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Bruno Latour's Second Theory of Cosmopolitics and the *Star Trek* Cosmogram

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Abstract

In the last 30 years, a body of scholarly works has emerged to account for a new form of politics known as “cosmopolitics”. Bruno Latour is one exponent with his compositionist theory, masterfully developed in *Politics of Nature*, which defines politics as reality fabrication and emphasises the capture of politics by science since the Greeks. A few years later, Latour decided to revisit his theorisation of cosmopolitics using the notion of cosmograms, a specific type of imaginaries, but in rather idiosyncratic manner. Although still claiming to be studying the politics/science interface, his second theory of cosmopolitics appears to break from compositionism in stripping science from its unique political function, and lacks internal consistency. To illustrate and flesh out this new theory, Latour picks the case of astronomy's discovery of exoplanets. Unfortunately, when taken in its stringent definition and applied to exoplanets, the notion of cosmogram makes his case crumble. If one chooses to study politics in terms of imaginaries as Latour does in his second theory of cosmopolitics, then science fiction appears to have more political traction than science, as exemplified by the *Star Trek* cosmogram.

1. Introduction

One major advance of 20th-century political theory is the exploration of the politics/science interface.¹ It has even resulted in the crafting of full-blown *political theories of science* by scholars such as Hannah Arendt², Herbert Marcuse³, or Bruno Latour⁴. The latter has been

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1. See for instance Jürgen Habermas, *Towards a Rational Society. Student Protest, Science, and Politics*, trans. Jeremy J. Shapiro, Boston, Beacon Press, 1970 [1968/1969]; Martin Heidegger, *The Question Concerning Technology and Other Essays*, trans. William Lovitt, New York, Harper Perennial, 1977 [*Die Frage nach der Technik. Vorträge und Aufsätze*, 1954]; Harold Lasswell, “The Political Science of Science: An Inquiry into the Possible Reconciliation of Mastery and Freedom”, *American Political Science Review*, vol. 50, n° 4, 1956, p. 961-979; Carl Schmitt, “L'ère des neutralisations et des dépolitisations”, in *La notion de politique – Théorie du partisan*, trans. Marie-Louise Steinhauser, Paris, Calmann-Levy, 1972 [*Der Begriff des Politischen*, 1932], p. 131-153.
 2. Hannah Arendt, “The Conquest of Space and the Stature of Man”, *New Atlantis*, n° 18, 2007, p. 43-55 [1963]; *The Human Condition*, Chicago, University of Chicago Press, 1998 [1958]; “The Concept of History. Ancient and Modern”, in *Between Past and Future. Eight Exercises in Political Thought*, New York, Viking Press, 1968 [1961], p. 41-90. For an explanation of Arendt's political theory of science, see Eve Seguin, “Political Philosophy of Science. From Cosmos to Power”, in Peter Gratton and Yasemine Sari (eds), *The Bloomsbury Companion to Hannah Arendt*, New York, Bloomsbury, 2021, p. 612-628.
 3. Herbert Marcuse, *One-Dimensional Man*, Boston, Beacon Press, 1964.
 4. Bruno Latour, “Give me a Laboratory and I will Raise the World”, in Karin Knorr and Michael Mulkay (eds), *Science Observed: Perspectives on the Social Study of Science*, Los Angeles, Sage, 1983, p. 141-170; *The Pasteurization of France*, trans. Alan Sheridan and John Law, Cambridge MA, Harvard University Press, 1988 [*Les microbes. Guerre et paix*, 1984]; “The Impact of Science Studies on Political Philosophy”, *Science, Technology & Human Values*, vol. 16, n° 1, 1991, p. 3-19; *Politiques de la nature. Comment faire entrer les sciences en démocratie*. Paris, La Découverte, 1999.

especially productive on this front since several theories of the politicity of science can be identified in his oeuvre.⁵

In the last 30 years, a body of scholarly works has emerged to account for a new form of politics known as “cosmopolitics”. In Part 2, we review the origins of this notion, show that Isabelle Stengers launched the trend and that Bruno Latour soon followed up with his genius compositionist theory, masterfully developed in *Politics of Nature* initially published in 1999. Compositionism qualifies as an ontological theory of politics since it defines politics as reality fabrication and emphasises the capture of politics by experts since the Greeks. In compositionist theory, cosmopolitics designates the form of politics associated with risk society. The new nonhumans introduced by science in the collective have negative effects, they clash with one another, and produce chaos. Climate change threatens the economy, batrachians upset highways. Adding insult to injury, every scientific pronouncement is being challenged. Thanks to cosmopolitics, the collective is now learning to decide the fate of these new nonhumans, to compose reality according to due process. That is, it is moving from the absolutist regime of science to a state of law of nature, or a republic of things.

A few years after *Politics of Nature*, Latour decided to revisit his theorisation of cosmopolitics, which is the object of Part 3. Latour draws upon the framework devised by historian of science John Tresch for the study of cosmograms. Although he does not acknowledge it, Tresch’s work has much in common with the sociology of imaginaries and cosmograms appear to be a specific type of imaginaries. Already this gives us a sense of the distance that separates the compositionist theory of cosmopolitics from Latour’s second theory, which we call “cosmogramatised cosmopolitics”. One of our aims is to show how this theory is undermined by several shortcomings. Perhaps the most severe is that the theorisation of science as a key political player appears velleitary. In other words, Latour claims he is still in the business of proving that science and politics go hand in hand but his second theory is not up to the task and only succeeds in eradicating the very foundation of compositionism, that is, the idea that *politics is science*.

To illustrate and flesh out his new theory, Latour picks two examples, a biomedical blood test and astronomy’s exoplanets, which we scrutinise in Part 3. We show that the blood test confirms the brake of his second theory from compositionism, brings to light its failure to properly grant science a crucial political function, and reveals its betrayal of Tresch’s approach. In Part 4, we use the notion of cosmogram properly understood and turn the exoplanet case against Latour. The result is dramatic insofar as the political theorisation of science is concerned. Our claim is that if one chooses to study politics in terms of imaginaries as does Latour in his second theory of cosmopolitics, then science fiction may turn out to have more political traction than science.

5. For inventories of Latour’s theories, see Eve Seguin and Laurent-Olivier Lord, “Bruno Latour’s *Science Is Politics By Other Means*. Between Politics and Ontology”, *Perspectives on Science*, vol. 31, n° 1, 2023, p. 9-39; Niels van Dijk, “Constitutional Ecology of Practices. Bringing Law, Robots and Epigrams into Latourian Cosmopolitics”, *Perspectives on Science*, vol. 31, n° 1, 2023, p. 159-185.

2. Cosmopolitics

The notion of cosmopolitics is routinely put in relation with, and presented as the successor of, cosmopolitanism.⁶ In 1997, prompted by the infamous science wars that were raging following Alan Sokal's hoax, Isabelle Stengers published an ambitious seven-volume work of *intellectual*, rather than social, history of science, as noted by Kochan.⁷ The title she picked was *Cosmopolitics*. Stengers wants to provide a description that does not share the ironic stance she detects in many sociological writings on science. Her aim is to create "an ecology of practices", which entails that modern physics and its grasp of reality should be able to live in harmony with other practices, notably African traditional knowledge.⁸ Stengers' cosmopolitical project turns out to have much in common, for better or worse, with postcolonial studies.

2.1. Bruno Latour's Cosmopolitics

In 1999, Latour borrowed the term "cosmopolitics" from Stengers and devised his own theorisation of it in *Politics of Nature*⁹. The book offers an ontological theory of politics called compositionism¹⁰, and a prescriptive description of cosmopolitics. To understand Latour's own brand of cosmopolitics, one must unravel the brilliant theorisation carried out in *Politics of Nature*, where compositionism is comprised of three layers.¹¹ The deepest one, overlooked by Latour's disciples, is definitely its main contribution. Speaking to political theory, its scope extends to Plato's epistemology and philosopher-king, which epitomise the power that science and scientific experts later gained in modernity. Compositionism can be summarised by the statement "politics is science", and this is true in the whole of modernity, not just in our cosmopolitical times.¹²

