Metamorphoses of (New) Media

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Cambridge
Scholars
Publishing

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This book first published 2015

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ACKNOWLEDGEMENTS

A collection such as *Metamorphoses of (New) Media* is not assembled without the help of many people contributing to its completion behind the scenes. We would therefore like to take the opportunity to thank Anthony Wright, Sam Baker, and Amanda Millar from Cambridge Scholars Publishing. With their constructive feedback, encouraging support, and infinite patience they helped us navigating safely through the process, from proposal to press. Additional thanks go to Carol Koulikourdi from Cambridge Scholars Publishing, whose early encouragement and assistance helped us to move the project ahead.

We would also like to thank our many authors who accompanied us in greeting the challenges of developing such a project and whose ideas, professionalism, and enthusiasm were a great source of inspiration.

This book project was initiated at the 2012 CLAI (Comparative Literature Association of Ireland) *First International Conference Transitions in Comparative Studies* in Cork. We would like to thank Brigitte Le Juez, president of CLAI, for the stimulating programme and encouragement. Over the past three years the project and the cast of contributors have developed. Yet, without the opportunity that the two-section panel with its engaging discussions afforded us and the inspiring conversations and general atmosphere of the entire conference programme, we are certain the overall project would never have evolved as it did.

INTRODUCTION

JULIA GENZ AND ULRIKE KÜCHLER

Definitions of 'medium' differ as much as the disciplines and discourses discussing them: we can look at media from a materialistic, communicative, technological, or aesthetic perspective. Media scholars sometimes even suggest media to comprise old, new, and digital media, that is to say, media in their entirety.

Old and New Media: Twins and Rivals

The emphasis of this collection lies on new media, albeit without being limited to them: there are no 'new media' without 'older', or even 'old media'. 'New' and 'old' media only exist in relation to each other, or, in other words: 'new' can only be a transitory description for a medium. This is why we decided to put the 'new' in the title of this volume in brackets.

Of course, beside all—materialistic, technological, functional, historical, aesthetic etc.—differences, old and new media share a lot of common ground. And of course, new media do not simply supersede old media. Rather, old and new media often coexist. But how can we describe such coexistence? To tackle this question, Marie-Laure Ryan introduces the concept of "twin media":

> From drama to film, photography to painting, architecture to music, virtually every 'old medium' has a new, digital twin, though whether or not this twin counts as an autonomous medium is a debatable question.[1]

This duplication process suggests both a certain continuity of the functions that new media 'inherit' from old media and a variation (and diversification) of the medial presentation over time ("from drama to film…"). These two sides of the same coin we refer to as 'metamorphoses' in the title of this volume.

Yet, by itself the idea of "twin media" does not fully describe the

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[1] Ryan, *Narrative across Media*, 30.

relation between old and new media but rather raises an interesting follow-up question: What are the implications of "twin media", do they involve a correction process in which the newer medium amends the shortcomings of the older one? This is what Jay David Bolter's and Richard Grusin's concept of "remediation"[2] suggests:

> What is a medium? We offer a simple definition: a medium is that which remediates. It is that which appropriates the techniques, forms, and social significance of other media and attempts to rival or refashion them in the name of the real.[3]

Such rivalry between media and refashioning of media, however, implies a certain teleological perspective that involves an on-going medial optimisation process.[4]

Reciprocity of Old and New Media

From this teleological perspective, the concept of remediation implies that new media are developed to compensate the deficiencies of old media, suggesting a 'genealogical line of development' between those media.[5] In our collection, this thought is critically examined, amongst others, in Cathrin Bengesser's essay "Spectator, Player, 'Modder': The Transition from the Cinematic Cave to the Digital Dispositif". It examines the game-like viewing experiences of films in DVD formats and links them to Jenkins' notion of participatory culture.

Numerous examples in media history, however, lack such an unambiguous genealogical relation. The present-day functions of many new media are the result of various cross-medial experiments with different initial purposes. Take the telephone as an example: apart from transmitting the human voice, it has been invented to broadcast music and theatrical plays.[6] Moreover, the concept of remediation does not address

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[2] Bolter and Grusin, *Remediation*. Ryan (*Narrative across Media*, 31ff.) also discusses Bolter and Grusin's concept of remediation to support her own notion of "twin media".

[3] Bolter and Grusin, *Remediation*, 65.

[4] Cf. Ryan (*Narrative across Media*, 32–33) who discusses nine variations of remediation, eight of which understand the concept as a correction process.

[5] In the present context we use the notion of a 'genealogical line of development' in analogy to the comparative method of "genetical comparison" as proposed by Peter V. Zima, *Komparatistik*.

[6] Cf. Höflich, "Telefon," 188. See, for instance, Philipp Reis' music telegraph (1863) and Clément Ader's Théâtrophone (1882).

the question of why old media continue to exist alongside new media, as in the case of many non-digital media and their digital 'twins', such as printed books and e-books or records and mp3.

We therefore suggest complementing the concept of remediation with the following observations:

1. Similarities between old and new media not only result from intended improvements to old media but also from the (reflexive) process of new media development itself. Various contributions in this volume reflect this observation by showing how many media are not so much twins by genealogical relation than by retrospective, heuristic construction: it is only the magnifying glass of certain discourses and theories that uncovers their (typological) resemblances. In his essay "Bloomsday? On the Theory of Intermediality and the Production of Photo-Essays and Film-Essays", Christian Sinn shows how to apply the notion of writing essays to films. Similarly, in "Non finito: Fragmentary Narration in Films and Television Series", Susanne Marschall suggests to apply the concept of *non finito*, a 16th century concept originating from the fine-arts, to contemporary developments in film and online.

2. Similarities between old and new media can develop independently of each other, based on comparable structural conditions in media history and its related discourses. An example in this regard is Mary Nickel's discussion of "The Structural Transformation of the Cybersphere": she examines the emergence of the public sphere in the coffeehouses and salons of the 18th century and their 21st century equivalents in the age of social media.

3. As a result, we can describe the relation of old and new media as being determined by reciprocity rather than (teleological) linearity. While the influence of old media on new media is apparent in many cases, it is also old media that benefit from the emergence of new media.[7] With the emergence of new media, old media can adapt new functions while new media can employ the qualities and properties of old media. This results in a spiral of mutual influence. Also, the notion of reciprocity extends beyond the immediate relation between old and new media and their respective purposes and effects on the aesthetic and theoretical concepts related to those media. Using the examples of the digital and the literary, Nina Shiel's "Space, Change, and Statements in Literary Representations of Virtual Worlds" and Nina Peter's "Literary Reflections on New Media. Richard Powers' *Plowing the Dark* (2000)" discuss this mutual influence.

To capture these varied relations between old and new media we

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[7] See for instance the current rise of the graphic novel in its relation to the digital turn.

therefore draw on the notion of 'metamorphoses' instead of the more narrow term 'remediation'.

Discursive, Transmedia, and Fictional Metamorphoses

Considering the manifold possibilities of approaching metamorphoses of old and new media, the discussion in this volume will focus on three aspects that recur throughout the book, connecting the essays: 1) the social discourse that is dealt with and changed by media, 2) the transformations of media resulting from their transmedial interplay, 3) the aesthetic reflections on these metamorphoses of old and new media in literature and the arts. The three parts of this volume each focus on one of these aspects.

The essays in the first part, **Discursive Metamorphoses**, discuss the different functions and potentials of old and new media in various discourses. They are concerned with the macrostructural effects of the shifts in (recent) media history—in social, political, economic, and academic contexts.

In her essay "World Wide Web and the Emotional Public Sphere", Raili Marling first discusses the ways in which the Web facilitates a release of tension between the private and the public sphere, and functions as a site of ironic, parodic, or intimate engagement with the rational public sphere. The Web is an important constituent of the "emotional public sphere". Online forms of private involvement not only personalise social interactions but also have an impact on the functioning of society. They offer a means of empowerment for a private person achieved by ritually breaking taboos, mocking public myths, de-heroising leaders, and inverting power relations. Online communications contribute to the transformation of the public sphere and the development of counterpublics. The essay explores this topic through an analysis of parodic memes produced and distributed by Internet counterpublics on platforms such as Twitter during the 2012 US Presidential election campaign.

Mary Nickel's discussion of "The Structural Transformation of the Cybersphere" takes a closer look at the social networking sites behind such online communications. She traces the trajectory of online communication and self-representation from their early stages, on USENET, to their present-day consolidation on social networking sites. Drawing on Habermas' seminal discussion of *The Structural Transformation of the Public Sphere*, she shows how the mechanisms that led to the disintegration of the public sphere in the 20th century are also at work in today's digital communities. Against this backdrop, the essay argues that it is the institutional arrangement of social networking sites and

the economic incentives that motivate their founders, which trigger these mechanisms. Although being very popular, devices such as the 'Like' button and the 'News Feed' may also promulgate particular detriments for democratic societies. The essay contends that, as a result, these devices further foster the individual self-segregation that already occurs offline, and therefore may not be as beneficial to democratic societies as they have been portrayed by some.

While the first two essays in this section examine the social, political, and economic effects of new media, David Beer examines their impact on the academic discourse. In "Algorithms in the Academy" he looks at the ways in which software algorithms are transforming the university sector. Drawing upon a range of works on the social implications and power of algorithms, the essay explores how these various algorithmic powers are now becoming implicit within the university sector: in research, in teaching, and in the general administration of university life. Beer argues that these transformations, which are often unnoticed, are quietly reshaping and re-sorting academic practices and experiences in various ways. As such these developments require attention in order for us to see how algorithmic and human agency now mesh in the context of the university and to see how algorithms might now already have some power in shaping research outcomes, teaching, and other parts of academic work.

