

# Speculative Semiotics

Editorial; original article

Mattia Thibault  
Tampere University

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**Abstract:** This paper introduces the notion of speculative semiotics as a scientific project within the larger umbrella of speculative studies. The paper first provides a brief account of the projects of “nuclear semiotics” that investigated how to communicate across long periods of time. These efforts are then connected to the traditions of speculative design and design fiction, whose roots can be traced back to situationism and to Italian radical design. The synergy between semiotics and speculation is articulated around four main dimensions: communication with the future, communicating in the future, semiotics as a tool for speculation and speculation as an object of semiotics. To solidify its proposal, the paper presents a small semiotic speculation related to machine learning and image generation and an overview of the papers presented in this special issue. The conclusions reiterate the potential of this approach and outline a simple roadmap for the development of speculative semiotics.

**Keywords:** Speculative Research, Design Fiction, Nuclear Semiotics, Future Media, Machine Learning.

*It is very difficult to foretell what sensory prostheses will be at man's disposal in future decades and centuries, and one must further allow for the possibility (...) that “human interference” will be carried out only indirectly by man, through the mediation of programmed robots equipped perceptually by unpredictable bionic devices*  
Thomas Sebeok (1985)

## 1. INTRODUCTION: NUCLEAR SEMIOTICS & GEIGER COUNTER CATS

The “Human Interference Task Force” (HITF) was commissioned by the US Nuclear Regulatory Commission via the US Department of Energy in 1981. Its mission was to prepare a report exploring solutions to transmit information to the future. In particular, they had to imagine how to communicate the danger of nuclear waste storage sites over 10,000 years – the time needed for them to become innocuous. Designing a fail-safe way to communicate accurate information about the location and danger of such sites for 300 generations was not a trivial problem. Languages and means of communication evolve quickly,

and, in such a long period of time, civilizations can collapse, and new ones can be born.

The task force, which included several semioticians, finally devised a set of possible strategies and recommendations, later collected in a special issue of *Zeitschrift für Semiotik* in 1984. Scrolling through the special issue, a reader cannot avoid the sensation of be dealing with some sort of science fiction. Thomas A. Sebeok (1984, 1985) proposes the creation of artificial rituals and legends to be passed on from generation to generation and preserved by an “atomic priesthood” (a commission

of physicists, experts in radiation sickness, anthropologists, linguists and of course, semioticians). Stanislaw Lem (1984) also considers a biological option (using living, self-regenerating sign matter) and a physical one (involving precious metals). Vilmos Voigt (1984) imagined concentric displays in which the message would be reformulated for each new language stage. Philipp Sonntag (1984) envisaged the creation of an artificial warning moon in the sky.

Finally, Paolo Fabbri and Françoise Bastide (1984) famously proposed the creation of “ray cats”: pets that glow in the presence of radiation, working as biological indexical markers. A set of suitable proverbs and myths about the fact that their change in colour equals danger would also be artificially introduced.

While the theoretical part of the report was rather informative, none of these solutions were ever implemented – or probably even ever taken seriously into consideration – by the US Department of Energy. However, this does not detract from the ingenuity of the proposals, nor from the fact that they emerged – and provoked – serious pondering and critical thinking around the issue at hand.

I first heard of the “ray cat solution” several years ago, from my colleague and fellow semiotician Gabriele Marino. Always able to retrieve interesting and curious niche semiotic studies online, he told me about a surreal project by Paolo Fabbri and Françoise Bastide that involved colour-changing cats and artificially created myths. The Ray Cat or “Radiochat”, in French, had just started to gather some attention online, but the sole original trace of the project was an article in German – which neither of us could read. The project soon became a small meme among us, within the semiotic community and beyond (Marino, Thibault 2018). The word was already spreading,

and the “ray cat” soon inspired an award-winning documentary (by Benjamin Huguet, 2015), an “earworm” (“Don’t Change Color, Kitty” by Emperor X), a popular t-shirt for the fictional baseball team “Oakland Raycats” (by podcast website 99percentinvisible) and even some biohacker attempting to assess the actual feasibility of the project (Kevin Chen at Brico Bio).