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6. For a discussion of the philosophical tradition of cosmopolitanism and its relation to cosmopolitics, see Jacques Lolive, "Les nouveaux enjeux cosmopolitiques", in Maria Rostekova and Serge Dufoulon (eds), *Migrations, mobilités, frontières & voisinages*, Paris, L'Harmattan, 2011, p. 125-138; Jacques Lolive and Olivier Soubeyran, "Cosmopolitiques : ouvrir la réflexion", in Idem (eds), *L'émergence des cosmopolitiques*, Paris, La Découverte, 2007, p. 9-44; Matthew Watson, "Derrida, Stengers, Latour, and Subalternist Cosmopolitics", *Theory, Culture & Society*, vol. 31, n° 1, 2014, p. 75-98.
 7. Jeff Kochan, "Review of *Cosmopolitics I*", *Isis*, vol. 102, n° 3, 2011, p. 594-595. In English, Stengers' first three books are gathered in Isabelle Stengers, *Cosmopolitics I*, trans. Robert Bononno, Minneapolis, University of Minnesota Press, 2010 [*Cosmopolitiques 1-3*, 1997] and the last four in *Cosmopolitics II*, trans. Robert Bononno, Minneapolis, University of Minnesota Press, 2011 [*Cosmopolitiques 4-7*, 1997].
 8. Isabelle Stengers, *Cosmopolitics II*, *op. cit.*
 9. Bruno Latour, *Politics of Nature. How to Bring the Sciences into Democracy*, trans. Catherine Porter, Cambridge MA, Harvard University Press, 2004 [*Politiques de la nature. Comment faire entrer les sciences en démocratie*, 1999].
 10. Bruno Latour, "An Attempt at a 'Compositionist Manifesto'", *New Literary History*, vol. 41, n° 3, 2010, p. 471-490; "Politics of Nature: East and West Perspectives", *Ethics & Global Politics*, vol. 4, n° 1, 2011, p. 71-80; Eve Seguin, "Un monde commun d'Arendt à Latour ?", *Symposium*, vol. 22, n° 2, 2018, p. 1-26; Eve Seguin and Laurent-Olivier Lord, "Bruno Latour's *Science Is Politics By Other Means*", art. cit.
 11. For a graphic representation of multilayered compositionism, see Figure 1 in Eve Seguin and Laurent-Olivier Lord, "Bruno Latour's *Science Is Politics By Other Means*", art. cit.
 12. *Ibid.*

In compositionism, science derives its politicity from its capacity to fabricate reality, to determine, as Latour nicely puts it, what the “furnishings of the world” are.¹³ Nowadays, this equates with the speedy and surreptitious introduction of endless numbers of new entities, an anarchic exercise that ends up in an ever-expanding reality that disrupts the collective. Until the emergence of risk society around 1970, this state of affairs was legitimised by the “modernist Constitution” rooted in Plato’s (political) epistemology, which cuts off science from anything social or even human. The modern Constitution divides public life in two houses that hold two powers, politics and science. The latter is the preserve of facts and gets the upper hand since its jurisdiction covers the whole of “Nature”, that is, reality or things out there. In contrast, politics cannot get involved in the determination of facts and merely struggles with values. It is left with very little to deal with, namely, human passions, interests, and power. Scientific experts are the only actors allowed to move between the two houses. Despite their disagreements, they impose in one voice to the house of politics undisputable truths. Being the instance that fabricates the entities that make up reality, science is the political endeavour par excellence but the modern Constitution and its ideologues fiercely deny it.

In compositionist theory, cosmopolitics refers to the politics carried out by public health, consumer or environmental movements in contemporary risk society. Through the acknowledgement that science has always been an illegitimate power because the emergence of new nonhumans in the collective was not carried out according to due process, this new form of political practice enacts “politics is science...by other means”.¹⁴ Indeed, cosmopolitics turns the tide, overthrows the modern Constitution, and sets up the rule of law of nature. Cosmopolitics “...extends to nonhumans the right to be duly represented, it *institutionalizes* them by means of explicit procedures”.¹⁵ Latour defines cosmopolitics as “the progressive composition of the common world”.

The most salient feature of the new cosmopolitical Constitution is a new bicameralism that replaces the two traditional powers, politics and science, by the power to take into account and the power to put in order, each made up of two tasks: perplexity/consultation and hierarchy/institution.¹⁶ Another vital feature of cosmopolitics is the disentanglement of facts and values and the reshuffling of their age-old separation. The new bicameralism openly fuses what things are and what people want, it makes for the fabrication of what we could call *desired facts*. Significantly, the performing of the above four tasks is no longer drawn along the modernist distinction between scientists and non-scientists. Rather, all four are jointly performed by scientists, politicians, economists, and moralists.¹⁷ It follows that scientists lose their monopoly over the fabrication of reality but, in return, they may now legi-

13. Modeled on “scientificity,” the term “politicity” designates the intrinsically political nature of a phenomenon. See Nicolas Tenzer, *La Politique*, Paris, PUF, 1991, p. 108.

14. For explorations of Latour’s original phrase, see Eve Seguin and Dominique Vinck (eds), *Perspectives on Science*, vol. 31, n° 1, *Science Is Politics By Other Means Revisited*, 2023.

15. Eve Seguin and Laurent-Olivier Lord, “Bruno Latour’s *Science Is Politics By Other Means*”, art. cit., p. 27.

16. For a detailed explanation of the new bicameralism, see *ibid*.

17. We leave aside bureaucrats and “diplomats” who are not directly relevant for our demonstration.

timately address moral questions and act on incentives that extend beyond their disciplinary confines. Finally, cosmopolitics is placed under the cloud of uncertainty. The connections of nonhumans and humans in a single collective are multiple and complex; facts are located on a factuality scale and can move towards or away from institution; nonhumans generate unintended consequences; it is unclear which entities should be treated as means and which as ends; scientific controversies multiply; excluded entities can appeal the collective's decision. By consequence, the composition of the common world is an iterative process, and the totality is always provisional.

To appreciate both the genius of compositionism and the damage later inflicted by Latour to his own brand of cosmopolitics, one must take note of the absolute centrality of science and its materiality in it. The fabrication of reality is conditional upon scientific practice for it is the main source of perplexity, which is itself the foundation of the whole process of composition of the common world. As Latour explains: "The sciences will give perplexity the formidable asset of instruments and laboratories, which will allow it to detect scarcely visible phenomena very early (task no. 1)".¹⁸ There is no doubt that for Latour cosmopolitics aims at maximising the numbers of new nonhuman entities, as shown by the word "collective" he uses in replacement of "society".¹⁹ Compositionism is thus a western, we feel tempted to say modern, form of theorisation.²⁰ The universalist leaning of compositionism is already detectable in the very notion of a *common* world, and Latour is quite explicit that getting rid of the Western tradition, its material culture and universalism, is out of the question.²¹

The centrality of science is further confirmed by the fact that scientific controversy is the point of departure, both theoretical and historical, of cosmopolitics. Whereas scientific controversies have always accounted for the emergence and development of scientific disciplines but remained hidden behind laboratories' closed doors, in the past forty years controversies have entered the public domain and researchers no longer speak in one voice. The patchy character of scientific knowledge, the coexistence of multiple disciplinary and theoretical perspectives, and the ability of laypeople to carry out research and/or set up laboratories are contributing factors. Scientific controversy leads to another central feature of cosmopolitics: uncertainty which, according to Latour, is "...the inevitable ingredient of crises in the environment and in public health".²²

18. Bruno Latour, *Politics of Nature*, *op. cit.*, p. 137.

19. As is often the case in Latour's work, there is an underlying tension in his concept of "collective". On the one hand, the definition is perfectly adapted to Western society since, thanks to science and technology, it is the only society that tirelessly collects new entities and adds them to existing ones. On the other hand, despite such a definition, Latour calls all societies "collectives" – in the plural. See "Another Way to Compose the Common World", paper delivered at the AAA Annual Meeting, Chicago, 23 November 2013.

20. For an analysis of the attachment of Latour to modernity, see Jean-Louis Genard, "Bruno Latour, Modern Thinker", *Symposium*, vol. 22, n° 1, 2018, p. 102-121.

21. Bruno Latour, *Un monde pluriel mais commun. Entretiens avec François Ewald*, La Tour d'Aigues, l'Aube, 2003; *Politics of Nature*. *op. cit.*; "Politics of Nature", *art. cit.*; "Another Way to Compose the Common World", *art. cit.*

22. Bruno Latour, *Politics of Nature*, *op. cit.*, p. 63.

It follows that cosmopolitics imprints on public life a strong iterative and experimental component: "Up to now, under the modernist regime, experiments were undertaken, but among scientists alone; all the others, often in spite of themselves, became participants in an enterprise that they lacked the means to judge. We shall say, then, that the collective as a whole is defined from now on as collective experimentation."²³ Compositionism has been heavily influenced by John Dewey's conceptualisation of the state.²⁴ Unsurprisingly, and to come full circle, Dewey's experimental state is modeled on... science. Latour nicely frames cosmopolitics as "the historic experimentation of reason".²⁵

3. Latour's Revisiting of Cosmopolitics

A few years after the initial 1999 publication of *Politics of Nature*, presumably owing to the similarity of the "cosmo" prefix, Latour endeavoured to revisit *cosmopolitics* by means of the notion of *cosmogram* that historian of science John Tresch had just devised.²⁶ This manoeuvre was carried out in two phases, first in the English version of the book, and then in two papers devoted to the so-called trajectory of issues.²⁷ This enterprise is problematic for several reasons but before we explain why, a few words must be said of Tresch's analytical framework.

