Science-Fiction erfindet vor dem Hintergrund von naturwissenschaftlichen Forschungen völlig neue Welten. Eine Untersuchung widmet sich den erzählerischen Herangehensweisen an dieses unablässige Hin und Her zwischen anregender Spekulation und Wahrscheinlichkeit.

Science fiction invents completely new worlds against the background of scientific research. This study is devoted to narrative approaches to this incessant toing and froing between stimulating speculation and probability.

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The Many-Layered Cake of Science Fiction. Audio Essay (And Some Written Notes)

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Science Fiction lets you step back from the world a few feet and kind of look at it a little bit from the outside.[1]

Audio A1

In science fiction ('SF'), it seems you can have your cake and eat it too. The genre has the reputation of fostering the quirkiest, most unearthly and improbable stories, but is equally said to be the 'literature of the future' and often serves as an indicator of future developments. Fascinated by this phenomenon, which at first glance seems paradoxical, I started to question more and more why and how we read speculative literature when we want to develop ideas about the future. My research project "Science Fiction, Fact & Forecast" investigates the understanding of SF as literature about the future, both from the perspective of the science-fiction community – writers, readers, scholars and critics – and from the perspective of futurologists and philosophers who use speculative literature as a tool to sketch out different scenarios.[2] Specifically, I concentrate on texts that have been written during the 2010s and have the form and content of SF short stories, but that have been published in a futurological context, not within a literary framework. These texts are part of a strong trend towards employing speculative fiction explicitly for futurological purposes and towards taking SF seriously in mainstream, socially critical discussions. As I will try to show, this trend is connected to the above mentioned 'cake-paradox'.

Speculative literature is notorious for providing a perfect escape from the everyday and its sorrows, politics, stress or boredom. It immerses its readers in environments that are utterly strange or at least different from the one they know in one significant aspect. Interestingly, the same aspect that makes these fictions valuable for escapism – their specialisation in worldbuilding –, also makes them particularly apt for political and social critique. The difference between the imaginary worlds and the readers' experienced world, "the novum" that these stories introduce, as SF scholar Darko Suvin famously formulated it,[3] conveys information about what future developments we would like to advance, and which ones we would like to prevent. "SF is a developed oxymoron", confirms Suvin, "a realistic irreality, with humanized nonhumans, this-worldly Other Worlds".[4] Suvin thus argues that SF provides "– potentially – the space of a potent estrangement",[5] not despite but because of the 'cake-paradox', which is potent insofar as it allows us to formulate 'what-if' experiments and to play through various situations from the perspective of different protagonists.

My education was as a mathematician and in mathematics, you get these axioms and try to deduce things from them. And Science Fiction is a little bit like that: You set up the story and you have these sort of ideas, what if we had this, what if we had this ...[6]

In my impression, this understanding of speculative fiction, and notably of SF, as narratives that mirror as well as inspire technological and political developments, has become dominant. This applies not only among SF fans and scholars, but also in the mainstream. At the moment, it seems that SF is primarily discussed in respect to political and social critique. Better demonstrable is the trend of employing science-fiction storytelling

to sketch out future scenarios, as evidenced by the success of a specific strand of current US-American futurology. In the framework of workshops, contests and calls-for-stories, short texts are written and discussed that are referred to as 'future visions', 'scenarios' or even 'prototypes'.[7]

On a textual level, I am interested in the narrative strategies of these short stories. For example, when developments over longer time periods are described – often concerning climate change – the framework is frequently an intergenerational narrative; elderly people and their children and grandchildren are narrators or protagonists. When something extremely unexpected or improbable happens – this is often, but not always, related either to aliens or to quantum mechanics – the protagonists can be close friends who have lost contact for years, but still absolutely trust each other. Some stories explicitly promote perspectives that have been given little space in classic SF, be it a feminist perspective, the voice of elderly people or of non-humans. Often these stories allow themselves a slow pace and can be very poetic; others build up suspense by employing more conventional tropes of heroism and action.

I have developed some content-based and formal parameters that will help me to get an overview and deeper insights into the nature of this futurological storytelling. The question remains as to whether there is any significant difference to SF stories published in a literary framework.

> *... and then you sort of let it cook in there, in a story or in a novel and you see what grows out of that. And it takes a while to see what resolves from some ideas, that's why going at length and creating a narrative is a good way.*[8]

In this respect, it is interesting to observe that many of these scenarios describe positive or at least predominantly hopeful futures. The anthologies and projects considered here often explicitly favour accounts of the future that are positive (or at least not completely dystopian). Indeed, the claim that stories can tell us something about the future in order to inspire change is valid only if there is at least some room for manoeuvre.[9] Another possible reason for this phenomenon is that, even before considering the content, what seems to matter primarily in this kind of storytelling is a general utopian gesture. At least in a first stage, these stories offer us above all a means of learning to imagine the world differently.