The “ray cat solution”, however, is not a mere curiosity, a wacky and amusing exercise of imagination by two prominent intellectuals. It is indeed a curious idea, but one that stands at the crossroad of many interests of semiotics and communication studies in general. It is concerned, on the one side, about how to communicate *with* the future; how to create a message robust enough to travel across long periods of time and cultural changes. On the other hand, it is also an imagination of how to communicate *in* the future. Creating colour-changing cats was technologically impossible at the time of the writing. There is a speculative element in the project, an attempt to explore what modalities could be available for future communication.

The studies on nuclear semiotics – those made by the HITF in 1918, but also those behind the Finnish waste deposit site Onkalo (Ialenti 2020, see also the documentary *Into Eternity* by Michael Madsen, 2010) and by *Andra* in France (Mazzucchelli, Novello Paglianti, in this issue) – go beyond the investigation of a complex communication issue – that of communicating through time – but *push forward the frontiers of what we can do with semiotics*. While maybe impractical, these semiotic speculations were able to crystallize around them a series of communication issues and to address wider sociocultural and political areas (production of nuclear waste, information control, animal rights...). While they might not tell us the



Fig. 1 AI-generated image depicting a Ray Cat, created with Midjourney AI

“truth” about the future, they are able to explore its potential and reflect on the choices, technologies, and issues of the present. In a way, we can consider them as a form of speculative design *ante litteram*.

### 2. THE VALUE OF SPECULATION

In the last decade, there has been increasing academic attention to forms of future-oriented thinking that go beyond quantitative attempts to ascertain the likelihood of a future prediction and instead make use of creativity to explore focal or critical cultural phenomena both in their present and in their possible developments. While forms of forecasting continue to evolve, increasingly relying on machine learning (Masini et al. 2021), alternative ways of engaging with the future, although with very different purposes, are gaining strength and credibility.

The roots of these approaches can be traced back to the ideas of the Situationist International and its visions of the future that were not based on feasibility or opportunity, but instead focused on imagining utopian projects of liberation that questioned contemporary ideologies. Situationist Constant Nieuwenhuys, for example, imagined a city of the future: *New Babylon*. Critical but not pessimistic, his city uses technology to liberate citizens from labour, transforming them into playful *hominis ludens*. *New Babylon*, represented in paintings, sculptures and writings, is an everchanging space of endless free exploration, constructing a new, fuller way of being human. Such a city has never meant to be built. Nieuwenhuys uses it to contrast contemporary urban imaginary, and to glimpse into possible futures.

In the same years, a similar approach also stemmed from Italian Radical Design (Ambasz 1972). Discontent with the role of the designer in the capitalistic industrialised society, several members of the movement rejected design as a practice and focused, instead, on speculating about more or less possible and abstract utopian projects. In the crucial exhibition “Italy: The New Domestic Landscape”, at the MoMA of New York in 1972, some designers proposed radical speculative projects such as Enzo Mari’s “The Mediatory City” photo comic or Gruppo Strum’s exhibition presenting a “visual rendition of a critical attitude toward (or hope for) the activity of designing, understood as philosophical speculation, as a means to knowledge, as critical existence” (ibid.).

These approaches later expanded to industrial design and Human Computer Interaction (HCI), where they rapidly gained momentum and recognition. *Critical design* emerged as a way to rethink the practice beyond the exploration of technological possibilities and transform it in a tool for critically rethinking the role of electronic objects in everyday life (Dunne 1999). This movement from design towards fiction parallelly encountered an opposite one, from fiction to design. The term *Design Fiction* was coined by science fiction author Bruce Sterling in an attempt to reimagine the genre in a way that would sacrifice some of its grandeur to move “much closer to

the glowing heat of techno-social conflict” – that is, to go from science fiction to design fiction (Sterling 2005). The encounter of these two trends (critical design and design fiction) gave birth to what is generally called “speculative design”: a strategy that makes use of the languages of design to imagine future objects, structures, and situations as a means to both reflect critically on the present and its idiosyncrasies and to envisage possible future developments of current trends (Dunne, Raby 2013).