3.1. Cosmograms

Tresch reports that he was initially using the word "cosmology" to designate his object of study but decided to give it up when he came across "cosmogram" in a talk given by a sociologist of religion.²⁸ For him, one advantage of "cosmogram" over "cosmology" is to preclude confusion with cosmology, the branch of physics that studies the history of the physical universe.

One of Tresch's aims is to show that modernity has not replaced cosmologies, that is, worldviews, by an objective access to reality allegedly permitted by science: "We need to get past the idea that (...) with modern science we no longer deal in symbols."²⁹ He thus rejects both the absolutist view of science created by the 1940s historians who invented the scientific revolution, and the dystopian assessment of modern technology as the domain of detach-

23. *Ibid.*, p. 196.

24. Eve Seguin, "Pourquoi les exoplanètes sont-elles politiques ? Pragmatisme et politicalité des sciences dans l'œuvre de Bruno Latour", *Revue française de science politique*, vol. 65, n° 2, 2015, p. 279-302.

25. Bruno Latour, *Politics of Nature*, *op. cit.*, p. 94.

26. John Tresch, *Mechanical Romanticism: Engineers of the Artificial Paradise*, Ph.D. Thesis, University of Cambridge, 2001.

27. Bruno Latour, "Turning around Politics: A Note on Gerard de Vries' Paper", *Social Studies of Science*, vol. 37, n° 5, 2007, p. 811-820; "Pour un dialogue entre science politique et *science studies*", *Revue française de science politique*, vol. 58, n° 4, 2008, p. 657-678.

28. John Tresch, "Cosmogram", in Melik Ohanian and Jean-Christophe Royoux (eds), *Cosmograms*, New York, Lukas and Sternberg, 2005, p. 67-76.

29. *Ibid.*, p. 75.

ment, uniformity, and unrestrained exploitation epitomised by Heidegger's later work.³⁰ According to him, Newton's *Principia*, Diderot's *Encyclopedia*, Humboldt's *Cosmos*, and Darwin's *Origin* are all cosmologies. An important point he makes is that science and technology do not bring about a single cosmos that would be everywhere the same. Modernity is a space where a plurality of cosmograms from different places and eras coexist, circulate, are being modified, or replaced.

The meaning of "cosmogram" may look unstable since at one point Tresch oddly wonders "if there's anything that couldn't count as a cosmogram".³¹ To circumvent this problem, in the present paper we stick to the most stringent definition given by Tresch, and we will see below that Latour does not uphold this definition with consistency. We thus posit that cosmograms are "external depictions of the *elements of the cosmos* and the connections among them".³² Importantly, Tresch points out that cosmogrammatic representations are not limited to the here and now: they often bear upon the past or hint at the future. When orientated towards the future, cosmograms are not only descriptive but also prescriptive and performative. In a utopian fashion, they depict not only what exists but what ought to exist and they help bring about the world they envision.

Although he seems unaware of it, Tresch's work partakes in the sociology of imaginaries, a distinct yet diverse domain of scholarship pioneered by authors such as Mircea Eliade and Gilbert Durand.³³ The main contribution of this field is undoubtedly the discovery of the enduring significance of symbolism and mythology in modern society. Tresch's analysis of science is an exemplary instantiation of it. A very interesting and comprehensive conceptualisation is found in López, where imaginaries are broken down into four dimensions. Importantly, López and others stress their orientation towards the future: "Discursive representations not only "represent the world as it is (or rather as it is seen to be)", they also represent "possible worlds which are different from the actual world, and tied in to projects to change the world in particular directions".³⁴ Against this backdrop, cosmograms definitely appear as a form of imaginary. They are representations that grant meaning to the world, they guide action, they can be tuned to what does not yet exist and be prescriptive.

Cosmograms display two additional features that make them a specific form or subtype of imaginaries. Scholarship on imaginaries is deeply anthropocentric, like most social science, but the concept of cosmogram is intended to bypass the shortcomings of the notion

30. John Tresch, "Technological World-Pictures. Cosmic Things and Cosmograms", *Isis*, vol. 98, n° 1, 2007, p. 84-99; "Cosmologies Materialized: History of Science and History of Ideas", in Darrin McMahon and Samuel Moyn (eds), *Rethinking Modern European Intellectual History*, New York, Oxford University Press, 2014, p. 153-172.

31. John Tresch, "Cosmogram", art.cit., p. 74.

32. John Tresch, "Technological World-Pictures", art. cit., p. 84-99 (our emphasis).

33. There is a widespread tendency in Science & Technology Studies (STS) to claim novelty for ideas that have long been known in other social science disciplines. One striking example is Latour's trajectory of issues, which clearly emulates the policy cycle whose first instance was devised by political scientist Harold Lasswell in the 1950s. See Laurent-Olivier Lord and Eve Seguin, "Bruno Latour's Trajectory of Issues, or How Not to Make Politics Revolve around Science", MS in preparation.

34. José Julián López, *Human Rights as Political Imaginaries*, Basingstoke, Palgrave Macmillan, 2018, p. 53.

of cosmology upheld by cultural anthropology. For Tresch, the main problem is that understood simply as a worldview, a cosmology is not amenable to study because it is locked inside people's heads. Hence, he endeavours to study cosmologies in their materiality and defines cosmograms as *material worldviews* embodied in different types of artefacts: texts, images, objects, architectural forms, ritual gestures, practices.³⁵ The second trait that distinguishes cosmograms from other types of imaginaries is their scope. The sociology of imaginaries regards imaginaries as partial representations that account for some aspects of the world but not others. In contrast, cosmograms encompass the totality of the world. They are representations of the universe and proceed in the same fashion as inventories or maps. Tresch's forthcoming book titled *Cosmograms: How to Do Things with Worlds* is said to analyse "the history of natural knowledge through objects used to represent the universe".³⁶ The identification of extended, cosmic, worldviews is arguably his main contribution to the sociology of imaginaries. He has applied his approach to two cosmograms, Judaism and positivism, and shown that both materialise at once in textual, architectural, and practical formats.

One point that Tresch does not address is whether cosmograms are political in essence, which bears on our discussion in Part 4. Here is not the place for extended developments. For our purpose, we suggest that at least those meeting the two following restrictive criteria are political. The first is whether a cosmogram is prescriptive. The second is the one that López proposes for defining political imaginaries: "to the extent that an imaginary is concerned with describing and/or achieving determinate *forms of solidaristic collective life*, it can be called a political imaginary".³⁷ In the light of these criteria, Judaism and positivism seem to possess far greater political traction than, say, Newton's *Principia*.

3.2. The Cosmogramatisation of Cosmopolitics

Latour's cosmogramatisation of cosmopolitics was carried out in two phases. First, in the 2004 English version of *Politiques de la nature*, where it remains partial and does not really affect the theoretical power of compositionism and its radical redefinition of politics. Unfortunately, in the second phase it is brought to completion, as it were, and in our view is hugely detrimental to Latour's brilliant compositionist theory of the politicity of science.

This second phase takes place in a 2007 paper and, to a lesser extent, in a complementary 2008 paper. It is intended to better capture cosmopolitics, now embedded in a model called the trajectory of issues.³⁸ As we will see, with full cosmogramatisation one can speak of a "cosmodramatic" exercise for compositionism since the foundation of this ontological theory of politics – politics is science – is strangely pushed aside. In this 2007 paper, Latour gives two new definitions of cosmopolitics. The following one is of particular interest to us:

35. John Tresch, "Cosmogram", art. cit., p. 67.

36. See warburg.sas.ac.uk/people/professor-john-tresch. All online sources were last accessed in August 2023.

37. José Julián López, *Human Rights as Political Imaginaries*, op. cit., p. 53 (our emphasis).

38. From a political theory standpoint, this model is backsliding compared to the genius of compositionism. See Laurent-Olivier Lord and Eve Seguin, "Bruno Latour's Trajectory of Issues", art. cit.

Every new non-human entity brought into connection with humans modifies the collective and forces everyone to redefine all the various cosmograms. This is one of the new important meanings of the general term of cosmopolitics.³⁹

In the paper, Latour abundantly praises Science & Technology Studies for documenting that scientific artefacts such as vaccines, along with their producers, perform a kind of politics ignored by political science. In the 2008 complementary paper, not translated in English, he repeats a statement made in *Politics of Nature*: "depuis trois siècles mais chaque jour plus intensément, l'immense majorité [des nouveaux êtres] provient des *laboratoires*".⁴⁰ This may give the impression that his new theorisation is in keeping with his previous work. However, the cosmogramatised version makes no mention of reality construction as politics and no mention of the kidnapping of politics by science, which are the key components of compositionism.