The second part of this collection 'zooms in' and focuses on **Transmedia Metamorphoses**. From a more microstructural perspective on the transformation of the media landscape, the contributions examine examples where old media assume functions of new media, where new media employ the qualities of old media, and where theoretical approaches to old media are adopted for new media productively.

The section opens with Cathrin Bengesser examining the role of the DVD recipient in "Spectator, Player, 'Modder': The Transition from the Cinematic Cave to the Digital Dispositif". The essay traces the effects of the arrival of the DVD in the late 1990s, when film moved from the cinematic dispositif to computers and gaming consoles, and thus to the dominion of interactive entertainment. These new, interactive dispositifs still allow for traditional lean-back consumption of film, but they also offer additional, interactive pleasures for the viewer. This new dimension is not limited to DVD menus or extras but also reaches into the films themselves. Once inserted into a DVD drive or a gaming console, complex narratives with non-linear or branching storylines, conflicting perspectives, puzzling twists, or richness in references can be turned into 'game boards' by viewers who are familiar with the possibilities and pleasures of interactive media. The essay thus examines various game-like

pleasures of digital film consumption: immersion, navigation, discovery, puzzle solving, and competition. The examples of the ways in which viewers 'play' with film show how the success of interactive new media is ultimately working back on the old medium of film.

Adding a more production-oriented view to the mutual influence of old and new media, Martin Roussel examines the history of writing. In "How To Do Words With Things: Paul Auster's Typewriter and the History of Writing in the 20th Century" he draws a line from Walter Benjamin's *One-Way Street* (*Einbahnstraße*, 1928) to Auster's *The Story of My Typewriter* (2002). While the first was written at a time that marked the transition from handwriting to typewriting, Auster already reflects on his typewriter as an old-fashioned dispositif of writing. Yet, throughout the 20th century the typewriter has written its very own success story. Not only has the idea of authorship been closely tied to the typewriter. While the typewriter allowed for a measurement of literary productiveness, the process of typewriting also individualised printing techniques. In contrast to mass printing techniques, typewriting figured writing as a three-dimensional interaction of man and machine where the writer appears as a 'sculptor' chiselling text bodies (Adorno). Today, it is digital technologies that change the scene of writing. The new media dispositif thus helps to unveil the limitations but also the potentials of old media such as the typewriter.

The first two essays in this section thus contrast processes of transmedia production and reception: old media exploring functions of new media (Bengesser) and new media assuming and expanding qualities of old media (Roussel). There is, however, another interesting dimension to the mutual influence between old and new media, namely adopting theoretical approaches to old media for new media. Such a theoretical transfer and its aesthetic appropriation are central to Christian Sinn's discussion of conceptual parallels between written and visual essays in "Bloomsday? On the Theory of Intermediality and the Production of Photo-Essays and Film-Essays". Sinn first examines the rich historical background of essay-writing. Beginning with the Pyrrhonist scepticism in Michel de Montaigne's work he then draws a line to Theodor W. Adorno's dialectical notion of a philosophical essay as a "reciprocal interaction of its concepts" and to Walter Benjamin's more recipient-based approach to the essay as an emblematic form. Against this backdrop, Jens Schröter's typology of intermediality then provides a link to a "thinking in images" as it is also suggested by the two examples that wrap up the discussion: Bazon Brock's photo-essay *Bloom-Zeitung* (1963) and Jem Cohen's film-essay *Lost Book Found* (USA 1996).

In the light of transmedia production, reception, and criticism, the final essay in this section is concerned with the transmedia metamorphoses of an original work of art. In "Speaking Up in the Age of Media Convergence: Patrick Neate's *Babel* (2010) and Plan B's *iLL Manors* (2012)", Christoph Reinfandt traces the multi-medial fate of Patrick Neate's text *Babel* from its origins as a ten-minute piece of performance poetry to the twenty-five minute TV version of the text shown on Channel 4 in 2005 and on to the sixty-minute dance performance produced by avant-garde choreographers Liam Steel and Rob Tannion, which was touring in the UK in 2010 and led to the book publication of the text later in that year. The essay combines a close reading of the text with minute attention to the consequences the various media formats and discourse positions have for the act of speaking up *against* the discursive restrictions and determination imposed by these very same media formats and discourses. Hereby, the essay addresses the enabling and restricting impact of the contemporary mediascape on individual speaking positions and reflects upon the historical trajectory of media history behind this state of affairs. The essay refers back to the varying discursive functions of old and new media discussed in the essays at the beginning of this collection, and, at the same time, anticipates the poetic potential of old and new media that is central to the final part of our book.

In this last section, **Fictional Metamorphoses** take centre stage: metamorphoses of (new) media as an artistic subject and aesthetic technique—in films, novels, digital art etc.

Opening the discussion with a classic of both 'media fiction' and science fiction, Nina Shiel's "Space, Change, and Statements in Literary Representations of Virtual Worlds" traces the subject back to William Gibson's *Neuromancer* (1984). Not only has this work famously coined the notion of 'cyberspace', but it also offers an excellent starting point to discuss the cycle of mutual influence between the virtual and the real as suggested by Pierre Lévy. Against this background, Shiel argues that representations of virtual space in fiction have changed dramatically, as the general familiarity with its associated technology has increased. To test this hypothesis, the essay refers to Bertrand Westphal's concept of geocriticism and then examines three literary representations of virtual space, each from one of the three decades that have passed since the publication of Gibson's seminal novel. The essay thus draws a line from *Neuromancer*, where the virtual is still an alien (and frightening) realm of modern mythology, to Neal Stephenson's *Snow Crash* (1992) whose virtual world is already a social space for business and leisure activities, and closes with the multiplicity of different virtual ludic worlds in Charles

Stross' *Halting State* (2007)—which, ironically, closes with the protagonist's Game Over and return to the real world.

These three stages of virtual worlds in literary history provide an interesting framework for Nina Peter's discussion of a novel that has been published in a phase of transition and links the virtual space to questions of creation and authorship. In "Literary Reflections on New Media. Richard Powers' *Plowing the Dark* (2000)", Peter examines how the two narrative threads in Power's novel correspond to different motivations for creating virtual (and fictional) worlds: as an escapist endeavour and as a place of survival. In the novel, the virtual thus is a space of social consequence *and* a ludic utopia at the same time. Against this backdrop, the essay is particularly concerned with the functions that old and new media assume in art creation, the modes of representation in dealing with them, and the poetological potentials that arise. When dealing with Power's novel, the essay therefore first focuses on the creator-protagonists' desires for 'electronic transcendence' through digital technologies (based on their belief that digital media are superior to older media), then examines their strategies and techniques to create invented worlds, and finally outlines the contrast between the protagonists' poetics of escape and diversion and the novel's own poetological concept.

The next essay complements this authorship-oriented view on the aesthetic potential of the digital. Ulrike Küchler's "New Media—New Literacy? The Digital Reader's Creative Challenges" examines digital worlds of fiction that are, in their own ways, still based on literary modes of narration, but go far beyond them, and the role of the reader within them. The essay suggests to distinguish three different qualities of interaction that influence the individual approach to digital art: the instrumental, phenomenal, and aesthetic experience of the recipient. The argument then centres around three browser-based examples that set various tasks for the new recipient and focus on different aspects of new media literacy: *The 12 Labors of the Internet User* (2008) is a collaborative bilingual English-French project that translates the myth of the Herculean labors into technological challenges for the new media recipient. *Dadaventuras* (2004) employs these technological potentials of new media to link various pieces of Spanish-language literature—from 15th century Catalan poetry to popular culture—to the artistic modes of the Avantgarde and asks its recipients to trace and (re-)compose the history of literature and the arts. In the interactive narrative *Loss of Grasp* (2010), the reader finally assumes the role of the author and has to face the different stages of the process of transmedia storytelling itself.

With any 'old' medium once having been 'new', we can be sure that any discussion examining the *Metamorphoses of (New) Media* is certainly an interminable endeavour. Consequently, the section and this collection conclude with a look at the renaissance of the fragment as an aesthetic concept in new media. In "Non Finito: Fragmentary Narration in Transmedial Worlds", Susanne Marschall argues for a renewal of the fine-arts term *non finito* in interactive (mass) media. Fostered by phenomena such as fandom art and the rise of the paradigm of seriality, blockbusters such as the *Harry Potter* movie series link epic traditions with fragmentary storytelling. Inviting their audiences to the storytelling process, they initiate an infinite follow-up communication that continuously expands the story universe and develops countless parallel narratives, even creating entirely new genres such as mobisodes. Against this backdrop the essay explores how movies and series such as *Sita Sings the Blues* (2008), *Avatar* (2009), and *Lost* (2004-2010) explore the aesthetic potential of the fragment. In adopting strategies of myth-making, scientisation, and the re-reading of history, they transform into transmedia hypertexts that create a network of references between storylines and discourses.

This is also the place, where the discussion of the various fictional metamorphoses in the field of old and new media refers back to the beginning of our book and the relation between media metamorphoses and the challenging of established discursive structures. The eleven essays collected in this volume thus approach the *Metamorphoses of (New) Media* as an on-going process of change, in which the emergence of new media not only allows for a repositioning of old media but for a revaluation of related discursive, medial, and aesthetic models.

