element of philosophical speculation (from the Sophists to the Catholic casuistry, from Nietzsche to Derrida and Deconstructionism); ethical and religious leaders have also underlined the social hazard of systematic lying. Further, writers and artists have refined to the utmost the rhetoric of fictional storytelling and representation, and natural scientists have devised methods and procedures

to recognize falsity and corroborate truth; social scientists have also sought to understand the motivations, processing, and effects of falsity; political thinkers and legal scholars have sought for the best strategies to limit and control the spreading of falsehood in social relations.

Yet there is only one discipline, in both natural sciences and humanities, where the fake is the primary object of investigation. That discipline is semiotics, the science of signification and communication. Umberto Eco, one of its founding fathers, defined it in his 1975 *Trattato di semiotica generale* ["Treatise of General Semiotics"] as "the discipline that studies everything that can be used to lie".¹ This definition can be taken as a point of departure. Indeed, although the fake is part of human cognition, and although practices and theories of the fake have characterized the entire history of humanity, technological change deeply impacts the human culture of forgery.

As it was suggested earlier, rock art in Lascaux or other prehistorical sites in the world were already a kind of fictional representation. The Palaeolithic man would already decorate caves with idealizing images of wild animals. Yet, the contemporary visitor can now explore a museum in Dordogne that is an exact replica of the authentic site, with no perceptible difference. 3D digital scanning and other advanced technologies have enabled the construction of a fake that can be experienced as authentic. Visitors are told that what they enter is a replica, of course. In an increasing number of circumstances, however, present-day individuals unknowingly interact with visual fakes without being given the opportunity to distinguish reality from fiction, truth from imposture. Techniques to produce an illusion of reality and truthfulness also have a long history. Virtuoso trompe-l'oeil paintings, for instance, are quite common in Western art history, and so is the manufacture of deceitful replicas. These have been paralleled, throughout Western art history, by an equally abundant amount of methods to unmask the fake. For instance, the fake unmasked by the already mentioned art connoisseur Giovanni Morelli.

Yet technological advances modify the relation between fake production and fake recognition. For instance, Apple currently invests enormous resources to ensure that facial recognition software on its devices is protected against fakes. Simultaneously, groups of hackers constantly try to overcome these security systems. Compared to the past, however, this race between fake makers and fake spotters is extremely fast, exceeding by far the skills of most present-day technology users. Advanced digital technolo-

1 Eco (1975) 18.

gy currently allows the fake to be more and more realistic, to transcend common skills for fake-detection, but also to be produced and circulated with unprecedented speed, beyond the reach of unspecialized fact-checking. New digital technologies for fake production (from deep fake to 3D-printed masks, from AI holograms to algorithmic trolls and other pseudo-users), together with new digital technologies for fake circulation (all kinds of social networks) are dangerously pushing the world toward the epistemic and social chaos that Western thought, over centuries, has seen as a threatening consequence of forgery and lies. These new technologies can be used to promote the formation of communities whose thoughts, emotions, and actions are manipulated through the rapid creation and frantic dissemination of false but credible digital representations of the world. This can lead to a gullible and impressionable society, conversely, a hyper-sceptical and cynical collective, or even political acquiescence or social polarization.

VI. *The Background of Reflection: Advances and Lacunae*

As a result of the troubling spread of the digital fake, an entirely new area of investigation has emerged at the crossroad of several social sciences and humanities. It is the area that inquires upon two key buzzwords of the last decade, that is, “fake news” and “post-truth”. Literature on this area is abundant in several languages. Many recent studies concentrate on the ideological² or political³ use of fake news, also with reference to specific geo-political contexts;⁴ on its digital production,⁵ with special emphasis on journalism;⁶ on its viral diffusion,⁷ especially through social networks;⁸ on possible countering methods;⁹ on the role of the fake in particularly sen-

2 Van Dijk/Hacker (2018); Fuchs (2020).

3 Farkas/Schou (2020).

4 On the USA, see Lockhart (2018); on Europe, see Eberwein/Fengler/Karmasin (2019); and on Russia, see Roudakova (2017) and Boyd-Barrett (2020).