Similarly, in the new definition of cosmopolitics, new nonhumans are *not* said to originate from science. Actually, nothing alludes to scientific practice. This strange invisibilisation is repeated in the Table that provides a graphic summary of his new theory.⁴¹ Just as in the new definition, there is no mention whatsoever of science, laboratories, researchers, or anything that might be reminiscent of scientific practice. One must *deduce* the scientific origin of the new nonhumans and cosmograms from the phrase "STS". At this point, the obvious conclusion is that the foundation of compositionism – politics is science – disappears altogether in the cosmogramatised exercise.

To illustrate his new theory and presumably make it look like it politically accommodates science, Latour uses two scientific examples that turn out to inadvertently make his case crumble. The first one is the implementation of a blood screening test for pregnant women studied by a philosopher engaged in an exchange with him. The examination of two statements made by Latour on this test will help delineate the ins and outs of his new theory. We can have a look at the first one:

a. The biomedical tests he [the philosopher] is following are 'political' in the sense that they produce new associations between humans and non humans (*like all activities*).⁴²

On the surface, this might look in accord with compositionism. Yet, compositionism holds that the nonhumans fabricated by science *are*, rather than produce, associations of humans and nonhumans: there is no virus without virologists. Furthermore, since each and every

39. Bruno Latour, "Turning around Politics: A Note on Gerard de Vries' Paper", *Social Studies of Science*, vol. 37, n° 5, 2007, p. 811-820, p. 816.

40. For the last three centuries, and at a pace that increases every day, the vast majority [of new beings] come from laboratories (our translation). Bruno Latour, "Pour un dialogue entre science politique et *science studies*", *Revue française de science politique*, vol. 58, n° 4, 2008, p. 657-678, p. 662. In *Politics of Nature* he says: "the nonhumans with which humans share their collective existence increasingly every day, thanks in large part to the work of laboratories" (*op. cit.*, p. 77-78).

41. Bruno Latour, "Turning around Politics", art. cit., p. 818.

42. *Ibid.*, p. 816 (our emphasis).

activity is said to produce new associations, at the *theoretical* level science is instantly deprived of its *unique* political character and aptitude to impact the collective. This presumably explains why the new definition of cosmopolitics makes no mention of it. The break from compositionism is further confirmed by the absence of scientific controversy stirred up by the blood test. Scientific uncertainty and clashes between experts had no role whatsoever in the issue, a crucial feature emphasised in the philosopher's original study: "Their [Groningen medical researchers] expertise was not questioned. The science they relied on was uncontroversial 'normal science'."⁴³

We can now turn to the second statement:

b. ...the blood screening affair is particularly telling: out of the lab came different associations (or propositions) on what it is for Dutch women of a certain age and status to have babies.⁴⁴

Here, Latour twists his compositionist concept of "proposition" to make it compatible with his new theory. In *Politics of Nature*, the term is taken in its ordinary sense of presenting something for consideration. A proposition is thus a nonhuman that proposes itself for admission into the collective. Latour defines it as "...an association of humans and nonhumans before it becomes a full-fledged member of the collective... To avoid repetition, I sometimes say 'entities' or 'things'...".⁴⁵ In statement b., however, "proposition" happens to be a fancy term that designates a rather familiar phenomenon: a view, interpretation, or opinion. Cosmopolitics is thus reframed as stance-taking. People primarily took position as to whether and how the test should be used and, unsurprisingly, opposing camps acted upon the divergent views they held.

This air of *deja vu* is also underlying the second new definition of cosmopolitics given by Latour, which speaks of "conflicting cosmograms" that must be "sorted out".⁴⁶ In this respect, he betrays Tresch who is quite clear that Western societies are a theatre where a variety of cosmograms coexist. There is no question of sorting them out. The cosmogramatised theory thus appears very close, if not identical, to political scientists' old-fashioned politics. And the fact that scientific topics can be contentious is in no way a distinctive mark of his cosmogramatised cosmopolitics since it is fully acknowledged by political science, as any public policy textbook will testify.

Statement b. also shows that Latour does not endorse Tresch's most stringent conceptualisation of "cosmogram" as he applies the notion to any kind of representation, leaving aside the reference to the whole cosmos. In effect, the views that resurfaced in relation to the triple blood test did not represent all the entities of the cosmos and their relations. They bore on a tiny part of the universe, that of human pregnancy. Hence, in our view they do not qualify as cosmograms, they are merely political positions taken on a limited issue.

43. Gerard de Vries, "What is Political in Sub-politics? How Aristotle Might Help STS", *Social Studies of Science*, vol. 37, n° 5, 2007, p. 781-809, p. 802.

44. Bruno Latour, "Turning around Politics", art. cit., p. 813.

45. Bruno Latour, *Politics of Nature*, op. cit., p. 247-248.

46. Bruno Latour, "Turning around Politics", art. cit., p. 813.

More worrying for Latour, the blood screening case actually runs *counter* to his very definition of cosmogramatised cosmopolitics because it shows that the so-called cosmograms associated to new nonhumans are not themselves necessarily new. The blood test has been read through the exact same perspectives as previous biomedical interventions in pregnancy: determination to reduce risks inherent in child-bearing vs refusal to turn a natural process into an illness. In his rejoinder to Latour's 2008 paper, political scientist Pierre Favre goes even further. Assuming that if they were to change or generate cosmograms new scientific entities should be widely known to people, Favre puts forward that the vast majority of nonhumans produced by science fail to bring about any representation or cosmogram because they remain unknown to most of us.⁴⁷

To illustrate his new theory of cosmopolitics, Latour uses a second example, the discovery of exoplanets by astronomy.⁴⁸ With this case he navigates yet more dangerous waters for it reduces to ashes his attempt to retain for science some substantial function in politics. More specifically, it raises the possibility that science may *not* be the source of the cosmograms attached to new scientific nonhumans.

Latour's analysis of exoplanetology is based on two premises. The first one is "the penetration of those planets in the design of our cosmograms".⁴⁹ What is the identity of the people who allegedly change their cosmograms to accommodate exoplanets? Are most people familiar with exoplanets PSO J318.5-22 or TOI-700e? Latour does not say. His second premise is that exoplanetology has radically changed our culture and worldviews: "we don't live in the same cosmos with or without other liveable planets".⁵⁰ Again, he does not say whose cosmos is being changed and his statement is little more than a truism since he makes no attempt to describe the new or modified cosmograms attached to these exoplanets.

This raises the question whether there is such thing as an "exoplanet cosmogram". Our claim is that exoplanets had already entered the collective and changed our worldview a quarter of a century *before* astronomers discovered the first exoplanetary system.⁵¹ We owe this achievement to science fictional series *Star Trek*.⁵² Clearly, one factor that accounts for the immense popularity of the show is Captain Kirk's sex appeal.⁵³ Yet, the underlying theme of the series is, of course, exoplanets. Whereas Stanley Kubrick's cult movie *2001: A Space Odyssey* reproduces (what used to be) astronomers' depiction of deep space as cold and

47. Pierre Favre, "Ce que les science studies font à la science politique. Réponse à Bruno Latour", *Revue française de science politique*, vol. 58, n° 5, 2008, p. 817-829.

48. Exoplanets are planets that orbit stars other than our sun.

49. Bruno Latour, "Turning around Politics", art. cit., p. 816.

50. *Ibid.*, p. 816. Planets that can sustain life are a small fraction of exoplanets.

51. The discovery was reported in Aleksander Wolszczan and Dale Frail, "A Planetary System Around the Millisecond Pulsar PSR1257+12", *Nature*, vol. 355, n° 6356, 1992, p. 145-147.

52. There have been 12 series and several movies in the *Star Trek* franchise. In this paper, we focus on The Original Series (1966-1969) and make very few mentions of the others. TOS has served as the template and has been rated n° 1 in the franchise. See Eric Diaz, "Every *Star Trek* Series, Ranked from Worst to Best", nerdist.com, 19 December 2022.

53. Henry Jenkins, "*Star Trek* Rerun, Reread, Rewritten. Fan Writing as Textual Poaching", *Critical Studies in Mass Communication*, vol. 5, n° 2, 1988, p. 85-107.

empty, “at every turn *Star Trek* is full of the presence of life in outer space”.⁵⁴ Indeed, the *raison d’être* of *Star Trek* is the encounter with life-sustaining planets and their inhabitants.

4. *Star Trek*, the Exoplanet Cosmogram

Star Trek is the object of an abundant academic production and for good reason. It is a very significant cultural product that conveys a range of meanings⁵⁵, and even contains a string of literary references.⁵⁶ Some scholars have analysed it as an allegory of our political order⁵⁷, or reflection of social trends⁵⁸, whilst others see it as an entirely imagined social world⁵⁹. More importantly for us, several researchers have analysed it as a religion or myth.⁶⁰ It is therefore no surprise that it perfectly fits Tresch’s stringent definition of a cosmogram. Dealing with the entities of the entire cosmos as framed by modern physics, *Star Trek* is perhaps the ultimate cosmogram. Just as Judaism and positivism analysed by Tresch, it materialises in three types of artefacts.