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PART I:

DISCURSIVE METAMORPHOSES

CHAPTER ONE

WORLD WIDE WEB AND THE EMOTIONAL PUBLIC SPHERE

RAILI MARLING

The media landscape of the Western world has undergone a radical change in the past decade. Traditional or 'old' media, especially major daily newspapers, are losing their audiences, while 'new media' are becoming increasingly dominant sources of information. Although new media derive many of their stories from the traditional media, the narratives are represented in a different format. New media (e.g. news aggregators like the Huffington Post or online news channels like Vice News) are able to react to events faster and with more emotional involvement. New media democratise knowledge production and also allow more interactivity to the readers/viewers.[1] As a result, the very definition of news and consumption of news is changing. This change has generated an active debate about the fragmentation of audiences and the potential impact of this fragmentation on the democratic process. Cass Sunstein believes that people can avoid meeting views different from theirs online and tend to retreat into "deliberative enclaves" which leads to social polarisation and fragmentation.[2] In contrast, other authors, like Douglas Kellner, see new media as an engine of greater democratic involvement that offers a wider range of opinions and critiques than traditional corporate media.[3] However, although new media may seem inherently more democratic, Dahlberg points out that online—like offline—discourses are dominated by corporate interests and users are often framed as passive consumers.[4] Many complex issues intersect in the discussion of new media and democracy and there is as yet little scholarly consensus.

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[1] Livingstone, "Audiences and Publics," 63.
[2] Sunstein, *Republic.com*, 67.
[3] Kellner, "Media and the Crises of Democracy," 51–52.
[4] Dahlberg, "Rethinking the Fragmentation of the Cyberpublic," 840–841. Dahlberg offers an interesting critique of Cass Sunstein's position.

    The spread of new media has also led to wider debates about the public sphere and public debate. This essay seeks to contribute to that discussion by analysing the ways in which the Web functions as a site of ironic engagement with the rational public sphere. The Web is an important constituent of the "emotional public sphere".[5] Online forms of private involvement empower private individuals by allowing them to mock public myths, de-heroise leaders and invert power relations. Such forms of private participation reveal conflicts between tacit knowledge that guides people in everyday life and official hierarchies. The essay contends that Internet information communities and counterpublics, as conceptualised by Nancy Fraser, contribute to the transformation of the traditional public sphere.

    The essay will, first, discuss the applicability of Habermas' notion of the public sphere and Mouffe's concept of agonistic public spaces for the discussion of the Internet as an emotional public sphere that encourages the creation of counterpublics. The theoretical framework will be tested on the example of parodic texts counterpublics created in the online emotional public sphere of the 2012 Presidential elections in the USA.

Rhetorical Public Sphere, Counterpublics, and the Web

Jürgen Habermas defined the public sphere as a collection of "private people gathered together as a public and articulating the needs of society within the state".[6] For Habermas the ideal public sphere is based on dialogue and rational-critical deliberation that results in a consensus. The Habermasian notion of the rational public sphere has faced serious challenges since its introduction[7] and critiques have increased after the advent of the Internet. The Internet age has not only radically altered the boundaries of the public and the private sphere but also challenged previous interpretations of the public sphere and public debate. On the one hand, the Internet seems to be a universal, democratic, and anti-hierarchical site of interaction, lauded by many as a means of empowerment and freedom.[8] Its many-to-many communication appears to have overcome the problems of limited participation in the bourgeois

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[5] Richards, *Emotional Governance*, 57.

[6] Habermas, *The Structural Transformation of the Public Sphere*, 176.

[7] Cf. Calhoun, *Habermas and the Public Sphere*.

[8] Even Habermas (*Between Facts and Norms*, 514) expressed optimism about a world public sphere. For contemporary research, see e.g. Dahlberg "Rethinking the Fragmentation of the Cyberpublic". The optimistic visions were especially visible in the analyses of the Arab Spring events (see e.g. Khondker, "New Media").

public sphere and enables a wider circle of people to express their opinions, speak back to power, or debate issues. On the other hand, critics have pointed out that the Internet serves to privatise politics, promote consumerism, and increase surveillance. [9] The Habermasian definition of the public sphere also imposes its own limitations, with its focus on rational deliberation, consensus, and a narrow definition of the public. Jodi Dean argues that "to territorialize cyberia[10] as the public sphere is to determine in advance what sort of engagements and identities are proper to the political and to use this determination to homogenise political engagement, neutralise social space, and sanitise popular cultures".[11] The notions of publicness, consensus, and debate that are derived from the model of the traditional bourgeois public sphere cannot be automatically transferred to the Internet. Dean believes it is more useful to see the Internet as a "zero institution",[12] one with no positive function but just signifying "the actuality of social institutions".[13] It, more specifically, allows very different constituencies to see themselves as belonging to the same global structure.

> It [the Web] provides an all-encompassing space in which social antagonism is simultaneously expressed and obliterated. It is a global space in which one can recognize oneself as connected to everyone else, as linked to everything that matters. At the same time, it is a space of conflicting networks and networks of conflict so deep and fundamental that even to speak of consensus or convergence seems an act of naiveté at best, violence at worst.[14]

This openness to expression and antagonism is important to this essay as well. Instead of trying to fit the multilayered Internet interaction into the Habermasian model, it would be more useful to rethink the public sphere and its politics. One possible alternative is Chantal Mouffe's concept of "agonistic public spaces" as "places for the expression of dissensus, for

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[9] E.g. Buchstein, "Bytes that Bite"; Kahn and Kellner, "New Media and Internet Activism".

[10] To refer to the internet-based interconnected world, Dean uses the term 'cyberia' as a synonym to 'cyberworld'.

[11] Dean, "Cybersalons and Civil Society," 246–247.

[12] The term is borrowed from Slavoj Žižek (*Enjoy Your Symptom!*, 253–254), who in turn borrowed it from Claude Lévi-Strauss.

[13] Dean, "Why the Net Is Not a Public Sphere," 105.

[14] Dean, "Why the Net Is Not a Public Sphere," 106.

bringing to the floor what forces attempt to keep concealed".[15] Mouffe suggests that public spaces are always plural and that social actors passionately articulate different perspectives in them without reaching a definitive rational consensus. The public is exposed to a diversity of viewpoints in this agonistic struggle and this forms the basis of a truly pluralist democracy. Dean also emphasises the contestation and conflict characteristic for the Internet: its users "reject the fantasy of a public and instead work from the antagonisms that animate political life".[16] This focus on radical pluralism is well suited for the multiplicity of voices and positions on the Web and enables us to see the Web not merely as a public sphere but as an "information community".[17] However, although the Internet contains diverse public spaces and radical dissent, people are not using the choice they have been given and stay within their "deliberative enclaves" to reinforce their beliefs.[18]

    Both the public sphere and the public space depend on the agency of social actors. In the present essay I am interested in the social actors who come together as publics. I use the term 'public' to refer to a group of people with an orientation towards collective action, not just in a political context but also more broadly in social life.[19] Participants in online discussions are not passive consumers of information and entertainment, but—at least potentially—also authors who shape the information community and, through that, also society at large. For example, Dayan argues that

> a public is not simply a spectator in plural, a sum of spectators, an addition. It is a coherent entity whose nature is collective; an ensemble characterized by shared sociability, shared identity, and some sense of that identity.[20]

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[15] Quoted in Carpentier and Cammaerts, "Hegemony, Democracy, Agonism and Journalism," 973. For a longer discussion, see Mouffe, "Deliberative Democracy".

[16] Dean, "Why the Net Is Not a Public Sphere," 108.

[17] MacKinnon, *The World-Wide Conversation*, 10.

[18] Carpentier and Cammaerts, "Hegemony, Democracy, Agonism and Journalism," 968; Sunstein, *Republic.com*.

[19] For a longer discussion, see Livingstone, "Audiences and Publics," 25. Livingstone points out that there is considerable conceptual confusion between the terms 'public' and 'audience'. Political science has tended to see publics as public and active, audiences as private and passive, but this contrast no longer holds in today's "mediascape", to use the term coined by Appadurai (1990), with its increasing blending of the public and the private (Livingstone, "Audiences and Publics," 18).

[20] Dayan, "Mothers, Midwives and Abortionists," 46.

The Internet, despite its commodification and co-optation into a global surveillance system, continues to promise greater access to the public debate than the traditional bourgeois public sphere. It appears as a platform for voicing their views not just for hegemonic groups, but also for a variety of counterpublics.[21] Nancy Fraser coined the term "counterpublics" to refer to "parallel discursive arenas" that create and circulate alternatives to the hegemonic public discourse.[22] According to Palczewski counterpublics generate "alternative validity claims", "alternative norms of public speech", "oppositional interpretations of needs", cultural identities, and even energy.[23] David Faris believes that new media, by creating spaces for counterpublics, "increase the carrying capacity of the public sphere".[24] Recent research has also suggested that Internet-based means of communication such as blogging are consciously being used to create counter-discourses and "engage in a contest for the representational resources that are necessary for redefining social reality".[25] In the present essay I am not interested in counterpublics that are allied in social movements or organised around certain social causes. My argument, rather, focuses on counterpublics as constellations of individuals who come together in unorganised, yet mutually energised online events or locations that challenge the dominant ideologies of today or point out their internal inconsistencies.

Warner elaborates that counterpublics are characterised by a "tension with the larger public": they are structured differently, they make different assumptions and are aware of their subordinate status.[26] This places counterpublics in a critical tension with power structures, be it in political stances or chosen speech genres and idioms. Warner believes that counterpublics "try to supply different ways of imagining stranger

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[21] Dean ("Why the Net Is Not a Public Sphere," 96–97) believes that just pluralising the notion of the public does not constitute a solution as the sharing of the same norms makes them the same public; not sharing the same norms makes them interest groups. However, I believe that the notion of counterpublics is valuable as it allows us to single out online publics that take an explicitly antagonistic stance towards the public consensus.