Without doubt, one of the most inspiring practitioners of political-philosophical-poetic fabulation is Donna Haraway. She makes it very clear that "[i]t matters what stories make worlds, what worlds make stories",[10] and in her latest book, *Staying with the Trouble*, she puts projects of art and environmental activism centre-stage that in her view allow us to think differently about the world and consequently inhabit it less destructively. Humans are material-semiotic beings and thus cannot not tell stories. However, to channel the imagination into the future and in directions that oppose traditional ways of thinking, an effort has to be made. Haraway compares this effort to the training of a muscle. "Each time a story helps me remember what I thought I knew, or introduces me to new knowledge, a muscle critical for caring about flourishing gets some aerobic exercise. Such exercise enhances collective thinking and move-

ment in complexity."[11] Are the above-mentioned futurological scenarios part of such an exercise, and how does this relate to the paradoxical nature of SF?

> *Some futurologists use that similar technique, they write scenarios. With Science Fiction though we want it to be a little funkier.*[12]

Editorial texts can offer us insights into the aims and motivations of this kind of 'scenario' writing or futurological storytelling. In brief, all editors and writers of the anthologies considered subscribe to the idea that "[i]f we want to imagine a better future and then build it then we need to change the story we are telling ourselves about the future we want to live in."[13] These stories are thus utopian gestures that should give hope on the one hand, and exercises in imagination that should guide our actions on the other hand. To this end, and in contrast to simpler thought-experiments, the literary expression and storytelling methods employed have been praised for their ingenuity and their freedom in thinking outside the box: "It's storytelling about the possible but the not-quite-yet. Because it's fiction, it can get inside characters' heads in ways journalists can't, and invent whatever scenarios and conflicts are useful."[14] The important question now is whether some scenarios are more useful than others. What kind of stories train Haraway's "muscle critical for caring about flourishing"?[15] What kind of stories tell us something useful about the future?

In terms of content, there seems to be only one strong rule for this kind of 'scenario' writing. All the publications considered make it clear that these stories are "science fiction based on science fact"[16] and feature "nothing outside the realm of known or achievable science",[17] "[n]o magic wands, hyperspace drives, or galaxies far, far away".[18] Interestingly, with these arguments, this trend of science-fictional futurology revives the old, abundant discussions that have accompanied SF since its beginnings: 'Science > Fiction' versus 'Science < Fiction', hard SF versus soft SF, extrapolation versus speculation. It can thus be observed that with SF, futurology also invited the cake-paradox. On the one hand, there is a promise that the artistic freedom of fiction and the quirkiness of SF can provide unexpected angles on future developments. On the other hand, there is the focus on hard SF and on the extrapolation of probable futures. Fiction is praised as a space for thought experiments without consequences, while the impact of storytelling on our self-understanding as humans, on political action and on our everyday life is emphasised.

This is naturally not an argument against speculative philosophies and SF storytelling in futurology. These are not mere contradictions, but poles in a field of tension that "the seemingly oxymoronic phrase 'science fiction'" automatically opens up, "routinely seeming offensive to scientists and literary men alike", as Brian Stableford writes.[19] In the end, it is the "funkiness" of science fiction, as Rudy Rucker called it, the constant negotiation between these spheres, the bouncing back and forth between speculative weirdness and probabilities of possible futures, that are of great benefit to futurology. This is why dismissing everything that does not fit the label of 'hard SF' is too hasty in my opinion.[20] It suggests that it would be possible to separate these spheres again, and to situate

oneself safely on one side. What makes these stories and the discourse around them interesting is negotiating between what is probable, possible and desirable, and also the way in which diagnoses and proposals are conveyed by literary means.

In my research, I therefore want to celebrate the claim that it matters what stories we tell. However, taking this credo seriously – "it matters what stories make worlds"[21] – means it is important to ensure that as many perspectives as possible are included.[22] Furthermore, it also means reading these stories critically, bringing them together, developing criteria and arguments for dismissing some of them while highlighting and distributing others. It means creating further platforms of discussion and pointing out projects that have the same ambition. As Donna Haraway aptly formulated it in regard to her speculative-futurological Camille Stories: "every story asks readers to practice generous suspicion".[23] So every such story is not supposed to deliver definite answers, but to produce yet more stories. None of these discussions and contradictions spoil the party; they simply add flavour to the cake.[24]

1 A general, but pointed statement by the contemporary cyberpunk author Rudy Rucker will guide us through this article. From: Rudy Rucker's *Podcast #102. If Chatbots Talk, Where Will AI Go?* 22 August 2017. Audio from an interview with Wilson Walker for KPIX evening news, taped 1 August 2017, min. 3:00–3:50, www.rudyrucker.com/blog/2017/08/22/podcast-102-if-chatbots-talk-where-will-ai-go/ (all links in this article last consulted 17 January 2020).

2 The postdoc project "Science Fiction, Fact & Forecast" is located at the University of Art and Design in Linz, Austria, and funded by a Hertha Firnberg stipend of the Austrian Science Fund FWF. For more information please visit: https://scifi-fafo.com.