4.1. The Three Material Formats of the Cosmogram

Star Trek is primarily a media text concerned with the establishment of a unified and peaceful interstellar society. That is to say, it is centred on exoplanets and their politics, and offers a prescriptive description of a number of cosmic entities and their relations. In the 23rd century, where The Original Series is set, humans have achieved outstanding technical, political, and moral progress. A world has been built “where humanity has overcome its myopic inter-

54. Thomas Richards, *The Meaning of Star Trek*, New York, Doubleday, 1997, p. 10.

55. Judith Barad and Ed Robertson, *The Ethics of Star Trek*, New York, Harper Collins, 2000; Michele Barrett and Duncan Barrett, *Star Trek. The Human Frontier*, London, Routledge, 2017 [2001]; Karen Blair, *Meaning in Star Trek*, Chambersburgh, Anima, 1977; Lincoln Geraghty, *Living with Star Trek*, London, Tauris & Co, 2007; Anne Smith and Owen Smith, “Pragmatism and Meaning: Assessing the Message of *Star Trek*: The Original Series”, *Participations. Journal of Audience and Reception Studies*, vol. 8, n° 2, 2011, p. 74-84.

56. James Broderick, *The Literary Galaxy of Star Trek*, Jefferson, McFarland, 2006.

57. Bruce Franklin, “*Star Trek* in the Vietnam Era”, *Science Fiction Studies*, vol. 21, n° 1, 1994, p. 24-34; Thomas Richards, *The Meaning of Star Trek*, *op. cit.*; Jutta Weldes, “Going Cultural: *Star Trek*, State Action, and Popular Culture”, *Millennium. Journal of International Studies*, vol. 28, n° 1, 1999, p. 117-134.

58. K.M. Heath and A.S. Carlisle, *The Voyages of Star Trek: A Mirror on American Society Through Time*, Lanham, Rowman & Littlefield, 2020; David LoConto, *Social Movements and the Collective Identity of the Star Trek Fandom: Boldly Going Where No Fans Have Gone Before*, Lanham, Lexington Books, 2020.

59. Thomas Richards, *The Meaning of Star Trek*, *op. cit.*

60. Michael Jindra, “*Star Trek* Fandom as a Religious Phenomenon”, *Sociology of Religion*, vol. 55, n° 1, 1994, p. 27-51; “It’s About Faith in our Future. *Star Trek* Fandom as Cultural Religion”, in Bruce Forbes and Jeffrey Mahan (eds), *Religion and Popular Culture in America*, Oakland, University of California Press, 2000, p. 165-179; Darcee McLaren, “On the Edge of Forever: Understanding the *Star Trek* Phenomenon as Myth”, in Jennifer Porter and Darcee McLaren (eds), *Star Trek and Sacred Ground*, Albany, State University of New York Press, 1999, p. 231-243; Kevin Neece, *The Gospel According to Star Trek: The Original Crew*, Cambridge, Lutterworth Press, 2018; Charles Paikert, “Gene Roddenberry: American Mythmaker”, *Variety*, 2 December 1991; Jennifer Porter, “To Boldly Go: *Star Trek* Convention Attendance as Pilgrimage”, in Jennifer Porter and Darcee McLaren (eds), *Star Trek and Sacred Ground*, Albany, State University of New York Press, 1999, p. 245-270; Blake Tyrrell, “*Star Trek* as Myth and Television as Mythmaker”, *Journal of Popular Culture*, vol. 10, n° 4, 1977, p. 711-719; Daniel Zimmel, “Just a Television Show? The Myth of *Star Trek*”, 1998.

national and racial tensions and ventured out to explore the universe in peace".⁶¹ The underlying moral guideline of the cosmogram is the combination of unity and diversity. United under a democratic government, Earth possesses several interstellar outposts and has established colonies on previously inhabited exoplanets, such as Tarsus IV where Captain Kirk lived in his teens. Earth is part of an interstellar polity named the United Federation of Planets, an equally democratic structure that comprises over 150 planets, including the famous Vulcan. Allowing faster than light travel, warp drive appears as the most remarkable technology and is instrumental in bringing to life the exoplanet worldview. Far from being means of destruction and oppression, science and technology are depicted as vehicles to attain a perfect society. Capitalism has vanished since acts of buying and selling are never featured, with money being used only to establish contact with less advanced societies.⁶² Federation politics is founded on self-determination, prosperity, cooperation between civilisations, respect of minorities, mutual defence, exchange of knowledge and resources, diplomacy and, above all, peace-seeking. One of its purposes is to further the universal rights of all sentient life.⁶³ Whereas most science fiction depicts a gloomy future made of war, scarce resources, social dislocation and environmental degradation, *Star Trek* is animated by a deep faith in the future and the belief in boundless possibilities. There is widespread agreement among commentators that its optimism is the factor that appeals to viewers and incites fans to adhere to its worldview.

Starfleet is the deep space exploration and defence service of the Federation. Hundreds of solar systems have already been mapped within the Milky Way, which is populated by thousands of intelligent and politically organised species. On board the spaceship *Enterprise*, the mission of the Starfleet crew headed by Captain Kirk is to continue mapping the galaxy, to discover and index new worlds and new civilisations. According to chief medical officer Dr McCoy, there is a mathematical probability of three million Earth-type planets in it. The ship shares in the democratic culture of the Federation. Despite the hierarchic line, members of the *Enterprise* compose a democratic community that discusses at length the decisions to be made in special lounges.

Interstellar exploration is ruled by the Starfleet Command General Order 1, aka the Non-Interference Directive or the Prime Directive for short. Starfleet officers swear to uphold it, even at the cost of their own life or the lives of their crew. This rule prohibits intervention in the historical development of other cultures and civilisations. In this regard, it is a blatant disavowal of modern European colonialism, as well as of American imperialism. On this rule, Starfleet personnel should refrain from interfering in the natural development of societies, even if such interference is well-intentioned. The Prime Directive promotes respect for minorities and all forms of life and encourages cultural diversity.⁶⁴

61. Lawrence Krauss, *The Physics of Star Trek*, New York, Basic Books, 2007. p. xvi.

62. Bryn Glover, "Trekkie Politics", *New Scientist*, 15 July 2009.

63. See memory-alpha.fandom.com/wiki/United_Federation_of_Planets.

64. See memory-alpha.fandom.com/wiki/Prime_Directive.

The second principle that guides Starfleet action is the Vulcan pluralistic philosophy “infinite diversity in infinite combinations”, known as IDIC. It is the moral backbone of the cosmogram and was defined by *Star Trek* creator in the following way:

Infinite Diversity in Infinite Combinations represents a Vulcan belief that beauty, growth, progress - all result from the union of the unlike. Concord, as much as discord, requires the presence of at least two different notes. The brotherhood of man is an ideal based on learning to delight in our essential differences, as well as learning to recognise our similarities.⁶⁵

IDIC is represented by the bridge crew of the *Enterprise*, who are all different in races, psychological profiles, sexes, and opinions. Diversity extends to aliens in the person of science officer and second in command Mr Spock, a hybrid born from a human mother and Vulcan father. This indicates that IDIC is not only a prescription placed on the relations between humans but also applies to their relations with nonhumans. Natives of exoplanets are not treated as monsters but as aliens whose culture must be understood in order to construct a sense of familiarity.

It should not be concluded from our description that everything is rosy in *Star Trek*. Infringements on the Prime Directive are inevitable in some situations but ultimately the rejection of historical determinism prevails. Similarly, IDIC does not prevent tensions between the Federation and other civilisations such as the Klingon Empire, a society of warriors. Yet, in contrast to most science fiction texts, acceptance of diversity is highly valued, war is never glorified, and diplomacy is systematically presented as the option that should relentlessly be pursued. On the whole, the exoplanet worldview can be characterised as a techno-scientific interstellar socialist utopia.

The *Star Trek* worldview is also embodied in objects. One is the IDIC, a piece of Vulcan jewellery made of a triangle intersecting a circle, with a stone in the centre. Symbolising the IDIC philosophy, it is described as follows: “The circle can represent infinity, nature, woman, etc; the triangle can represent the finite, art (...) man, etc.”⁶⁶ Yet, the artefactual format par excellence of the cosmogram is its architectural embodiment in the spaceship *Enterprise*. If the original studio model is exhibited at the Smithsonian National Air and Space Museum in Washington, the command centre known as the bridge is invariably reconstructed at all *Star Trek* conventions. A number of individual initiatives have also been carried out, two of which are worth mentioning. One is the \$30 000 suite of rooms built by a Quebecer in the basement of her house, which includes the bridge, transporter room, recreation room, observation deck, and Mr Spock’s bedroom.⁶⁷ The other example is Chinese firm NetDragon Websoft’s headquarters, modelled after the *USS Enterprise NCC-1701-E* that appeared in three *Star Trek*

65. [fanlore.org/wiki/IDIC_\(glossary_term\)](http://fanlore.org/wiki/IDIC_(glossary_term)).