[22] Fraser, "Rethinking the Public Sphere," 67.

[23] Palczewski, "Cyber-Movements," 166–167.

[24] Faris, *Dissent and Revolution in a Digital Age*, 123. He also notes, however, that network connections also matter in the new media as it is better connected individuals who are more effective in getting their voices heard and spread.

[25] Eckert and Chadha, "Muslim Bloggers in Germany," 939.

[26] Warner, *Publics and Counterpublics*, 56. Warner himself, in his theoretical discussion, uses few explicit examples, but he does refer to gay/queer counterpublics.

sociability and its reflexivity".[27] They are "spaces of circulation in which it is hoped that the poiesis of scene making will be transformative, nor replicative merely".[28] Although he does not investigate it *per se*, Warner believes the Internet can change the understanding of the public sphere profoundly.[29]

Emotional Public Sphere

The present essay argues that developments in Internet communication, especially in social media, have made the Internet more dialogic than the traditional public sphere. This democratic public space has enabled not just citationality (from repostings to mash-ups) but also a web of interlocking responses that empower individual private persons by giving them a safe space for political speech, using new modes of expression like digital heckling and dialogue (commenting, reposting). More than anything, new media thus generate a more effective sense of reciprocity. Tropes and memes are generated, circulated, and re-performed in different Internet locations to different emotional ends. Emotions are crucial for the present essay because they are excluded from the Habermasian notion of the public sphere, but play an important role in public spaces, including Internet spaces, where antagonistic debates about different social issues take place. Moreover, it is shared passions that often fuel counterpublics in their challenges to social consensus.[30]

Discussions of the public sphere have focused on reason since Kant, who distinguished public and private uses of reason and associated only the first with enlightenment.[31] Emotions have been largely excluded from the discussions of political sense-making because of their association with irrationality. Media scholars have also viewed emotions with ambivalence, for example in criticising the emotionalisation of political life[32]. Widespread concern over the tabloidisation of the media and the attendant

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[27] Warner, *Publics and Counterpublics*, 121.

[28] Warner, *Publics and Counterpublics*, 122.

[29] Warner, *Publics and Counterpublics*, 97.

[30] Kingston, *Public Passion*, 201. For a specific case study of the use of emotions in the creation of counterpublics, see Sziarto and Leitner, "Immigrants Riding for Justice".

[31] Cf. Warner, *Publics and Counterpublics*, 44.

[32] Thompson, *Political Scandal*; van Zoonen, "After Dallas and Dynasty".

"sense of declining cultural, educational and political standards"[33] is typical of the tacit belief in the need for rational public actors and unbiased, informative media. In research on the public sphere, emotions have been treated with, at best, caution and, at worst, disdain as sources of irrationality and manipulability.

However, in the study of new media emotions merit a new and closer look. Emotion and affect are among the academic buzzwords of the 2000s: in the humanities and social sciences we even talk of an affective turn.[34] In political sciences there has been increasing attention to the fundamental role of emotions in political decision-making.[35] Although media studies do not seem to have experienced an affective turn *per se*, media scholars have also taken considerable interest in emotions.[36] Thus, the attention to affect has generated more interest in affective communication and the role of emotion in mobilising action. "Emotions do not merely offer temporary and comforting communities of feeling […] but can also trigger public deliberation and public actions, for the latter only survive if held up by firm emotional commitment".[37] This is, for example, evident in public emotional outbursts like those following the deaths of Princess Diana, the Dutch film-maker Theo van Gogh, or the Swedish politician Anna Lindh[38] or after the events of 9/11.[39]

This link between the Internet as a space of deliberation and the increasing awareness of the role of emotions in public discussions raises the question of an emotional public sphere that manages emotional conflict and emotional responses—often by marginalised voices—to political issues in the public sphere. In media studies, the emotional public sphere has been analysed from the perspective of traditional media. Scholars have, for example, studied how traditional media create moral

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[33] Barnett, "Dumbing Down or Reaching Out," 75. These often alarmist critics of "dumbing down", as Barnett shows, ignore the fact that tablodisation has also created a less elitist form of media communication.

[34] See e.g., Thompson and Hoggett, *Politics and the Emotions*.

[35] Cf. Marcus, *Affective Intelligence*; Marcus et al., *The Sentimental Citizen*.

[36] Demertzis, "Emotions in the Media," 85. Demertzis claims that some sub-fields of media studies have engaged with emotions from their inception but that this interest does not extend to the discipline as a whole. Madianou ("Audience Reception," 334), in contrast, believes that media studies have been affected by the general affective turn in social sciences.

[37] Pantti and van Zoonen, "Do Crying Citizens Make Good Citizens?", 210.

[38] Pantti, "Masculine Tears, Feminine Tears".

[39] These emotions were also encouraged by political communications, as shown by Altheide, "Creating Fear".

panics and "impoverished images of the public"[40] or, in the context of talk shows, ironic engagement with rational public discussion.[41] Also, much of the research has focused on the traditional sphere of political participation, but in contemporary public life, spaces of debate and dissent exist in locations that are traditionally seen as apolitical. Recent work on, for example, the blogosphere demonstrates that emotions play a key role in spurring activist interventions and building communities. However, emotions can also have a deleterious effect as the anonymity of the online public sphere also unleashes emotionally heightened criticism, also by actors whose views cannot be articulated in the traditional public discourse.[42]

The present essay argues that it is in this emotional public sphere where we encounter ironic, parodic, or intimate engagement with the rational public sphere. As more of what has been recognised as the rational public sphere moves into the agonistic space of the Internet, traditional political deliberation comes into contact with the more anarchic and more emotional online commentary and debate.[43] It has to be remembered, however, that political parties and interest groups also use emotional online devices to stigmatise opponents or to promote their own candidates, at times disguised as members of the public or even counterpublics (e.g. through astroturfing[44]). Online counterpublics have the potential to not just raise topics and voice criticisms, but also to challenge the commonly accepted "feeling rules"[45] or "emotional regimes".[46] Online counterpublics may consciously violate social taboos and challenge social norms. One example is the questioning of the normative striving for individual happiness and material success in the current neoliberal consensus, which—despite the public celebration of material success—has become increasingly impossible to even middle-

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[40] Richards, *Emotional Governance*, 72.

[41] Lunt and Stenner, "The Jerry Springer Show".

[42] E.g., Lopez, "Blogging While Angry," 422.

[43] E.g., Jenkins et al., *Spreadable Media*, 28.

[44] Astroturfing refers to hiding the sponsors of a political message and disguising it as the spontaneous product of grassroots citizens. Fake election ads have been discussed by Tryon ("Pop Politics"). Daniel Kreiss analysed the ways in which the presidential campaigns of 2012 used social media, specifically Twitter, to supply journalists with their interpretations of events. See Kreiss, "Seizing the Moment".

[45] Hochschild, *The Managed Heart*, 56.

[46] Riis and Woodhead, *A Sociology of Religious Emotion*, 11.

class Westerners. For instance, a website like Despair, Inc.,[47] which satirises the motivational language of today's corporations, is a means of channelling social and psychological aggression, but also of coping with failure by demonstrating the problematic premises of success. As "affect aliens", to use the term of Sara Ahmed[48], counterpublics offer emotionally charged challenges to the consensus of the rational public sphere, but also a potential form of social catharsis.

This catharsis is partly achieved by what could be seen as an extension of the Bakhtinian culture of laughter, with its liberating reversal of hierarchies and ridicule of authority.[49] Hariman suggests that "by doubling discourse into a self-consciously comic image of itself, and then casting that image before the most democratic, undisciplined, and irreverent conception of a public audience, parodic performance recasts the hermeneutics of public discourse".[50] The parodic forms, in other words, reveal the constructedness of institutional norms, values, and achievements. Hariman sees this parodic replication as a necessary element in the retention of a vibrant public speech: the ridiculing echo of public speech opens the latter up to a certain "semantic indeterminacy, a certain semantic openendedness, a living contact with the still-evolving contemporary reality".[51] In Hariman's opinion, this inevitability of display in other contexts expands public speech and thus also reduces official/elite control of public discussion.[52] The audience's active and critical engagement, which is revealed in mocking, is more relevant to vibrant democratic discussion than mute consensus that masks passivity and political inertia.

Some forms and structures of parodic texts achieve their effect by cognitive dissonance. Our social existence forces us to accept some elements of social life (e.g., power structures, triteness of political slogans,

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[47] For a detailed and ironic discussion of the rationale, see Kersten, *The Art of Demotivation*. The most recognisable products of Despair, Inc. are their Demotivators, posters that imitate the aspirational language and imagery of motivational speakers, but send the opposite message (e.g. 'Believe in yourself. Because the rest of us think you're an idiot', see http://despair.com/collections/ demotivators/products/believe-in-yourself, accessed May 15, 2015).

[48] Ahmed, *The Promise of Happiness*.

[49] In this regard, my argument compares to that of Hess ("Purifying Laughter") who, also building on the work of Bakhtin, has analysed Jon Stewart's *The Daily Show* as a radical critique of the news industry.

[50] Hariman, "Political Parody," 255.

[51] Bakhtin, *The Dialogic Imagination*, 7. Bakhtin speaks about novelisation, but Hariman applies this idea to the parodic.