Since then, speculative design has encountered significant success, especially in HCI research. After an initial focus on *diegetic prototypes* – i.e. fictional props used to explore the possible uses and interactions with future objects (Kirby 2010) – speculative design has started to entail the creation of all sorts of textualities, be it related to consumerist culture, such as fictional catalogues (Brown et al. 2016), advertisement (Blythe, Encinas 2016) and user reviews (Baumer et al. 2018), or related to academic work, such as fictional abstracts (Blythe 2014), and even fictional academic papers – published in real journals (Lindley, Coulton 2015). This expansion of speculation to academic work has not been trivial and to avoid being treated as humorous or satirical academic articles (e.g., Upper 1974), much work has been done to cement its rigour (Blythe 2014) and develop adequate assessment tools (Baumer et al. 2020).

Following the example of design, other disciplines have started applying similar methods within their epistemological statutes. Anthropology, notably, has started to produce studies based on science fiction-oriented thinking under “speculative anthropology” (Whittington 2013; Wolf-Meyer 2019). Similarly, the term “*architecture fiction*” has been introduced as a parallel to “design fiction” to describe the creation and use of speculation in architecture (Varnelis 2011). To account for this widening of perspectives and the possibility of multidisciplinary speculations, some have introduced the term “speculative research” (Wilkie et al. 2017). Under this wide umbrella, I argue a *speculative semiotics* should also take place.

### 3. SEMIOTICS AND SPECULATION

Speculative semiotics is not entirely a neologism: this expression has been used (sporadically) to refer to Peirce’s “speculative rhetorics” (e.g., in Kevelson 1985; Theureau 2020), to a purely theoretical semiotic inquiry (de la Taille, 2000) or as the opposite of positive semiotics (Petitot 1985; Puech 2000). These uses, however, are arguably negligible, and here I propose to use the term to indicate future-oriented speculations marked by a critical approach that is either informed by semiotics as a discipline or has a strong focus on matters related to communication and meaning-making. In this way, speculative semiotics would sit next to speculative design and speculative anthropology, making similar use of the potential of speculation in a way adapted to the specificities of the discipline. The projects of nuclear semiotics illustrated above are perfect examples of what

speculative semiotic work can look like in terms of the themes they approach, the methods they deploy and the creative solutions they propose. While nuclear semiotics would be a subset of the speculative one, from these works, we can already see the emergence of two main dimensions, co-present but distinct, that are dominant in this perspective: the idea of communicating *with* the future and that of communication *in* the future.

The main concern of the projects of nuclear semiotics is creating signs or texts that will be legible and intelligible across long periods of time across cultures and languages. Many strategies have been proposed to cross the abyss of time, but still, communicating with the future seems an impossible, yet productive, task.

The interpretative challenges that the people from the future will face have also been humorously described by authors imagining future archaeologists attempting – and failing – to correctly interpret the traces of our civilisation. Umberto Eco in *Frammenti*, a piece from 1959 (published in Eco 1963), imagines a conference presentation of the future in which fictional Prof. Anouk Ooma, member of the human Arctic civilisation (sole survivor of a nuclear catastrophe), attempts to interpret a few fragments from an Italian pop music songbook as if they were sublime poetry. The systematic misinterpretations have a comic effect, but also open serious questions about our own archaeological and philological misunderstandings. Similarly, illustrator David Macaulay (1979) describes and depicts the humorous future archaeological interpretations of the objects commonly found in a Motel room by systematically misreading their contexts. The toilet, hence, becomes a “sacred urn” and the objects that surround it jewellery for a purification ritual.



Fig. 2 AI-generated image depicting a communication device from the future, created with Midjourney AI

It would be impossible, however, to imagine how to communicate with the future without also wondering

how communication will be *in* the future. Nuclear semiotics has grazed such topics, for example, wondering about the possible different sensory prostheses that future humans might use (Sebeok 1985), but many other examples of such endeavour exist, focusing on what different forms of communication might arise in the future. Linguists have been investigating the possible evolutions of today’s languages and their changing relationships (Ostler 2010), and science fiction is full of examples of imaginary creolisation, like the *Nadsat*, an English slang sprayed with Slavic words, invented by Anthony Burgess for his novel *A Clockwork Orange* (1962), or the Chinese loanwords used in the TV series *Firefly* (Joss Whedon 2002). In order to imagine the future of communication, we are also required to imagine what means of communication might exist in a distant future, including media (very often represented in fiction), but also radically new ways of sharing information, such as the possibility of direct communication via a neural connection to digital devices, explored both in sci-fi and in speculative design studies (Ferri 2016).