66. fanlore.org/w/images/1/13/Insidestartrek1-2.jpg.

67. For pictures and more details, see Alex Greig, “Ultimate Trekkie creates \$30,000 replica Starship Enterprise suite in basement”, *The Daily Mail*, 31 December 2013. Quebec and Star Trek have a special relationship because actor William Shatner, who impersonated Captain Kirk, was born and raised in Montreal.

movies. Built at a cost of 97 million dollars, it is a 260-meter long, 100-meter wide, six-floor building.⁶⁸

The *Enterprise* is an exploration and diplomacy ship thence a map of the galaxy with its four quadrants is displayed in the bridge. Its mission is inspired by the history of exploration on Earth. A crew lounge at the front contains several maritime relics and a steering wheel from a sailing vessel is engraved with the ship's motto "to boldly go where no man has gone before". Just as the tabernacle and the temple of humanity, the ship is a material inventory. It is an integrated set of all the technologies and knowledges needed to realise the worldview it promotes. It gathers computers, tricorders, replicators, a transporter, scanners, and the famous warp drive. The cosmogram is centred on encounters with exoplanets and as a means of transportation to foreign planets, the ship makes for in-person encounters. It also allows virtual exchanges thanks to the large screen in the bridge. The ship is the machinic symbol and means of connection between the Earth and exoplanets, and it prescribes the relations between humans and other life forms.

Finally, the exoplanet cosmogram is enacted in the practice of the Trekkers' movement.⁶⁹ Trekkers are distributed across 500 fan clubs in 20 countries. Their first significant action was a campaign to save the show when rumours spread that NBC wanted to cancel it after the second season. The network received 114 667 letters between December 1967 and March 1968, with some of them written by governors, mayors, and corporation executives.⁷⁰ In February 1968, fans marched on NBC headquarters in California and even picketed the Rockefeller Center in New York, something never done previously.⁷¹ When the show was cancelled after the third season, Trekkers endeavoured to maintain their worldview alive in the media and movie industry. They circulated the names and addresses of the heads of Paramount, now owner of the franchise, and flooded them with letters requesting new series and movies. In the 1970s, hundreds of letters were sent every month and this campaign lasted for years. According to Gerrold, "It was one of the most unusual occurrences in American television history. Never before had a TV series become even more popular after its cancellation."⁷²

4.2. The Trekkers' Movement

It is widely assumed that Trekkers are overwhelmingly White males, but nothing could be further from the truth. Females and Black people form a substantial contingent, with some of the most famous movement representatives being women.⁷³ A survey of over 5000 Trekkers carried out in 2010 showed that 43% are males and 57% are females. Women were heavily involved in the effort to save the show and spread its worldview across the globe.

68. For a picture and more details, see Yang Jie, "Chinese Firm's Headquarters Shaped Like 'Star Trek's' Enterprise", blogs.wsj.com, 25 May 2015.

69. Trekkie and Trekker both exist; the former is seen by some as a derogatory label.

70. See "A Look At Star Trek", www.tvobscurities.com, 1 September 2006.

71. Stephen Edward Poe, *A Vision of the Future*, New York, Simon & Schuster, 1998.

72. David Gerrold, *The World of Star Trek*, Dallas, BenBella Books, 2014, p. 11.

73. See memory-alpha.fandom.com/wiki/Trekkie.

Also, many women who have chosen careers in the military, science or medicine credit the show for their choice.⁷⁴ There even exists all-female, feminist, Trekkers' websites.⁷⁵

Trekkers spend substantial amounts of money on *Star Trek* materials. By 2000, over 2 billion dollars of merchandises had been sold, including books and computer games. Four million novels are sold annually.⁷⁶ In 2002, the co-founder of Microsoft paid \$300 000 for Captain Kirk's chair.⁷⁷ However, this is not the typical consumerist behaviour. Trekkers themselves produce thousands of novels, fanzines, art works, music, and films. In the Trekkers survey, 74% of respondents reported that art and fan fiction were activities of choice.⁷⁸ NASA participates in this collective endeavour. Space Shuttle and International Space Station crews routinely created Space Flight Awareness posters for their missions. Two of them displayed *Star Trek* motifs. A patch for the Window Observational Research Facility (WORF) on the ISS carries the Klingon translation of WORF.⁷⁹

Trekkers also own several websites such as TrekToday, which used to be hosted by a site that went by the politically evocative name TrekNation.⁸⁰ They partake in online discussion groups and forums such as Trek BBS, which has 20 000 registered users.⁸¹ They also meet face to face in their local communities. The biggest meeting opportunities are the conventions, a hundred of which are held annually, allowing the encounter of Trekkers from various countries and locations. Whilst 300 people were expected at the first convention in New York in 1972, 3000 showed up. Since then, conventions have been massive events gathering thousands of attendees. They take place mostly in the US but also in Europe and Japan. Several scholars regard them as pilgrimages involving different forms of ritual, for instance new holders of the cosmogram are baptised like newborns. At these conventions and in many other circumstances such as private theme parties, Trekkers have their picture taken or video recorded wearing *Star Trek* costumes. Outside the movement, this is often perceived as the neurotic behaviour of obsessive fans who can no longer tell reality from fiction. Yet, a better explanation is that behaving that way brings the cosmogram into reality. This will become clearer when we turn to the question of values. Again, NASA partakes in these dynamics. The STS-54 crew of the Space Shuttle Endeavour dressed as Starfleet officers, and so did the International Space Station Expedition 21 crew.⁸² Expedition head Captain Frank De Winne even requested to speak to the actor that impersonated Captain Jean-Luc Picard in the second *Star Trek* series.⁸³

74. Daryl Frazetti, "The Culture of Trek Fandom: Wouldn't You Like to Be a Trekkie Too?", academia.edu, 2010.

75. See for instance www.womenatwarp.com.

76. Lincoln Geraghty, *Living with Star Trek*, *op. cit.*

77. See Melissa McNamara, "Auction Is Final Star Trek Frontier", www.cbsnews.com, 28 September 2006.

78. Daryl Frazetti, "The Culture of Trek Fandom: Wouldn't You Like to Be a Trekkie Too?", *art. cit.*

79. See John Uri, "50 Years of NASA and Star Trek Connections", www.nasa.gov, 3 June 2019.

80. See www.trektoday.com.

81. See www.trekbbbs.com.

82. See John Uri, "50 Years of NASA and Star Trek Connections", *art. cit.*

83. See "Star Trek reunion: Thousands of Trekkies gather for TNG cast's first public get-together", nationalpost.com, 30 April 2012.

4.3. The Educational and Scientific Orientation of the Movement

As suggested by astronauts' participation in the movement, Trekkers are professional and educated people. In the aforementioned survey, 55% of respondents hold higher educational degrees, and a third have an annual income of over 50 000 USD. Among those who are teachers, many report using *Star Trek* in their courses, from elementary school through college level.⁸⁴ In the same vein, Grudge Report, the online show of the space science organisation SETI Institute, regularly addresses *Star Trek* topics and interviews its makers. One programme, for instance, features the science advisor of one of the series.⁸⁵ On the whole, Trekkers' lives are oriented towards educational experience and learning more about their own worldview. Encyclopaedias such as *Memory Alpha* and reference books such as *Star Trek Chronology: the History of the Future* provide a wealth of information on the history and culture of the United Federation of Planets and other interstellar civilisations.⁸⁶ Particular attention is paid to alien language learning. Several linguistic institutes study them and dictionaries of Klingon, Vulcan, and Romulan languages have been published.

Actor William Shatner is famous for once urging Trekkers to "get a life", thus suggesting they are a helpless bunch of desperate lunatics and social misfits. Readers inclined to follow this judgement should think twice. In 1992, the year the first exoplanets were reported by astronomers, the Klingon Language Institute (KLI) was created, and is still headed, by psychologist and researcher Dr Lawrence Schoen. Its membership is drawn from a population of philosophers, programmers, linguists, and psychologists, and its remit is "to facilitate the scholarly exploration of the Klingon language and culture". Organised as a non-profit corporation based in the US, the KLI is an international endeavour present in 30 countries spread across 7 continents. It offers a Klingon Language Certification Program, comprised of four levels: Beginner taghwl'; Intermediate ghojwl'; Advanced po'wl'; and Grammarian pab pln. Klingonists use the *Klingon Dictionary* written by linguist Dr Marc Okrand, and several well-known texts, including *Hamlet*, have been translated into Klingon language. Before the Internet took over, the KLI was publishing an academic journal, *HolQeD*, registered with the US Library of Congress under ISSN 1061-2327.⁸⁷

The exoplanet cosmogram is also embodied in scientific practice. Physicist Lawrence Krauss reports that he decided to write a book about the physics of *Star Trek* because he was seduced by the transporter, the teleportation machine on board the *Enterprise*.⁸⁸ Another technology featured in the cosmogram is the tricorder, "an advanced multi-function hand held computing and scanning device used to gather, analyse, and record data".⁸⁹ After several years of experimentation, in 2014 computer scientist Peter Jansen finalised the prototype

84. Daryl Frazetti, "The Culture of Trek Fandom", art. cit.

85. See "A Special Live Grudge Report with *Star Trek* science consultant Dr. Erin Macdonald", www.seti.org, 19 February 2021.