[52] Hariman, "Political Parody," 258.

hypocrisies of people in power, etc.) that are inherently absurd. Online parodic texts, like the ones analysed below, uncover this dissonance and thus offer liberation through laughter. Parodic revelation of the vacuousness of public ideologies produces laughter that releases the grip of these ideologies over a person. Thus "the annihilating laughter at the momentary triumph of the absurd is a moment of freedom".[53] This freedom may translate into distancing oneself from alienating power structures but also potentially into increased political and public engagement. Parody nurtures healthy scepticism and hones critical skills by showing the constructedness of standard political content and ideologies. The public is released from the constraints of alienating political ideology and is encouraged to engage in their own proactive forms of political participation, either online (blogging, posting on social media websites) or offline (by voting).

New Emotional Public Sphere and Political Deliberation in the 2012 US Presidential Campaign

New media have become a staple of today's political campaigning. The 2008 US presidential campaign of Barack Obama was notable in its use of social media and also the social media's intervention in the campaign. It is impossible to say precisely what role social media played in the actual election results, beyond energising young voters, but they created a new and emotionally invested area of political campaigning and new forms of political dialogue. Social media were even more prominent in the 2012 election, with roughly 31.7 million political tweets, at 327,452 tweets per minute at times.[54] Barack Obama's Twitter account had 22,112,160 followers, Mitt Romney's 1,761,442 by Election Day.[55] The campaign of 2012 was a multi-directional information event that involved not just the traditional public sphere but also a multiplicity of counterpublics in the emotional public sphere of the social media. The 2012 US presidential elections also demonstrated that what could be called digital heckling, posting derisive content online to mock a candidate or a position, had matured as a form of popular political response. The present essay chose the presidential election because it is a contained media event and now also lies far enough in the past for us to have gained some perspective. Within the election campaign, presidential debates receive special national
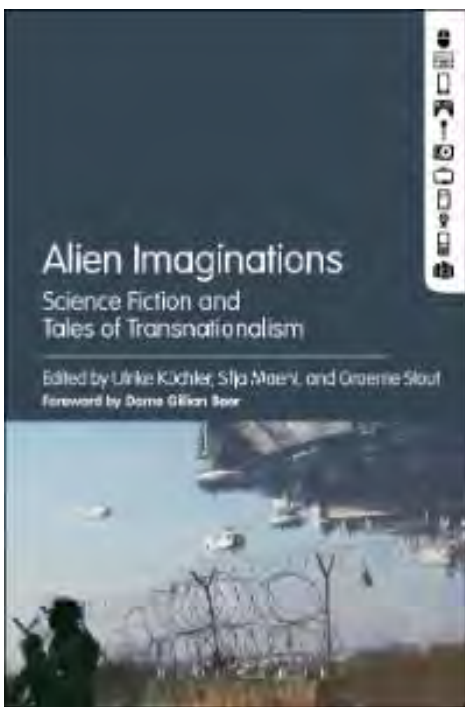
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[53] Hariman, "Political Parody," 257.
[54] Finn, "Election 2012".
[55] Kreiss, "Seizing the Moment," 6.

Introduction

Ulrike Küchler, Silja Maehl **and** Graeme Stout

In his essay "The Stranger," originally published in 1908 as an excursus to a book chapter on the sociology of space, Georg Simmel describes the stranger as the exemplary liminal figure: he is at once near and far, a member of a group but moving at its periphery. In order to distinguish the stranger from the alien, Simmel extends his argument into outer space: "The inhabitants of Sirius are not really strangers to us, at least not in any social logically relevant sense: they do not exist for us at all; they are beyond far and near" (1971: 143–4). Thus separating the alien categorically from the stranger, Simmel does not take seriously the imaginative power that "other worlds" have exercised upon the minds of science fiction writers, theorists, and enthusiasts alike. The appeal of science fiction, which can be the most creative and wondrous mode of writing available to us today, is that its visions hold the potential to reveal a good deal about the societies in which they are conceived. One premise of this collection, therefore, is that the most alien may be furthest removed from us spatially or temporally, but it also lies at the heart of modern and postmodern consciousness. The absences or gaps of knowledge we have concerning the alien are filled by our imagination as to the nature of this foreignness. Consequently, that which appears the most alien resides within rather than outside of us.

As the essays in this volume demonstrate, a joint discussion of strangers and extraterrestrials extends the critical scope that Simmel saw for the stranger by pointing to the hypothetical encounter with the extraterrestrial as a means of working through terrestrial encounters between peoples. In order to emphasize the critical potential of science fiction and to move beyond the confines of genre—boundaries that are especially limiting and even undesirable to maintain in the case of science fiction—this book offers a perspective on the alien that connects to recent experiences and scholarship on transnationalism, immigration, and border policing, building on the dialectical interaction between its imaginations and material realities of the flows of people and capital.

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Imagining the alien

While the alien is first and foremost a universal other or another (lat. *alius*), the English word more specifically designates a foreigner: someone who is not a naturalized citizen of his country of residence. For most, however, the word "alien" conjures up images of extraterrestrials. In either use of the term, we find someone or something that is out of place and which confronts us with its alterity. Fictions of travel, migration, and transnationalism as well as science fiction deal with varying degrees of otherness: whereas science fiction imagines a complete other along with a possible future world, the foreigners on Earth are temporary strangers (e.g. guests and tourists), precarious peoples (e.g. refugees or settlers), or permanent outsiders on the inside (e.g. resident aliens), they seek acceptance and integration or demand their otherness to be recognized as such. As the undocumented immigrant or refugee, the alien has challenged the nation-state and our universal, inalienable rights; as the creature from outer space, the alien allows us to imagine something that is truly foreign and, through its eyes, to look at ourselves as if from the outside. As an overarching concept, the alien is a powerful interdisciplinary one that encourages us to rethink antinomies of inside and outside, self and other.

This volume seeks to understand the speculative draw of the alien, as our social and cultural imagination relies heavily, if not entirely, on that which is outside of it as a means of self-conscious understanding through dissociation. The title, *Alien Imaginations*, can thus be read in three ways: it refers to the way we as humans imagine the alien, whether the foreigner or the creature from outer space. It could also refer to the way the alien imagines *us*, how the alien looks back upon us "as through a glass darkly." Finally, alien serves as an adjective that, like Freud's *uncanny*, points to a quality that slips between the known and the unknown, the certain and the uncertain. While the alien as the stranger or foreigner enables us to distinguish between what is known and what is unknown, what is familiar and what is not, it is important to remember how the alien is not a figure that can be separated from the society and the discourse that has created it and into which it enters as a critical reflection. In fact, the alien is not a figure at all, in an ontological sense, but instead a representation within our cultural imagination. As Sara Ahmed rightly points out, "it is the processes of expelling *or* welcoming the one who is recognized as a stranger that produce the figure of the stranger in the first place" (2000: 4). Representing the danger of the unknown as such, the same is true, to a greater extent, of the alien: "the alien stranger is hence not beyond human, but a mechanism *for allowing us to*face that which we have already designated as the beyond" (3, emphasis in the original).

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Drawing on, among others, Benedict Anderson's examination of the creation of nations as *Imagined Communities*, Arjun Appadurai in *Modernities at Large* characterizes our contemporary world as a complex postnational construction of "imaginary landscapes" (1996: 31). He posits the imagination as "the key component of the new global order," defining it as a "social fact":

> No longer mere fantasy (opium for the masses whose real work is elsewhere), no longer simple escape (from a world defined principally by more concrete purposes and structures), no longer elite pastime (thus not relevant to the lives of ordinary people), and no longer mere contemplation (irrelevant for new forms of desire and subjectivity), the imagination has become an organized field of social practices, a form of work (in the sense of both labor and culturally organized practice), and a form of negotiation between sites of agency (individuals) and globally defined fields of possibility.

Appadurai 1996: 31

Appadurai's reading of imagination resonates in the title of our collection, in which alien imaginations are not read as escapist fantasies, a "criticism" that science fiction often undeservingly receives, but as a material force in the world. From a Marxist perspective, such a reading of imagination takes ideology to be not simply an illusion, but an active and transformative force within the social world, one that can change history.

At the height of modernity, before the twentieth century marked itself as one of the bloodiest in human history, Simmel's evocation of the stranger and the alien looks both backwards and forwards. At the end of European colonial expansion, the figure of the stranger speaks to larger histories of "first contact" between different cultures, societies, and world views. Simmel's stranger also looks ahead to a century that, according to Hannah Arendt, would be defined by the refugee, the stateless masses "who, unlike their happier predecessors in the religious wars, were welcomed nowhere and could be assimilated nowhere" (1973: 267). The alien stands for the dispossessed who cannot be reconciled within the normal state of political life. It is an exception that undermines the rule. As such it has a self-critical force that functions on a collective as well as an individual level. Bernhard Waldenfels sees the alien as a chaotic concept that undermines ontological certainty:

> If we take the alien [. . .] as something that cannot be pinned down, if we take it as something that seeks us out in our own home (German *heimsuchen*) by disturbing, enticing, or terrifying us, by surpassing our expectations and eluding our grasp, then this means that *the* alien always affects our own experience and thus turns into a *becoming-alien of experience*. Alienness is self-referential, and it is contagious.

2011: 3, emphases in the original

Shifting registers, we can think of Waldenfels' reading of the alien as a reading of the figure of the alien in literature and film. If Waldenfels offers a particular hypothetical, phenomenological approach to the study of the alien, the essays in *Alien Imaginations* seek to build on such theoretical models while connecting them to the political and cultural histories of the twentieth and twenty-first centuries, centuries defined by national and ideological conflicts.