Semiotic speculation is not limited to communication with humans through time, but it can also involve communication with the Other – aliens, AIs, non-human animals and so on. Attempts to communicate with alien entities present similar issues and have been faced with similar semiotic-oriented speculations. The Arecibo radio transmissions, as well as the plaques and video discs placed on board satellites, were created focusing on model readers that are potentially very different from humans (Posner 1984) in the express attempt to convey messages as unambiguously as possible – while ensuring that the medium can survive the hardships of travel in outer space. Such issues can have a powerful grasp over imagination, and science fiction has also often investigated the challenges of human-alien communication, for example, in Michel Crichton’s novel *Sphere* (1987) or in Denis Villeneuve’s film *Arrival* (2016). Finally, entire fictional languages, or *conlangs*, have been invented and structured to explore how different species and cultures might communicate – such as the alien Klingon language created by linguist Mark Okrand (Okrent 2009; Okrand et al. 2011).

Speculative semiotics, however, can go beyond the two dimensions emerging from the HITF studies. A semiotically-informed take on speculation does not need to be restricted to speculating about communication. Semiotics as a discipline can be a means for speculation thanks to its models and analytical tools. Concepts from semiotics of culture like that of Lotman’s semiosphere or cultural explosions can be used to identify possible cultural mutations, while a sociosemiotic perspective can help look into the deep conflicts and contradictions within future societies. Biosemiotics and zoosemiotics can offer valuable perspectives for post-human or post-Anthropocene takes on the evolution of our societies. The goal would not be to attempt to predict “correctly” the future, but instead to use semiotically-informed speculation to

reflect on the present and on the possibilities that emerge from it. In fact, some strategies for future-oriented speculation are already based on semiotic theory. It is the case of *future signals*, a method based on looking for existing signs in the current cultural landscape that might indicate potential trends or avenues of evolution based on the Peircean triadic model of signs (Hiltunen 2008).

Finally, the analytical and self-reflective nature of semiotics invites yet another dimension: that of an analysis and a deconstruction of the different disciplinary discourses and approaches to the future, ranging from speculative design to future studies, futurology, and forecasting. Each of these disciplines constructs its object, method and practices in ways that are, unavoidably, ideological, as by creating predictive models, they have to realise and naturalise a set of historical, social, and political dynamics. Semiotics has dealt, in the past, with several ways of imagining and programming the future, ranging from fortune-telling (Aphex, Tobin 1989) to science fiction (Angenot 1979). The aforementioned success, in academia and beyond, of discourses aiming at the imagination, exploration and construction of futures is a fertile ground for semiotic analysis that, by looking into the different texts they produce, can offer precious insights about the strategies, values and ideologies that stand behind them.

Through these examples, we have seen that speculative semiotics is a term that can be used to describe and gather existing studies, approaches, and fiction. This can allow us to see their commonalities, but also to map and categorise them – to systematise the strategies, perspective and themes that characterise them.

However, I do not wish to imagine speculative semiotics as a merely a descriptive concept, but instead to propose it as a scientific project aiming to explore the possible synergies between semiotics and speculative research. On the one hand, semiotics can benefit from the breadth and creativity that pervade speculative design and put them to use to explore both current and future issues at the core of its epistemological interest. On the other hand, speculative research can profit from the methodology of semiotics to engage in a less naïve way the crucial topic of future communication. This editorial and this special issue aim exactly at kickstarting such a project.