86. See memory-alpha.fandom.com; Michael Okuda and Denise Okuda, *Star Trek Chronology. The History of the Future*, New York, Pocket Books, 1996.

87. For more information, see www.kli.org.

88. Lawrence Krauss, *The Physics of Star Trek*, op. cit.

89. See memory-alpha.fandom.com/wiki/Tricorder.

of a tricorder called the Arducorder Mini. It “can measure and image temperature and other thermal dynamics, magnetic fields, radiation, motion, atmospheric dynamics including lightning, the properties of light and spectra, and more”.⁹⁰ Just as Trekkers in the field of education involve their pupils and students in the cosmogram, Jansen’s aim is to equip all children with the device to give them an understanding of science when they are grown-ups. This is in accord with the heavily technoscientific *Star Trek* universe and conception of the future.

4.4. The Ethical and Political Orientation of the Movement

The Trekkers’ movement form a genuine community that possesses its own norms and values. Members share a strong belief in moral, scientific and material progress, and a positive vision of the future. They seek to shape the future of mankind according to their exoplanet cosmogram and, as we will see below, to this end they wholeheartedly support space science. In the Trekkers survey, when asked to indicate their primary ideology, 51% reported IDIC and 42 % stated that IDIC can be brought to life in the real world. 89 % stated that promoting diversity and accepting differences was extremely important, whilst 93% stated that helping one another and respect for others are extremely valued norms. To build the future they envision, they use these values to make present-day world a better place. 77% of survey respondents stated that community awareness or community service was highly important. Indeed, they are active in the self-help movement, set up mutual support groups, and are heavily involved in community service. They have a strong sense of their culture and pass it onto future generations, and to all newcomers to the movement. By doing so, they also pass along information about what is deemed acceptable and unacceptable behaviour. 88% of all survey respondents stated that anything that infringed upon the rights of another in any way would be considered deviant behaviour. Recently, a feminist Trekker has drawn the movement’s attention to the danger of twisting IDIC to make it acceptant of values such as racism, bigotry and sexism that actually clash with the exoplanet cosmogram.⁹¹

This brings us to their more openly political activism, especially in the feminist and gay movements.⁹² The actor that impersonated the helm officer, Mr Sulu, is gay and a Japanese-American who spent a year with his parents in a US detention camp during WW2. A fierce advocate for the rights of gay people and Japanese-Americans wrongly incarcerated, his public appearances are always well attended.⁹³ Without surprise, optimism is a key feature of his campaigning. Equality between men and women also features among the values most cherished by the movement. A blog dedicated to feminism in *Star Trek* shows that the empowerment of women is a central trait of the cosmogram.⁹⁴ The Trekkers survey revealed

90. See La Monica Everett-Haynes, “Attention, Trekkies: Get Your Tricorders Here”, news.arizona.edu, 10 November 2014.

91. See “IDIC: I Do Not Think It Means What You Think It Means”, www.womenatwarp.com, 13 July 2017.

92. David LoConto, *Social Movements and the Collective Identity of the Star Trek Fandom*, *op. cit.*

93. See for instance Richard Lee, “Horde of Trekkies hears ‘Star Trek’ star George Takei defend gay rights at luncheon”, www.press.org, 19 October 2013.

94. See trekkiefeminist.com/fierce-women-of-star-trek.

that 67% of respondents take *Star Trek* characters as role models and change their behaviour to align it to the cosmogram.⁹⁵ The communications officer, Lieutenant Uhura, is a Black woman. Not only is this one of the best manifestations of IDIC, it probably explains why women have formed a strong contingent of the movement from the outset.

The exoplanet cosmogram also materialises in institutional politics. In line with its culture, Trekkers are committed to furthering democracy. In the US, a grassroots network called Starfleet is dedicated to improving American politics through ensuring the smooth running of elections and the participation of people who traditionally do not exercise their voting right. Members of the network carry out three types of action. First, they serve inside polling stations, handing citizens their ballots and answering questions related to the process of voting. Second, they work from home to coordinate the delivery of food, water, and other supplies to people waiting in voting queues. Third, they place phone calls and send text messages and postcards to underrepresented and underserved voters to encourage them to vote and inform them about their rights.⁹⁶

During the 2020 US presidential campaign, Joe Biden's team organised a virtual rally targeting the *Star Trek* voting bloc to raise funds and incite voters to "Trek the vote to victory".⁹⁷ In preparation for the event, one of the hosts emailed a message to Trek supporters clearly reminiscent of their worldview: "Joe, Kamala, and I all believe that, as Americans, we are all part of something bigger than ourselves, that we are all on the same team, and that we are fighting for that same brighter future."⁹⁸

4.5. The Space Orientation of the Movement

However, the main political traction of the exoplanet cosmogram is in all space matters. All Trekkers wholeheartedly support space exploration.⁹⁹ In the 1970s, they successfully campaigned for the first space shuttle to be called Enterprise.¹⁰⁰ They routinely follow developments in space science. For instance, the online community Trek BBS discussed at length the discovery of exoplanet HD 26965b, thought to be the real-life equivalent of Vulcan.¹⁰¹ It is therefore no surprise that many holders of the cosmogram choose to become astronauts, as well exemplified by physicist and astronaut Mae Jemison. Not only was she the first Black woman to travel in space, she also appeared in an episode of the second *Star Trek* series.

The exoplanet cosmogram pervades the whole of space research and is even enacted in the exploration of our own solar system. In the 1970s, four spacecrafts were launched by NASA to explore planets of our solar system: Pioneer 10 in 1972, Pioneer 11 in 1973, and

95. Daryl Frazetti, "The Culture of Trek Fandom", art. cit.

96. See www.trekthe.vote.

97. See Adam Gabbatt, "Biden campaign targets Trekkies with star studded Star Trek event", *The Guardian*, 14 October 2020.

98. See Ted Johnson, "Joe Biden's Campaign Plans 'Star Trek'-Themed Fundraiser", deadline.com, 6 October 2020.

99. We will see that in this respect they are a far cry from the environmental slogan "there is no planet B".

100. Frances Lewine, "Star Trek Fans Win on Space Shuttle", *Lewinston Daily Sun*, 9 September 1976, p. 20.

101. See "Planet found in habitable zone in 40 Eridani", www.trekbbbs.com, 19 September 2018.

Voyagers 1 and 2 in 1977. They travel fast enough to be able to exit our system and reach exoplanets, but this will take millions of years. And yet, they carry indications for aliens to know where they came from and who sent them “so as far back as 1972 visits to exoplanets were clearly anticipated”.¹⁰² Both Voyagers carry a personal greeting from then UN Secretary General Kurt Waldheim that seems to have stepped straight out of a speech by Captain Kirk:

As the Secretary General of the United Nations, an organization of 147 member states who represent almost all of the human inhabitants of the planet Earth, I send greetings on behalf of the people of our planet. We step out of our solar system into the universe seeking only peace and friendship, to teach if we are called upon, to be taught if we are fortunate.¹⁰³

Exoplanetology itself is grounded in the cosmogram. NASA Exoplanet Exploration Program’s goal is clear: “Ultimately, we aim to discover and characterize Earth-like planets around our nearest neighbours, search for habitable conditions on those planets, and uncover signatures of life.”¹⁰⁴ Hence, every discovery of exoplanets that orbit their star in the habitable zone is greeted as a milestone in the search for this Holy Grail: a replica of Earth that could possibly harbour life. On 9 May 2013, this quest even made its way to the Committee on Science, Space and Technology of the American Congress. Public hearings were held under the title “Exoplanet Discoveries: Have We Found Other Earths?”. Referring to the famous *Star Trek* line “Space: the final frontier” in its opening speech, the Committee’s president declared: “I don’t know if space is the final frontier, but I believe it is the next frontier.”¹⁰⁵

Perhaps the area where the cosmogram is strongest is in the search for extraterrestrial intelligence (SETI). As noted by a qualified commentator, SETI is an area which fascinates the public and raises expectations.¹⁰⁶ Its aim is to find transmissions from alien intelligences using radio telescopes. This type of research started with NASA’s Ames Research Center small SETI programme, whose architect was the director of Hewlett-Packard laboratories. In 1984, following discussions led by him and the chief of life sciences at Ames, a dedicated non-profit research organisation was created: the SETI Institute. Along SETI, the hundred or so Astronomers and scientists carry out research in a number of disciplines united by the search for, and understanding of, life beyond Earth. The Institute performed SETI research in collaboration with NASA until 1993 and still uses NASA telescopes. It receives grants from the National Science Foundation, philanthropic foundations and private donors.¹⁰⁷ Although the bulk of SETI is now carried out by the SETI Institute, NASA is still fully committed to the idea that other intelligent species might exist in our galaxy. A few years ago, in a talk on ETI a

102. Chris Kitchin, *Exoplanets. Finding, Exploring, and Understanding Alien Worlds*, New York, Springer, 2012, p. 205.

103. See Kathleen Teltsch, “U.N. Sending Messages Aboard Voyager Craft For Beings in Space”, *The New York Times*, 3 June 1977 (our emphasis).