"Alien studies"

As many critics have noted, science fiction's encounters with alien others are inspired by ethnographical accounts and the history of imperialism and colonialism (see Dame Gillian Beer's foreword to this collection). Other lands and travel narratives have always exerted an immense influence on the human imagination as they offer the chance to think and dream, as both are social acts, in ways that escape and even confront the ordinary. Early European science fiction has been modeled on European travel narratives and thought-experiments about other worlds—from Montaigne and Fontenelle to Swift and Voltaire. In Fontenelle's *Entretiens sur la pluralité des mondes (Conversations on the Plurality of Worlds*, 1686), for instance, we witness how the idea of an expansive universe and the possibility of extraterrestrial life helps the natural philosopher to appreciate the joys of discovery while, at the same time, serving as a thinly veiled metaphor for European encounters with the peoples of the "New World." By the end of the nineteenth century with the emergence of invasion literature, the alien was transformed into a threat to national, linguistic, and racial boundaries and identities (e.g. Wells, Lovecraft, Heinlein). Works such as Ray Bradbury's short story "Dark They Were, and Golden-Eyed" (1949) or Philip K. Dick's *The Three Stigmata of Palmer Eldritch* (1965), address real-life issues of racism, colonialism, and citizenship. By the late twentieth century, the threatening figure of the alien (both the extraterrestrial and the refugee) was frequently replaced by a sympathetic one (e.g. Le Guin, Miéville, Arnason) that allowed us to interrogate our own post-national existence.

We conceive of our collection of essays as part of a larger discussion that has emerged within science fiction studies of the past decade. Academic studies of the literature and cinema of science fiction have, most often, been housed within English departments and have had, for obvious reasons, a particularly Anglophone orientation. Recently, studies of science fiction have engaged quite productively with issues surrounding both science fiction and post-colonial studies. Two monographs that develop both fields while arguing for their essential relationships are John Rieder's *Colonialism and Emergence of Science Fiction* (2008) and Jessica Langer's *Postcolonialism and Science Fiction* (2012). Two collections of essays that continue and expand upon the ideas and interests of these books are Hoagland and Sarwal's *Science Fiction, Imperialism and the Third World* (2010) and Ashraf Raja et al.'s *The Postnational Fantasy* (2011). The breadth of the essays and the literary and cinematic works they analyze point to the robust nature of the intersection of science fiction and postcolonial studies.

Building on thinkers such as Arjun Appadurai, Zygmunt Bauman, Seyla Benhabib, and Saskia Sassen and their analyses of the global order, a 2012 issue of *Science Fiction Studies* undertook to examine what a globalized version of science fiction studies would be and how it would help to develop both the fields of science fiction and globalization studies. Building on the analysis of John Rieder and others, Roger Luckhurst notes that, with nineteenth- and early twentieth-century colonial expansion, world's fairs and exhibitions became fertile ground for science fictional thinking as "early laboratories for immersive capitalist dreamworlds" (2012: 397). Following in a similar theoretical trajectory, Eric D. Smith's *Globalization, Utopia and Postcolonial Science Fiction: New Maps of Hope* (2012) offers an innovative and even optimistic investigation of utopian and speculative fiction from around the world. Together, these works speak to a larger shift in studies of science fiction to expand its generic and cultural horizons as well as a trend in postcolonial and globalization studies to look to utopian venues for a new understanding of the cultural transformations of our current age. *Alien Imaginations* places itself within this larger dialogue between science fiction and critical studies of the global age.

Border experiences

In his introduction to a recent issue of *Science Fiction Studies*, David Higgins notes how science fiction not only records "the imprint of globalization on artistic and cultural productions," but how speculative literature can also "theorize globalization" by providing insights into the practices and implications of global interconnectivity. The guiding question emerging out of this two-way relation is: how does science fiction reflect upon and challenge global regimes of social, economic, and political power? The literature and films under discussion in this volume engage with this question. While most of these works are European and North American in origin, their critical intent and potential undermine many of the central notions of Western hegemonic discourses: key amongst these is that of the nation.

A unifying theme among the essays in our collection is the transgressive force of travel and the concomitant crossing of geographical, cultural, or linguistic borders. As Sandro Mezzadra and Brett Neilson argue in their recent *Border As Method, Or the Multiplication of Labor*, the border has inscribed itself at the center of our contemporary experience as material and symbolic boundaries "overlap, connect, and disconnect in often unpredictable ways, contributing to shaping new forms of domination and exploitation" (2013: vii). What ensues from this movement, be it between and across material or symbolic borders, is, on the one hand, the both liberating and frightening awareness that some clear-cut divisions, which have previously been validated, become increasingly impossible to maintain: state boundaries and the rules and regulations of capital and work forces are, in many ways, rendered "invisible." On the other hand, we might become aware of the existence of previously unregistered boundaries within a world taken for granted: the self and that which we presumed to be "ours" is now perceived as always already traversed by the alien. This collection traces boundary transgression and migration, border flow and control, as well as alien anxiety and "stranger danger" (Sara Ahmed) as some of the unifying themes of science fiction and tales of transnationalism—that is, narratives conceived outside of a national setting and canon—arguing that stories of aliens, cyborgs, and other liminal beings have much in common with the fates of (im)migrants.

The essays in the collection are deliberately not divided along generic, regional, linguistic, or chronological lines. Rather, they are arranged according to the similarities of their approaches and themes. In this way, they can enter into a cross-cultural and interdisciplinary dialogue with one another without being confined to the very categories that this volume attempts to transgress. Although many of the authors' approaches and texts are anchored within national literatures and cultures, all speak to a desire to "alienate" in order to critique one's own cultural preconceptions and limitations.

Part 1, **Alien Language**, starts the collection with four essays that examine issues of translation, multilingualism, the philosophy of language, and psychoanalysis through a discussion of works both classic and contemporary. As the cradle of all fiction, imaginative power is especially essential to science fiction, a mode of writing that relies heavily on literary experimentation, linguistic play and innovation, as well as creative premonition. Many of the works under analysis in this volume's essays exemplify this facet (e.g. Kubin, Zamyatin, Gibson, and Arnason). John Mowitt's deconstructive reading of H. G. Wells' *The War of the Worlds* offers an analysis of the unconscious motivations and tensions that subtend this seminal work of science fiction. In particular, the theme of invasion is given a novel import through the ultimate threat that the aliens manifest to the sociobiological foundation of the Western world. In her discussion of "Alien Art," Ulrike Küchler examines literary works of European modernity: H. G. Wells' *The Time Machine*, Alfred Kubin's *The Other Side*, and Yevgeny Zamyatin's *We*. Her essay traces a shift of the function of art—from convention via communication to cognition—in the encounter with the alien other that employs various sorts of "interart" references. Joela Jacobs unpacks the complicated relationship of ethnic identity in late Wilhelmine and early Weimar Germany through an analysis of two works: Oskar Panizza's *The Operated Jew* and Salomo Friedlaender's *The Operated Goy*. Both texts play with notions of ethnic identity and the caricatures built around Jews and Germans, by parodying the pseudo-scientific discourses of race and health through a series of physical and linguistic transformations. Silja Maehl's essay provides a close reading of selected early German texts from the collection "Talisman" by Yoko Tawada, an author living in Germany while producing two distinct bodies of work in Japanese and German. While Tawada's work is more overtly relatable to questions of multilingualism, transnationalism, and postcolonialism, her literary estrangement techniques are also similar to science fiction as a mode of writing, a reading that is supported by the central role assumed by themes of alienation, travel, and virtuality.

Part 2, **Alien Anxieties**, takes up two "contact scenarios" in science fiction: one in which aliens seek humans out on Earth—the topic of classic invasion literature—and the other in which humans explore and invade alien worlds, which is, rather euphemistically, associated with discovery and exploration. Here, however, our authors emphasize alien encounters as more than sources of fear and conflict. The four authors in this section think of anxiety in terms of the larger twentieth-century fears that still plague us and that we have yet to overcome. Key amongst these are ethnic and national conflict, racism, and environmental degradation. Andrew M. Butler's discussion of Neill Blomkamp's *District 9* questions the ways in which this film has been interpreted as a cinematic allegorization of apartheid in South Africa. Butler also discusses how the multi-layered representations of race and political violence are much more complicated and problematic than many others have argued. Through a discussion of abjection, he argues that the visceral nature of the film and its images of bodily transformation speak to larger fears associated with race and miscegenation. Similarly, Andrew Opitz's reading of Philip K. Dick's novel, *The Three Stigmata of Palmer Eldritch*, asserts that the novel has a prophetic and potentially psychotic character that critiques commodity culture and the pharmacological society of both Dick's age and our own. By reading Dick's novel alongside Blomkamp's most recent film, *Elysium*, Opitz contends that the technologically enabled transformation of the body found in literature and cinema speaks to larger social, economic, and environmental issues at work in our world. Matthew Goodwin's study of José Luis Alverdi's short story "Sugar on the Lips" ("Azúcar en los Labios"), Gabriel Trujillo Muñoz's short story "Cajunia," and Cherrie Moraga's play *The Hungry Woman: A Mexican Medea*, illuminates the ways in which the Mexico-United States border serves as a rich source for the construction of fictional dystopian states. Furthermore, his discussion points to the ways that utopian thinking is held up as a potential field of creativity and resistance. Bianca Westermann's analysis of *District 9* and *Avatar*—placed in dialogue with *The Fly* and *Dances with Wolves*—argues that the changing face of ambiguity in popular film speaks to larger transformations in postmodern culture. By comparing these films as two groups of two, Westermann makes a case for a general shift in the cultural value and import of ambiguity at the beginning of the twenty-first century.