5 Barnes/Barraclough (2019); Zimdars/McLeod (2020).

6 McNair (2018); Katz/Mays (2019).

7 Safieddine/Ibrahim (2020).

8 Sumpter (2018).

9 Dalkir/Katz (2020).

sitive domains, such as education,¹⁰ food,¹¹ history,¹² medicine,¹³ and sciences.¹⁴ The philosophical issue of the post-truth has also been dealt with by several scholars,¹⁵ from the point of view of the philosophy of communication,¹⁶ moral philosophy,¹⁷ ontology,¹⁸ interdisciplinary thought,¹⁹ as well as through relativistic approaches to the issue of “the genuine fake”.²⁰ Historical perspectives have flourished too, seeking to nuance the novelty of the phenomenon.²¹ Language sciences as well have a long tradition of dealing with lies, from the perspective of philosophy of language,²² linguistics,²³ and semiotics.²⁴ Whereas for the analytic philosophy of language truth and falsity are logical attributions,²⁵ for the continental philosophy of language and semiotics are defined in relation to signification.²⁶

All the founding fathers of semiotics have dealt with the topic:²⁷ 1) Charles S. Peirce in the US tradition;²⁸ 2) the main voices of structural semiotics, as early as a special issue of French key journal *Communications* devoted to the concept of “vraisemblable” (French for “plausible”, “likely”, “what seems true”), with essays by Tzvetan Todorov, Gérard Genette, Christian Metz, Julia Kristeva, Gérard Genot, Roland Barthes, and others;²⁹ Baudrillard famously returned on the topic,³⁰ and, more recently, a round table on “Post-vérité et démocratie” (“Post-Truth and Democracy”) was

10 Peters (2018).

11 Schwarcz (2019).

12 De Baets (2018).

13 Fainzang (2016).

14 Arnold (2019); Jewett (2020).

15 See McIntyre (2018).

16 Robbito (2020).

17 Phillips (2019).

18 Condello/Andina (2019).

19 Duncan (2018).

20 Pyne (2019), focusing on art forgeries, fake fossils, nature documentaries, synthetic flavors, museum exhibits, Maya codices and Paleolithic replicas.

21 On the Middle Ages, Corran (2018); on the early modern period, Hadfield (2017); on Nazis, O’Shaughnessy (2017); in US history, Cortada/Aspray (2019); throughout western history, Denery (2015); Fraser (2020).

22 Michaelson/Stokke (2018).

23 Meibauer (2019).

24 Danesi (2019); Leone (2020); Violaris (2020).

25 Gorrée (2012).

26 Eco (1984).

27 Ousmanova (2004); Lorusso (2018).

28 See Cooke (2014).

29 For these authors, see Todorov (1968).

30 Baudrillard (1987) and (2000).

organized by Jacques Fontanille during the 2019 Congress of the French Association for Semiotics in Lyon, 11–14 June 2019;³¹ Umberto Eco wrote extensively on the fake,³² directed a special issue of the semiotic journal *Versus* on “Fakes, Identity, and the Real Thing”,³³ and also dealt with the topic in numerous essays and novels (*Foucault’s Pendulum*, *The Cemetery of Prague*, *Numero Zero*); finally, 3) Jurij M. Lotman on several occasions addressed the issue of the fake.³⁴

Despite the abundance and variety of scholarly works dealing with the fake, the existent literature shows some conspicuous gaps: 1) a lack of inter-definition: scholars use abstract terms like “falsity”, “untruth”, “fake”, “forgery”, etc., as well as “fake news”, “post-truth”, “deep-fake”, etc. in multifarious and, sometimes, contradictory ways; a theoretical and conceptual effort of semantic and pragmatic categorization and classification is in order; 2) a lack of interdisciplinarity: the themes of the construction, circulation, diffusion, and potential debunking of the fake are addressed from several perspectives, which nevertheless often fail to constructively complement each other; 3) a lack of cooperation between humanities and social sciences on the one hand and, on the other hand, natural sciences and engineering; the technology of the fake is currently so complex that it is exceedingly hard, for literati, to have a precise grasp of its generation and dissemination; and lastly 4) a lack of cross-fertilization between scholars and artists; the former have mostly tackled the fake as a problem, as a negative force that mars the waters of rational thinking in every domain of social life; yet, the fake is also the main resource of artistic creation; there is a close relation between the fake and fiction; artists can play a key role, therefore, in exploring the strategies of signification and communication through which a reality effect can be bestowed on a fake, concealing its content of falsity.