#### 4. THINK OUTSIDE OF THE BLACK BOX

To substantiate and exemplify my proposal, I will present here a small semiotic speculation organised around a much popular topic at the moment of writing: that of machine creativity (Das, Varshney 2022). There are several ways of realising a speculative artifact, for example, by involving participants in a workshop (Blythe et al. 2016) or

a co-design session (Ambe et al. 2019), by exploring systematically a specific issue and its dimensions (Thibault et al. 2020), by the individual creative efforts of the author (Ylipulli et al. 2016), and so on. Here, I will follow a simple procedure articulated around four steps.

First, I take as a starting point a current phenomenon. As mentioned above, machine creativity is currently a hot topic, thanks to the success of machine learning artificial intelligence that uses transformer models to realise high-quality images starting from textual prompts. AIs such as Midjourney and Dall-E have quickly gathered millions of users, and images generated by them (e.g., Fig. 1 and 2) are being circulated in social media and used for all sorts of projects – one was even used as a cover for *Cosmopolitan* (the “AI issue” in June 2022). The user experience is rather straightforward: users have to decide on a textual prompt in which they describe what they want to see featured in the picture, as well as the style (e.g., pastel colours, realistic photograph, painting by Magritte, etc.) and possibly some technical characteristics (ration, saturation, and so on)<sup>1</sup>. The AI generates several different images, and the users can choose to create variants of them or to upscale them. This machine-mediated authorial practice requires some effort from the users (creating and testing different prompts and choosing the images and variants) while much of the process is performed by the AI as within a black box (Latour 1999) – at least for most users.

It is easy to understand why this phenomenon can be an interesting base for small semiotic speculation: it makes use of cutting-edge technology, it is gaining a lot of attention, and it is deeply embedded in several issues that are of semiotic concern, such as authorship, creativity, and issues of translation between visual and textual codes (as it works as a sort of reversed *ekphrasis*).

Second, we can try to push the speculation forward into the future, to imagine its possible evolution. Here, the objective is not to attempt to predict the future, but to explore its potential. What we do is to advance a conjecture – which Zingale (in this volume) frames as a form of abduction – about a possible future state. There is no limit to how far we can push it – some design fiction artefacts can be from a thousand years in the future (Thibault 2018) – but in this case, a short-term speculation could be the most indicated, as we are dealing with a technology that already exists. If we try to anticipate what the situation of machine creativity could be, say, seven years from now, we can imagine a technology that is much more accessible and accepted than it is today. No waiting lists to be able to use such AIs, users will be able to access them at any time and ask for any image. The availability of such technology would also entail a series of related services: AIs could create slideshows starting from simple texts, or comics based on some image

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1 Sa a concrete example, the prompt behind the Fig. 1 was: “a radioactive glowing green cat in a post-apocalyptic wasteland hyperrealistic” and the one for Fig. 2: “a small communication device from the future. techno-organic, clean, hi-tech, cyber. Photorealistic picture.”