Part 3, **Alien Identities**, uses the figure of the alien to question how identity is reshaped in the twenty-first century, both as a series of conceptual inquiries and as the reality of social life in a global age. The five essays in this section investigate new formulations of identity—both individual and collective—through investigations of gender, ethnicity, labor, migration, and cyberspace. Emilie McCabe explores the alien as an ambiguous concept where cultural discourse and sexual discourse overlap. Her essay on Eleanor Arnason's Ring of Swords discusses how the linkage between the migration of works of art and the migration of individuals in the novel allows for an alien encounter that, unexpectedly, leads to a peaceful understanding between two alien societies. Célia Guimarães Helene's analyses of Ray Bradbury's "Dark They Were, and Golden-Eyed" along with Archie Weller's "Going Home" focuses on the ways that two very different genres—science fiction and psychological realism—both provide us with a critical understanding of what it means for someone to live between two cultures while being accepted and understood by neither. In "Case Histories: Alienated Labor in William Gibson's *Pattern Recognition* and *Zero History*," Jen Caruso explores the role of labor and gender in the novels of William Gibson, tracing the image of the "cool hunter" as an allegorical representation of immaterial labor and commodity fetishism. Graeme Stout's essay provides a reflection on two key modes of transportation—the shipping container and the commercial jetliner—within two films by Michael Winterbottom: *In This World* and *Code 46*. Although these films differ in their generic qualities—docudrama and science fiction respectively—they share a common goal in critiquing, in both didactic and allegorical modes, the changing nature of labor, migration, and power in a transnational age. Gerrit K. RÖßler's rereading "'This is I, Hamlet the Dane!'" centers around the metamorphoses of one of the most famous figures in literary history: from I, Hamlet to iHamlet. In his essay, the migrant meets the avatar and performs the multifaceted transition between the medieval and the modern stage in a theater that employs structures and functionalities of cyberspace.

The thirteen essays collected in this volume approach the alien as an aesthetic and ontological concept that sheds light on the transition between discourses of the alien other and their fictionalization in media and arts. As individual essays they offer unique and challenging interpretations of literary and cinematic works both classical and contemporary and are marked by a diversity of texts and methodological approaches and concerns. In their various readings, the authors employ a multitude of theoretical perspectives that expand upon the previous studies of the texts they cover. This openness allows for a number of productive comparisons and associations between the essays, ideas, and texts within the volume. As a whole, *Alien Imaginations* continues to open a field of studies that brings together science fiction and transnational studies in order to present new venues for research and, above all, imagination.

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Ulrike Küchler

Reading Machines: On the Surface of Meaning – Beyond the Surface of Discourse

Abstract: Reading machines are technological devices promising to support or even perfect processes of reading. Although the concept of reading machines is almost as old as the notion of writing machines, it has received far less attention in literary and cultural studies. The following essay addresses this gap. The first part of the argument links the reading machine to Freud's definition of a tool. As a prosthesis connected to the human body and mind, a tool produces 'trouble at times': translation difficulties between the machine and its user affecting matters of materiality, discourse, and meaning alike. The reading machine embodies such 'trouble at times' that results from the paradox tension between machine and meaning. While the machine requires the mechanized processes to be unambiguous, the reading process is ambiguous by definition. Most of the reading machines invented in the past decades, do not take into account the trouble that results from such a tension: first and foremost, they serve to support reading processes mechanically. Yet, some of them stand out and hold a specific potential to stage such troubles and render the underlying tensions productive. The article discusses three of them, each of them focussing on a different aspect of the reading process: the first one is a 'pedagogical reading machine' (1767) concerned with the alphabetization process, the second one is an 'aesthetic reading machine' (1930) designed for reading literary texts, and the third one is a 'critical reading machine' (2007) that focuses on literary criticism.

Keywords: reading machine, literacy, enlightenment, modernism, postmodernism

With every tool man is perfecting his own organs, whether motor or sensory, or is removing the limits to their functioning. [...] In the photographic camera he has created an instrument which retains the fleeting visual impressions, just as a gramophone disc retains the equally fleeting auditory ones; both are at bottom materializations of the power he possesses of recollection, his memory. With the help of the telephone he can hear at distances which would be respected as unattainable even in a fairy tale. Writing was in its origin the voice of

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an absent person [...] These things that, by his science and technology, man has brought about on his earth [...] do not only sound like a fairy tale, they are an actual fulfilment of every – or of almost every – fairy tale wish. [...] Man has, as it were, become a kind of prosthetic God. When he puts on all his auxiliary organs he is truly magnificent; but those organs have not grown on to him and they still give him much trouble at times. (Freud 37 f.)

Following Freud, a tool serves to extend quantitatively and qualitatively the limits of the human body and mind. Its purpose is to complement their deficiencies,[1] to lead to ultimate perfection. Some of the prostheses are designed to support the body by technologically overcoming physical challenges and spatial or temporal distances. Others are invented to perfect the human mind by medially surmounting distances of meaning, tools that claim to improve, or even perform, cognitive and creative processes and thus to satisfy mechanically the human desire for meaning. Such tools serve to make the absent present, the present omnipresent and human beings omniscient and omnipotent. Almost. For there are moments when mankind and tool seem altogether incompatible, when interruptions due to 'translation difficulties' between human body and mind, and his "auxiliary organs" cause "trouble"; this is the case, for instance, when we have to deal with mysterious memory loss in the devices we use to outsource our memories.

Where does this trouble come from? Dismembering the device to look for a technological explanation is, of course, always an option when looking for an answer to that question – one, however, that might solve the singular memory issue but does not address its more general character. This is, where another dimension of the tool in Freud's description comes into play: tools "are an actual fulfilment of every [...] fairy tale wish." They link the world of imagination to the real world. In the world of imagination, man is a god-like creature. In the real world, he is not. The tool promises to bridge that gap, yet, by definition and by being part of both worlds, it also reopens it ever so often.[2] Tools are thus an intricate part of the fairy tales whose wishes they fulfil: causing trouble is part of their concept. A tool that produces 'trouble at times' therefore does nothing else than pointing to the very gap it bridges: between humankind's idealized and idealizing self-image(ination) and physical and psychological realities.[3] It chal-

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1 For an anthropological perspective see Arnold Gehlen's concept of human beings as deficient "Mängelwesen" (Gehlen 20). Within his theoretical framework, the purpose of technological invention and institutions is to meet such deficiencies.

2 Since the tool is part of imaginative constructions and 'real-world' interactions, certain literary genres, above all Science Fiction, are sometimes defined by their 'prophetic,' even advertising involvement with futuristic technology (Jameson).

3 A broken telephone reduces the range of man's voice from several thousand kilometres to a mere couple of meters thus reducing the self-image of man from a god-like figure to an animal

lenges and sheds light on the nature of both worlds and draws attention to the varieties and technologies of self-images in different decades and discourses. The trouble that, at first glance, primarily concerned the relation between human beings and their tools on a rather 'material' level hence also affects the relation between particular, discursively determined, self-images. Therein lies an even bigger potential for disturbances and disorder – discursive "trouble at times."

This trouble is of particular interest in the case of tools that are explicitly designed to get involved in processes of the imagination: machinery constructed to generate or decipher the very fairy tales it is part of, and concerned with semiotic processes by improving, for instance, writing or reading processes. For, such machines do not only reflect a particular self-image – man as a being capable of understanding and producing meaning – but also link it to the respective nature of that meaning and the concept of the signs it is conveyed by.

In the past three centuries many tools claimed some kind of epistemic value in mechanically supporting or even perfecting the performance of such processes of meaning production and reception, with analogue writing machines[4] and reading machines[5] as well as their digital successors[6] amongst them. They are tools to

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creature whose voice sounds like a feeble whisper compared to the sound of fellow creatures a fraction his size (a howler monkey's voice carries as far as nine kilometres and the loudest animal is actually one of the smallest: the pistol shrimp).

4 In 1714, Henri Mill obtained a patent for a *Machine for Transcribing Letters*, "an artificial machine or method for the impressing or transcribing of letters, singly or progressively, one after another, as in writing, whereby all writings whatsoever may be engrossed in paper or parchment so neat and exact as not to be distinguished from print; that the said machine or method may be of great use in settlements and publick records, the impression being deeper and more lasting than any other writing, and not to be erased or counterfeited without manifest discovery" (Woodcroft 1855).

5 In 1920 (first patented in 1922 and then in an extended version in 1923), Bradley A. Fiske designed one of the first prominent photographic reading machines "intended principally as a substitute for books, magazines, pamphlets, newspapers, or any other vehicle by which printed words are read at the present time." The portable machine serves to actually improve the very process of reading, "to permit the small characters [...] to be read without any undue strain on the eyes of the reader" and "to secure economy of paper" (Fiske 1923). In contrast, its predecessors mainly include inventions rather concerned with the translation of written into spoken language such as Evert Nymanover's "whispering machine" (Balmer 1885) whose original patent is lost and Edmund Edward Fournier d'Albe's "reading machine for the blind", the Optophone that was first invented in 1912 and patented in 1920 (Fournier d'Albe 1920).