VII. *The Tasks Ahead for a Semioethics of the Visual Fake*

The main aim of a semioethics of fake images is filling these gaps and raising new social, academic, professional, and artistic awareness about the visual fake, its nature and evolution, its risks but also its opportunities,

31 Di Caterino (2020).

32 Eco (1986/1995).

33 Eco (1987), with essays by Eco, Prieto, Calabrese, and others.

34 Andrews (2003) 101; Makarychev/Yatsyk (2017).

its requirements for the citizens of the 21st-century world to fitly navigate through the complex digital representations of their technologically advanced societies. The challenges that lie ahead are related to these gaps, methods for gap-filling, but also to how societies and technologies of the visual fake might evolve in the future. The task ahead, in this domain, is not only philosophical or theoretical, but involves reaching an inter-disciplinary, operational, and proactive definition which can foster cooperation between humanities, social sciences, and natural sciences, scholars and engineers, the academe and non-academic stake holders between researchers and creators. Hence, disciplinary boundaries must be reconsidered to develop new theoretical creativity concerning the creation, circulation, and possible 'handling' of the fake in present-day technologically advanced societies. False representations of reality have accompanied the entire history of the human species and are probably consubstantial to its cognition; yet two new factors radically alter the presence of the visual fake in society. They are both inherent to digital and internet societies: on the one hand, the weight of big data; on the other hand, the new dimensions of digital realism.

A semioethics of the fake must, therefore, involve cross-interdisciplinary reconsideration of the new quantitative and sensorial trends of the fake, through crucial cooperation between heretofore separated approaches. Fake representations of reality gain unprecedented momentum through the social arena and impact with anomalous force on the formation of public opinion. Marginal distortions of truth acquire atypical visibility in social networks through a rhetoric of quantification. Their circulation is pervasive and accompanied by incessant and quantifiable relaying. Their diffusion, moreover, is increasingly fuelled by the adoption of multi-modal and multi-sensorial communication, which exploits the ancestral anthropological appeal of images and other visual artifacts but also enhances them through unmatched digital credibility. Investigation on this new level of fake-production and circulation in digital and internet societies now exceeds the epistemological and methodological framework of humanities alone. To understand the fake today, it is fundamental to come to terms with how machines more and more fabricate, spread, and promote the fake through automatic processes: fake news, post-truth, trolling, etc. are indeed unseizable without a deeply interdisciplinary consideration for 'the algorithms of the fake', that is, for the computational processes and devices of fake production.

Two usually diverging and mutually ignoring perspectives must, therefore, be knitted together: on the one hand, the academic reflection on the emergence of the fake in theoretical framing, social conversation, or

scientific investigation; and on the other hand, the development of devices and algorithms to produce and diffuse false representations. Thus, awareness must be increased among technology creators about the social impact of digital advances. This will promote insights among researchers of the rule-changing potential of new digital technologies and the prospective opportunity to use them not only to create social misrepresentations, but also, conversely, to counter and debunk them. Synergy between theoretical and applied investigation is also key regarding the issue that the visual fake is not only a risky element in the formation of common sense, shared knowledge, and public opinion. It is also the basis for plans of action and pragmatic choices. Fake news encourages citizens to vote according to a distorted understanding of societies, as bots and other trolling algorithms influence international relations and can even be hijacked by disruptive political agencies. Thus, post-truth leads to unfounded economic attitudes and modifies the production and circulation of goods in-depth. Further, conspiracy theories condition the reception of science and the role of medicine in society. The visual fake, in other words, becomes a central social actor that mostly plays its role in an uncontrolled manner, altering social relations and trends based on counterfeited representations of reality.