104. See exoplanets.nasa.gov/exep/inDepth.

105. See “Exoplanet Discoveries: Have We Found Other Earths?”, www.govinfo.gov, 9 May 2013.

106. David Wilkinson, *Science, Religion, and the Search for Extraterrestrial Intelligence*, Oxford, Oxford University Press, 2013.

107. See www.seti.org.

NASA scientist explained that one potential answer to the Fermi Paradox might be an alien version of the Prime Directive.¹⁰⁸

In a stimulating paper, Traphagan confirms that the SETI Institute's work is pervaded by the belief in a future of perfection modelled on that prescribed by the *Star Trek* imaginary. His claim is that "an evolutionary eschatology lurks within the Star Trek imaginary as it contributes to the intellectual paradigm that shapes practice among SETI scientists".¹⁰⁹ These researchers believe that humanity must abandon its baser tendencies and unify through a process of cultural evolution that combines technical and moral progress. They propose to emulate intelligent civilisations which, if they exist, have developed the ability to send interstellar signals because their degree of technological advancement is accompanied by a refusal of conflict and the achievement of unification. They look for intelligent civilisations whose knowledge and far more advanced level of progress could "provide us with scientific insights and information useful for solving our practical problems"¹¹⁰, and teach humanity to become altruistic, overcome conflict, and build a peaceful future. Astronomer Jill Tarter is a veteran of SETI and served as director of research at the SETI Institute for years. Asked by a reporter what would happen if a signal were detected today, her reply leaves no doubt as to her upholding the exoplanet cosmogram:

I'm not saying we're going to get extraterrestrial salvation, by any means. But I am saying we'll learn that it's possible to survive our technological adolescence. That's where we're stuck right now, and there are a lot of indications that we won't make it out of this. A signal would make all the difference, would show that it's possible. That somebody else did it.¹¹¹

Critical of the extractive goals of the US and China in performing space exploration, some space scientists are now attempting to enact the exoplanet cosmogram in a far more stringent way. In 2018, the JustSpace Alliance was set up by two astrophysicists. This organisation is devoted to promoting "a more equitable, inclusive, sustainable, and meaningful space future".¹¹² Similarly, in March 2023 the annual meeting of the American Association for the Advancement of Science hosted a panel titled "Is Space for Everyone? Ethics from Earth to Space and Back".¹¹³ Among the topics discussed were the need for developing a post-colonial exploration ethics, for decoupling expansion from exploitation, and for engaging

108. See Marshall Honorof, "Will We Ever Find E.T.? NASA Talks First Contact 'Star Trek'-Style", www.space.com, 13 September 2016. The Fermi paradox refers to a remark made by Enrico Fermi. In short, if aliens exist, why have we not already encountered them? For a detailed account see David Wilkinson, *Science, Religion, and the Search for Extraterrestrial Intelligence, op. cit.*, chapter 7.

109. John Traphagan, "SETI, Evolutionary Eschatology, and the Star Trek Imaginary", *Theology and Science*, vol. 19, n° 2, 2021, p. 120-131, p. 129.

110. Albert Harrison, "Speaking for Earth. Projecting Cultural Values Across Deep Space and Time", in Douglas Vakoch (ed), *Archaeology, Anthropology, and Interstellar Communication*, Washington, NASA History Series SP-2013-4413, 2014, p. 173-188, p. 184.

111. See Lisa Grossman, "Still Searching: SETI Pioneer Jill Tarter Talks Shutdown, Aliens", www.wired.com, 28 April 2011.

112. See justspacealliance.org.

113. See sciencereigiondialogue.org/events/2023-aaas-annual-meeting-session.

Indigenous people in missions such as NASA Artemis, which will build a permanent presence on the Moon. In an interview to a newspaper, one of the panellists, astrobiologist Pamela Conrad, declared: “the Star Trek series and culture becomes a prime directive for how we could explore space: seeking not to interfere”.¹¹⁴

5. Conclusion

There can be no doubt that *Star Trek* has had a quite extraordinary circulation. First aired in 1966, it was cancelled in spring 1969 after the third season and 79 episodes. But a few months later, through the process of syndication, it was made available for reruns. In the US alone, over 150 local TV bought it and started to air it in autumn 1969.¹¹⁵ As one commentator has observed, the number of Americans unfamiliar with the phrase “Beam me up, Scotty” is “roughly comparable to the number of people who have never heard of ketchup”.¹¹⁶ Yet, labelling *Star Trek* a strictly American phenomenon would run counter to all available evidence. Reruns of the show have been broadcast in no less than 131 foreign markets, and the very name *Star Trek* is translated into 22 world languages, from Japanese to Ukrainian through Hebrew.¹¹⁷ Viewers can visit several entertainment centres, such as the Trekcetera Museum, and tourist sites, such as filming locations. In 2016, to celebrate the 50th anniversary of the series, the Canadian postal service printed a special collection of stamps, and the Royal Canadian Mint issued exclusive collectors coins, all displaying representations of the characters and spaceship.¹¹⁸ Faced with such exposure, it is easy to argue that the greatest political achievement of the exoplanet cosmogram is that for nearly six decades we have *all* been acquainted with the idea that life exists elsewhere in the cosmos, and that we humans are fated to encounter other cosmic, intelligent beings. There is no way astronomy’s exoplanets can claim to have accomplished even a fraction of this profound transformation.

In his exhaustive exoplanet research retrospective, at year 1966 scientist Chris Kitchin reproduces Captain Kirk’s show opening statement about exploring new worlds, and stresses that *Star Trek* resulted “in enormous public interest in and the widespread acceptance of the likely existence of exoplanets and of life forms upon them”.¹¹⁹ This is a spectacular rebuff – coming from an astronomer – of Latour’s statement that astronomy’s exoplanets have changed our worldview.

At this point we may sum up our argument. With the philosophically anti-realist and politically conventional turn of Latour’s second theory of cosmopolitics, science is stripped of its unique role in the shaping of society. Yet, vain is the use of scientific examples to empirically offset the damage done to compositionism and retain something of the link between

114. See Nicola Davis, “End ‘colonial’ approach to space exploration, scientists urge”, *The Guardian*, 4 March 2023.

115. David Gerrold, *The World of Star Trek*, *op. cit.*

116. Lawrence Krauss, *The Physics of Star Trek*, *op. cit.*, p. xvi.

117. Daniel Zimmel, “Just a Television Show? The Myth of Star Trek”, *art. cit.*

118. See www.canadapost-postescanada.ca and www.mint.ca.

119. Chris Kitchin, *Exoplanets*, *op. cit.*, p. 30.

politics and science. The exoplanet case cruelly suggests that contrary to the whims of cosmogramatised cosmopolitics, *if we analyse politics on the terrain of imaginaries, science fiction has probably far more political traction than science.*¹²⁰ Science fiction occupies a place of choice to impact our political imaginaries, including the orientation of technoscientific research. We will leave the final word to political theorist Hannah Arendt. Discussing the 1957 Sputnik launch and the conquest of space in her magnum opus *The Human Condition*, she asserts:

Men everywhere are by no means slow to catch up and adjust to scientific discoveries and technical developments, but [...], on the contrary, they have outsped them by decades. Here, as in other respects, science has realized and affirmed what men anticipated in dreams that were neither wild nor idle. What is new is only that one of this country's most respectable newspapers finally brought to its front page what up to then had been buried in the highly non-respectable literature of science fiction.¹²¹

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120. Ironically, Latour himself once claimed that the characterisation of dinosaurs owes more to popular culture than to palaeontology. See "Three Little Dinosaurs or A Sociologist's Nightmare", *Fundamenta Scientiae*, vol. 1, 1980, p. 79-85.

121. Hannah Arendt, *The Human Condition*, *op. cit.*, p. 1-2.

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