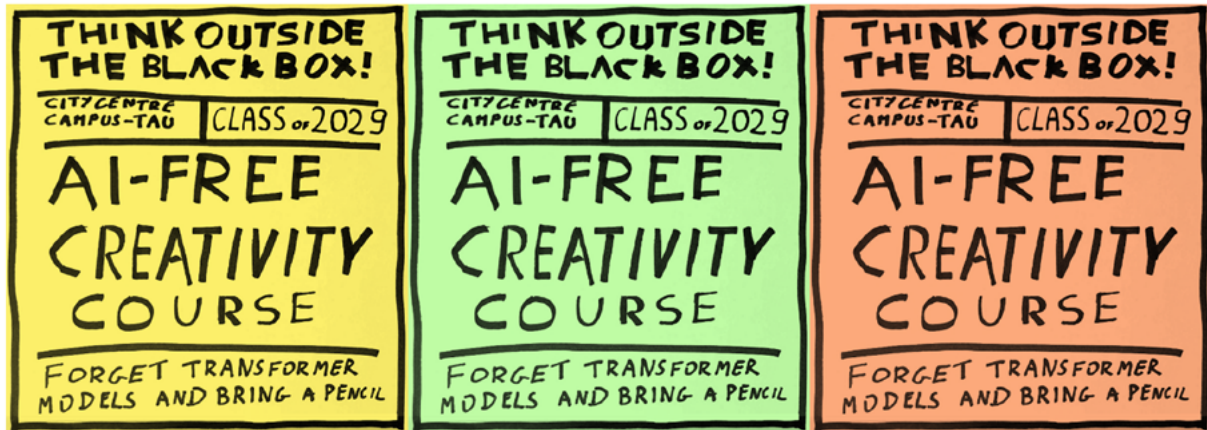


Fig. 3 Speculative posters from the near future

descriptions and dialogue lines. Artists could use it to create renditions of famous poems, singers to illustrate their songs in real-time during a concert and so on. The ability to write the “right prompts” will also become a precious skill, similarly to how today it is important to know what to type in a search engine.

The third step is identifying the techno-social conflict (Sterling 2005) that will emerge from such development. The ethical issues related to machine learning are well-known and widely discussed. Primarily, many issues arise from the inherent bias of the data to the machine: the AI will replicate the bias they contain, for example, in terms of racist or misogynistic content (Kordzadeh, Ghasemaghahi 2022). Another major issue strongly related to the creation of digital images is their potential to portray, sometimes in a realistic fashion, existing people. Such an issue, already discussed for the so-called “deep-fake videos” (AI generated videos able to realistically replicate the features of one individual), has repercussions inherent to the right to privacy and on the ownership of one’s own appearance (Santangelo 2022). However, these issues are not necessarily new, so they might not be best suited for the current speculation.

I chose instead, to focus on another issue: that of creativity. While the latter is often an ill-defined characteristic, it would be hard to argue that normalisation and diffusion of machine creativity would not influence its users. But will AI-based image generation help or hinder human creativity? I will not argue here for any position, but it is safe to assume that this very issue will be at the centre of heated discussions in the years to come. As it happens for many technological developments, also this one is likely to encounter the two types of reaction that Eco (1973) names “enthusiastic” and “apocalyptic”. The enthusiasts, on one side, will claim that AI is an incomparable help to human creativity, allowing people with no drawing skills to finally visualise their ideas. They will claim that being able to operate the AIs correctly will be a creative act in itself, and that digital tools like photoshop were similarly accused of harming creativity and skill. On the other side, the apocalyptics will argue that AI brings standardisation of the imaginary and greatly limits

the aesthetic and imaginative potential of people. They will argue that they will become catalysts of the atrophy of many skills, and that the black box within which lays machine creativity will take away much of the power and independence from their users. Both sides of the debate, as it is usual, will form strong ideological oppositions and give birth to phenomena of elitism.

The last step, now that we have identified our conflict, is to crystallise it into some textual artifact. The latter could be a diegetic prototype, a short narrative, a fictional academic abstract, and advertisement and more. I have decided to realise a rather simple artifact: a hand-drawn poster advertising an “AI-free creativity course” in the campus of a future university (Fig 3).

The poster attempts to precipitate several of the elements of our conflict in a simple text, leaving much of the interpretative work to its reader. The punk and DIY aesthetics suggest a fetishization of the analogue in response to the digitalisation of art. The invitation to “think outside the back box” frames the question as one of independence and free will through a rhetoric of liberation. Finally, the injunction to “forget the transformer models and bring a pencil” establishes a clear relation with the technology behind image-generating AIs – and suggests a somewhat superior attitude towards those using it. The final product of a speculation is meant to contain and showcase the key sociotechnical – and semiotic – issue of choice by opening a window on a possible future. The reader of the poster is invited on an interpretative journey where, starting from the text, they need to infer a context and an entire possible world around it.

## 5. SCOUTING THE FIELD

The papers presented in this special issue provide a valuable look into the different facets of speculative semiotics. The contributions related to the fields of semiotics and linguistics, as well as from speculative design and anthropology, paint the picture of a rich multidisciplinary area that this issue can only start to chart.

The first two papers propose methodological contributions on how to apply speculative semiotics in practice.

Zingale adventures beyond the borders of the text to investigate how we can interpret the possible. His work aims to bridge the traditional procedures of semiotics and speculative design and finds its key element in the Peircean concept of abduction. Zingale describes three possible types of abduction, among which a *projective abduction* is framed as a mental stratagem that allows to imagine different states of things – and that is then necessary for all project activity. At its heart stands a mediating image, to be interpreted, transformed, and reworked to arrive at a final epiphany.