3 Cf. chapter 4 "Science Fiction and the Novum", in: Darko Suvin: *Metamorphoses of Science Fiction. On the Poetics and History of a Literary Genre*, ed. by Gerry Canavan, Oxford/Bern 2016 [1979], pp. 79–101.

4 *Ibid.*, p. 2.

5 *Ibid.*

6 Rudy Rucker: *Podcast #102. If Chatbots Talk, Where Will AI Go?*

7 My provisional corpus of texts comprises the "Twelve Tomorrows" series, launched in 2011 by MIT University Press in partnership with *Technology Review*, and the "Science and Fiction" series by the publishing house Springer. Then there are three projects at the Arizona State University: The "Tomorrow Project", initiated in 2011 by the futurist Brian David Johnson who invented "Science Fiction Prototyping", a set of rules for writing futurological SF short stories; the "Everything Change" project and its "Climate Fiction Short Story Contest", initiated by science-fiction author Kim Stanley Robinson; and "Project Hieroglyph", initiated by the SF author Neal Stephenson, which consists of an anthology of SF short stories and an online platform for further discussion. For the last two see Kim Stanley Robinson: Foreword, in: *Everything Change. An Anthology of Climate Fiction*, ed. by Manjana Milkoreit, Meredith Martinez and Joey Eschrich, [s. l.] 2016, pp. ix–xi; Neal Stephenson: Preface. Innovation Starvation, in: *Hieroglyph. Stories and Visions for a Better Future*, ed. by Ed Finn and Kathryn Cramer, New York 2014 (cited after the e-book).

8 Rudy Rucker: *Podcast #102. If Chatbots Talk, Where Will AI Go?*

9 Whether or not positive visions can inform us more accurately about the future than dystopias can, and whether or not they can inspire change in different ways, are questions that I will address more thoroughly in the course of this project. It is once again, however, not a topic that concerns merely the futurological discourse, but is also one that mainstream SF is currently discussing, often under the not-yet clearly defined label of 'hopepunk'.

10 Donna Haraway: *Staying with the Trouble. Making kin in the Chthulucene*, Durham 2016, p. 12.

11 *Ibid,* p. 29.

12 Rudy Rucker: *Podcast #102. If Chatbots Talk, Where Will AI Go?*

13 Brian David Johnson: Introduction. Imagining the Future and Building It, in: I*magining the Future and Building It. The Tomorrow Project Anthology*, [s. l.] 2012, pp. 1–8., here pp. 7f.

14 Wade Roush: Preface, in: *Twelve Tomorrow*s, ed. by Mark Pontin and Wade Roush, Cambridge 2018 (cited after the e-book).

15 Donna Haraway: *Staying with the Trouble*, p. 29.

16 Brian David Johnson: Foreword. Listening to the Future, in: *The Future. Powered by Fiction*, ed. by Ed Finn and G. Pascal Zachary, [s. l.] 2014, p. vi.

17 Wade Roush: Preface (cited after the e-book).

18 Ed Finn/Kathryn Cramer: Introduction: A Blueprint for Better Dreams, in: *Hieroglyph. Stories and Visions for a Better Future*, ed. by Ed Finn and Kathryn Cramer, New York 2014 (cited after the e-book).

19 Brian Stableford: *Science Fact and Science Fiction. An Encyclopedia*, New York/London 2006, p. xxi.

20 Even though this dismissal of 'soft SF' and 'Science Fantasy' can be found in most editorials, it is not necessarily rigorously applied.

21 Donna Haraway: *Staying with the Trouble*, p. 12.

22 So far, I have only considered US-American projects of futurology, and they more or less resemble each other. This choice is due to methodological reasons – it means I can define the corpus of texts more concisely – though it is also founded on practical reasons, because they are institutionalised and thus easy to find. To follow through with this argument, it will also be necessary to look out for discourses and genres in other countries and contexts that deal with the same questions, but possibly employ different artistic expressions and vocabularies.

23 Donna Haraway: *Staying with the Trouble*, p. 136.

24 Further works cited in the audio essay are Michael Brotherton: Preface, in: *Science Fiction by Scientists. An Anthology of Short Stories*, ed. by Michael Brotherton, Cham 2017, pp. v–vi; Donna J. Haraway: *Modest_WitnessSecond_Millennium. FemaleMan©_Meets_OncoMouseTM. Feminism and technoscience*. New York/London 1997; Istvan Csicsery-Ronay Jr.: Science Fiction/Criticism, in: *A Companion to Science Fiction*, ed. by David Seed, Malden 2005, pp. 43–59; Tom Moylan: *Scraps of the Untainted Sky. Science Fiction, Utopia, Dystopia*, Boulder 2000; Bruce Sterling: *Tomorrow Now. Envisioning the Next Fifty Years*, New York 2002.

A1 https://soundcloud.com/user-129076376/grillmayr/s-lubWc