Today, the visual fake is causing societies billions of damage in all sectors of social, economic, and political life. Simultaneously, it is becoming an evil industry for those who wish to profit by its diffusion in society. Instead, such a pernicious industry must be replaced with one that profits from the debunking of false representations of reality. This operation, however, will be impossible to accomplish without a deep knowledge of the ‘grammar of figments’, that is, the unwritten rules through which a false simulacrum is empowered with pragmatic force, with the ability to produce effects in its cultural and social environment. The rules of this grammar are not constant but vary across the historical epochs, the ‘cultures of the visual fake’, and depending on the technologies that are used to implement such rules. Yet a cross-cultural and trans-historical ‘grammar of the figments’ exists, giving rise to a deep-seated anthropology of the visual fake. Writers, painters, sculptors, and more recently also cinema directors and digital artists have long practiced the subtle art of simulacra in a masterly manner. Even without any formal awareness simulacra, they have created, for centuries, perfectly believable fictions, trustworthy figments. The time has come, therefore, to put this ‘art of the fake’ in dialogue with the ‘science of the fake’, with the aim of giving an incentive to societies where creativity can thrive, supported by a new

digital and internet technology, but without begetting a domain of the fake over truth.

VIII. Conclusions: On Fakes and Viruses

In conclusion, the present essay will now propose a theoretical frame, based on semiotics, for the interdisciplinary study of the visual fake, having in mind the task of rebuilding semioethics. Although different branches of semiotics study language, meaning, signification, and communication with disparate slants, none of them more than Lotman's semiotics (and the "School of Moscow/Tartu") can rely on an extensive and stimulating array of concepts and theories as regards the structure of culture and its evolution. In Lotman's semiotics, the notion of "semiosphere" is key. The production, circulation, and diffusion of meaning in society is studied as though culture were a biosphere of meaning. In this semiosphere, texts and representations arise, are reproduced, proliferate, and spread around from the periphery to the center of the system or, conversely, dwindle, move to the margins, and fall into oblivion. Technology, in this metaphor, represents the infrastructure of devices and processes (from writing to algorithms) that ensures the reproduction of culture as non-genetic memory of the human species. Present-day cultural semiotics, inspired by Lotman as well as by other sources, adopts a systemic approach to culture but does not endorse mechanistic perspectives. Meme theory and socio-biology, indeed, are considered as relevant but not considerate enough of the role of subjects and their intention to shape the trajectories of meaning in society.

The present essay embraces, instead, a humanistic epidemiology of culture which treasures models of diffusion and contagion derived from natural sciences and biology, but considers the specific persuasive force of representations and texts. The increased importance of the quantitative aspect in the study of social networks as platforms for the diffusion of meaning bridges the gap between the natural science of epidemiology and the social science of cultural semiotics. If, in keeping with Lotman, culture is seen as a holistic system, that is as an entity that permeates its sinews according to structured patterns of diffusion, then false visual representations or, more generally, the visual fake, must also be considered in ecological terms. The core challenge ahead is therefore to find a place for the iconic fake in the human ecology of meaning. Would a semiosphere without any visual fake be ideal? This sentiment is more and more present in an epoch where distorted representations of reality mushroom in all domains of public life

and hamper the correct course of human interactions. The comparison with the epidemiological framework, however, suggests a different angle.

While this essay is being written, the entire world is struck by the pandemic diffusion of a virus, “SARS-CoV-2”. It is natural and understandable that in such circumstances, people start dreaming about a “world without viruses”. Yet it is evident to specialists in virology that, despite advances in medicine and pharmaceuticals, such expulsion of viruses from the world is not only impossible but also undesirable. Viruses have been always part of the natural environment, constantly contributing to its ecological equilibrium. What is to be dreamt about, then, is not a world without viruses but a world in which humans can coexist with viruses in an acceptable equilibrium. As scientific literature in the field emphasizes, however, such an equilibrium, which has been lasting for millennia, is now being broken by the new technological advances that grant the human species an unprecedented expansion throughout the biosphere. The fake is the cultural equivalent of a virus. Indeed, during the pandemic, many commentators have started to use the word “infodemic” to refer to the uncontrolled and disconcerting diffusion of unreliable, unascertainable, and even, bluntly fake representation of the epidemic.