On the other hand, *Mazzucchelli and Novello Paglianti* recount their recent engagements with the continuing issues of nuclear semiotics, as part of the “Project Memory”, conducted by the French Agency for the Management of Nuclear Waste, Andra. The authors propose a typology of possible approaches and combine semiotic approaches to space and to memory to explore with a fresh look the issue, and its possible solutions. The one they chose, the use of art as an instrument of memory, selected through a competition, is crystallised around the three winning projects.

The next three papers all propose new perspectives to focus on expanding the reach and perspectives of semiotics and biosemiotics in the attempt to communicate with the other, or to be able to grasp radically different forms of communication. Zengiaro proposes the constitution of a *physiosemitics* as a successor of biosemiotics. Exploring the possibilities of a semiotics of the inorganic world the author investigates the theoretical and methodological innovations that would be needed for the study of communication with – and within – matter.

*Tenti* as well proposes an expansion of semiotics into a *xenosemiotics* and speculates about the possibility of communicating with radically different organisms. A fascinating contamination between principles of xenobiology and of biosemiotics, this new branch of the discipline would study the possibility of exchanging information with extra-terrestrial life forms – and would entail a partial rethinking of the more “anthropomorphic” features of traditional semiotics.

Finally, *Voto, Martin-Iglesias and Agra*, present a theoretical and terminological effort to engage with ideologies and conceptions of time different from the ones brought about by modernity. In particular, the paper explores the non-linear representations of the future in Latin American science fiction in the context of what they define as *xenofuturism*.

The last three papers of the issue engage with actual semiotic speculations. *Bertetti* engages the possible languages of the future in relation to the (in)famous Sapir-Whorf hypothesis. In particular, the author compares and contrasts two novels in which entire societies are reshaped by the methodical rehash of the language: Jack Vance’s *The Languages of Pao* and Suzette Haden Elgin’s *Mother Tongue*.

*Dos Santos Bustamante* explores the synergies between the religious realm and computational-based

entities with the aid of two short speculations that delve deep into the topic and crystallise around them the main tensions between the technical and the supernatural.

Finally, *Giuliana* reports a conference presentation from the future, in which the speaker describes the controversial technology of the *simulatron* – virtual reality for people put in storage to fight overpopulation. Through this semiotic speculation, the author engages themes related to the possibility of linguistic and gestural communication in virtual worlds today and in the possible future.

## 6. CONCLUSIONS

With this paper, we have aimed both to illustrate the potential of semiotic speculation and to initiate a discussion around a scientific project to explore and make use of such potential. If the problems of nuclear semiotics are a limited field of application for semiotic speculation, they have the merit to show the multifaced proposes that semiotics can have for speculative research, by delineating objects of study, offering design solutions, proposing theoretical and methodological frameworks, and providing a meta-level of self-awareness and self-study. The papers collected in this issue contribute to this argument, but showcase the variety of possible approaches in theme, perspective, and methodologies.

Nevertheless, this is only the very first step in a long road necessary to establishing speculative semiotics as a recognised part of the discipline. The next steps of our roadmap will have to include, first of all, the initiation of a multidisciplinary dialogue between semiotics and speculative design and anthropology. Second, semiotics will need to develop its own methodology for creating speculation around issues related to its epistemology. If many methods of design speculation already exist, we need to adapt them – or to develop new ones – that work with the specific methodologies of the discipline. Third, it will be necessary to explore which concepts grounded semiotic theory can be useful for speculations about the future. In this paper I have used, for example, Eco’s ideas of enthusiasts and apocalyptics to describe the opposing camps in future discussions about new technologies. This is only one of the many concepts from semiotic theory that can be used to support how we imagine future developments. Finally, it will be important to reach and maintain a level of self-awareness by investigating the ideological sides of speculative research and of speculative semiotics itself.

This simple roadmap is itself, an attempt to program the future: to draw some firm points in its uncharted territory to guide my work and that of those joining this enterprise. If this adventure will be successful, only time can tell.

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