Nevertheless, dreaming of a world without fakes, where all false representations would be miraculously banned by a superior ethics of language, political control, or technological devices (from truth serums to polygraphs, from captcha tests to automatic fact checking) is as unrealistic as dreaming of nature without viruses. Nobody understood it better than Jonathan Swift in Book IV of *Gulliver’s Travels* (1726), which describes the fictional race of the Houyhnhnms, a breed of intelligent horses whose perfect rationality starkly contrasts with the beastly manners of the humanoid Yahoos. Houyhnhnms are endowed with a philosophy and, above all, with a language that is completely void of any political and ethical nonsense. Their language, for instance, does not contain any word for “lie” to the extent that, in order to refer to it, Houyhnhnms must use a circumlocution: “to say a thing that is not”. Eliminating all imperfection from thought and all ambiguity from language has long been a human dream. Umberto Eco and other scholars have retraced and analyzed this quest for the perfect language. Yet linguists, semioticians, and philosophers of language know that humans are capable of fake because they are capable of meaning. Only a meaningless society would eliminate any trace of the fake in the world.

Yet, here too, the analogy between fakes and viruses, between pandemics and infodemics, is useful again: rapid advances in the technology of digital and internet communication have enlarged the domain of the visual fake and altered its equilibrium with the areas of controllable, trust-

worthy meaning. The comparison between proper epidemiology and viral diffusion of the fake can be extended even farther. As it is suggested by scientific investigation, which is now part of common knowledge, most recent pandemics have resulted from a biological process known as “zoonosis”. This refers to the aggressive expansion of the human species throughout the planet, leading to atypical contact with other animal species that are hosts and vectors of viruses. Indeed, increased opportunities for “spillover” towards the human species ensue. Mutatis mutandis, it could be said that proliferation of meaning through new digital and internet communication technologies also produces a particular kind of spillover. Discursive domains that were heretofore separated come into close contact and blur, resulting in a “semionosis”, that is, the passage of the visual fake from the discursive domain of fiction to that of non-fictional communicative interaction. Science fiction directors have been imagining dystopic scenarios for decades; that has not jeopardized the functionality of the political arena but, on the contrary, has allowed citizens to comprehend even more vividly the social scenarios that they would prefer to avoid. The visual fake in this case, through fiction, is a helpful and effective communication about reality. In the post-truth world, however, fictions do not limit themselves to prefigure scenarios of what human beings might or might not wish for their future, but blur with non-fictional discursive genres, induce adhesion to their representation of reality and, consequently, contribute to the true realization of their imaginary prospects. Conspiracy theories, for instance, do not announce themselves as fictions about the possible dangers of a society that loses control over its pharmaceutical industry, but as accounts of these dangers in a society that already lost it. As subtle as the distinction might seem, its political effects are disruptive: It is one thing to subject such industry to opportune societal control, but another to consider all vaccinations as harmful products of speculation.

A new systemic understanding of the ecology of the visual fake in present-day technologically advanced societies can only be gained through an equally systemic approach, involving the cooperation among sciences, between sciences and humanities, with engineers, and with artists. State of the art gaps and even more importantly, lacunae in the current societal ‘handling’ of the visual fake, can only be filled through a comprehensive effort to fully understand the role of false representations in human cultures and their interaction with technological progress. On the one hand, that will be conducive to finding new ‘cultural vaccinations’, that is, short-term remedies that might be engineered through the targeted usage of artificial intelligence (for instance, new devices, apps, and algorithms for fact-checking). On the other hand, such short-term cures deal

only with the symptoms, not the underpinning pathogens of the proliferation of the visual fake in society. In the long term, it will be crucial to understand how the technological development in digital and internet communication has coalesced with other economic, infrastructural, and socio-cultural factors to progressively alter the human ecology of the visual fake, leading to uncontrollable spillovers of fictional depictions of reality into non-fictional visual genres.

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