6 Already in 1945, Vannevar Bush has suggested in his seminal essay *What We May Think* a machine that would merge the advantages of writing and reading machines with a cognitive improvement, a personal computer that is: "Consider a future device for individual use, which is a sort of mechanized private file and library. It needs a name, and, to coin one at random, "memex" will do. A memex is a device in which an individual stores all his books, records, and communica-

mediate between spoken and written language and, more generally speaking, between the world of objects and the world of signs. Most of such "kinds of support" (Derrida 4) are of an ambiguous nature: they promise assistance to unveil the meaning behind words, while, at the same time, veiling their very own position and role in the process of meaning production and reception.[7] What characterizes this process is therefore an antagonist relation between body and mind as well as tool and language, the contrast between mathematical finiteness and unambiguity, and semiotic infinity and ambiguity. This contrast produces and reinforces a tension that, at times, causes a certain semiotic "trouble" at the intersection between man, machine and language matters. We only have to think of writing programs that delude their readers into believing to read texts written by human authors (consider the many examples for computer generated news articles, science papers or poetry) or the manifold reading errors produced by automatic translation software.

Such machines, and all the more the trouble they produce and the tensions they uncover, hold the potential to shed light on both the (self-)image of human beings and the signs they use at a certain time. Yet, most of them are primarily designed to fulfil the fairy tales they are part of, to resort to Freud's wording: perfecting the human being and removing the limits of body and mind. Some, however, are more interested in engaging with this potential and uncovering the very fairy tale – the (self-)image of man and sign – that those machines embody.

Reading Machines Reading Surfaces

I am interested in such inventions that render the tensions and troubles in the triangular semiotic interplay between human beings, tool and language productive. In this article, I discuss three examples of tools that are in some way involved in semiotic processes and engaged with the reception of meaning. All three of them are reading machines that stage the trouble, which is an intricate part of the tool. They are thus presented in a way that suggests a certain self-referentiality.

The first example is also the first to be actually named a reading machine: in 1767, Johann Christoph Röder invented what we might refer to as a *pedagogical reading machine*. Concerned with linguistic signs and sentence structures, it was an enlightened didactic device meant both to improve reading acquisition in its

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tions, and which is mechanized so that it may be consulted with exceeding speed and flexibility. It is an enlarged intimate supplement to his memory." (Bush §6).

7 No writing or reading machine comes with a sign that reminds its user of how the machine might influence, form and structure the way s/he writes or reads a text.

literal sense and to challenge the pedagogical discourse of the time. The second is an *aesthetic reading machine* engaged with the literary sign system, created by American modernist Robert (Bob) Carlton Brown in 1930. As an avant-garde project it was embedded into an aesthetic program to challenge mechanically (and ironically) the mechanization of meaning that the economization of the literary discourse in the early twentieth century brought about. The third example is a contemporary *critical reading machine* designed by the Karlsruhe University of Arts and Design in 2007. It provides a twist on Hans Magnus Enzensberger's idea of a poetry machine (Enzensberger 17 ff.). This reading machine displays the automatisms of postmodern literary critique by writing literary criticism on unwritten texts that are to be composed by the very same machine only after their review is finished.

Apart from supporting and improving processes of reading, all three reading machines are first of all means of reflection over the relation between tools and language reception, the constitution of meaning and their role as part of a (discursive) construction of the world. Trouble and interruption are therefore their very foundation and structural principle. They draw on established concepts of man and the means by which he produces meaning, only to expose the very blind spots they rely on. They do so by arranging the relation between human beings and tools as an inter*play* in its literal sense. Such a playful engagement with the reading machine has recently led to a definition of the recipient as a "surface reader":

> Surface readers [...] locate narrative structures and abstract patterns on the surface, as aggregates of what is manifest in multiple texts as cognitively latent but semantically continuous with an individual text's presented meaning. In this type of surface reading, the critic becomes an anatomist breaking down texts or discourses into their components, or a taxonomist arranging and categorizing texts into larger groups. The anatomist and taxonomist rearrange texts into new forms but nonetheless attend to what is present rather than privilege what is absent. (Best and Marcus 11)

As an anatomist and taxonomist of texts and discourses, the surface reader engages in a reading process that is a triangular semiotic interplay between reader, computing machines and text. This interplay is defined by the interaction between different surfaces and results in certain processes of (re)selection and (re)combination.

Best and Marcus introduce the concept of the "surface reader" to characterize and challenge certain (hermeneutic) modes of "the way we read" (1). They argue that the majority of reading practices has to be classified as "symptomatic reading", based on binaries including "present/absent, manifest/latent, and surface/depth" (3) and guided by the problematic assumption "that the most significant truths are

not immediately apprehensible and may be veiled or invisible" (4). "Surface read-ing" (16), by contrast, promises an alternative approach to texts that values the quality of textual surfaces "*as materiality*", "*as the intricate verbal structure of literary language,*" and "*as literal meaning,*" and that is itself characterized "*as a practice of critical description*" and "*as the location of patterns that exist within and across texts*" and that finally embraces "*the surface as an affective and ethical stance*" (9 ff., emphases in the original). The authors close their discussion with the suggestion that "computers are [...] potent describers, anatomizers, taxonomists" (17).

While the discussion is problematic as a theoretical, aesthetic concept,[8] its suggestions are interesting for the following discussion in two regards: they draw attention to the interaction between sign, tool and human beings that is mediated by the intersection between their respective surfaces and they think of the reading process as an interplay between those elements. While Best's and Marcus' line of argument begins with the sign (text), leads on to the recipient and finishes with the tool (computer), the following discussion begins with the tool.[9] This tool, the reading machine, stages the interaction and interplay between sign, tool and recipient and thus dismembers and rearranges the structures of texts and dis-courses.

A Pedagogical Reading Machine

In 1767, university professor Johann Christoph Röder introduced the notion of a 'reading machine' as a pedagogical tool. In the *Hannoverisches Magazin*, he published the "description of a machine, which not only allows a far easier but also a quicker method to teach children letters and reading than the usual way of teaching does" ("Beschreibung einer Maschine, vermittelst deren man den Kin-dern die Buchstaben und das Lesen nicht nur weit leichter, sondern auch ge-schwinder, als auf die gewöhnliche Weise beybringen kan"; all translations from

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8 The argument of Best and Marcus features certain problematic issues, two of which are particularly interesting in this context: first, it operates with the same dichotomies it criticises (beginning with the naming) and thus perpetuates the oppositions the authors intend to overcome (thus tracing the tradition of the tension between hermeneutics and formalism); secondly and more importantly it does not specify the varieties of the semiotic interplay between man, tool (computer) and text resulting in an ambiguous parallelism between man and machine as surface readers.

9 The main part of the discussion of the examples, however, will stay with the tools; it will be for further theoretical considerations to examine their influence on concepts of man and his means to deliver meaning.

Röder are mine). The reading machine's invention served two purposes: to criticize and challenge established ways of teaching and to improve existing strategies of reading acquisition.

The major problem with the modes of reading acquisition that Röder criticized lay in a paradox process of repeatedly automatising and de-automatising the children's minds.[10] First, the children had to learn the alphabet by heart, using the spelling method to a most problematic effect: "Indeed they repeat the letters designated and shown by the teacher, though without immediately imprinting their figures into their memory through attention and curiosity." ("Sie sagen dem Lehrmeister die Buchstaben, die er ihnen nennt und zeigt, zwar nach, aber ohne deren Figur sofort durch Aufmerksamkeit und Wißbegierde ins Gedächtniß zu drücken"; Röder 897) The children kept the line of letters they listened to in mind, which allowed them to "mechanically recite the letters in sequence" ("nach der Reihe mechanisch hersagen") but left them incapable of actually using them in reading and writing: "asking them for a letter out of sequence, they fail" ("wenn man sie aber einen Buchstaben ausser der Reihe frägt, so fehlen sie"; Röder 898). Only when the teacher shows and describes the letters to the children do they work on the link between graphic sign and sound until they can guess the correct sound relating to the respective graphic sign. The procedure was repeated on the next higher level of complexity, namely, when the child had to learn the reading of mono- and polysyllabic words:

> As yet it learns mechanically [...]: our, sour, hour[11] etc. without really looking at the word. Only when it knows the monosyllabic words by heart, that are printed in sequence in the primer, [...] it goes on with the bisyllabic ones. [The teacher] proceeds in the same fashion both with them and the polysyllabic ones. It is only when it [the child] has to connect the words in reading, however, when the teacher actually becomes glumly aware of the mountains he still has to climb. The mechanism has to be extinguished again and reason has to be trained by showing single words in another book.

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10 For an extensive discussion of alphabetization around 1800 see Kittler 1990. What is particularly interesting in this context is the eventual separation of reading and writing acquisition by Heinrich Stephani's "Lautiermethode" (phonetic reading method) in 1807, forty years after Röder invented his reading machine. The phonetic reading method thus envisions and reinterprets the human body as the true reading machine: "The phonetic method culminated in the description or prescription of a new body. This body has eyes and ears only in order to be a large mouth. The mouth transforms all the letters that assault the eyes and ears into ringing sounds. This was not a new concept as regards the ear, but in relation to the eyes and letters it was a revolution. In losing their names, letters also lost their status. No tradition has defined writing as composition for the mouth instrument because letters are and remain graphic articulations" (Kittler 33).

11 For this translation the "our, sour, hour" have been chosen to reflect the phonetic effect of the German originals.

(Noch lernt es etwas mechanisch [...]: ein, bein, dein etc. ohne das Wort recht anzusehen. Kan es die einsilbigen Worte auswendig, in demjenigen Buche, in welchem sie nach der Reihe gedruckt sind, [...] geht [es] nun an die zweysilbigen. Mit diesen verfährt er [der Lehrer] bis auf die vielsilbigten, auf eben die Weise. Soll es [das Kind] nun Worte zum Lesen verbinden; so sieht erst der Lehrer ganz verdrießlich die Berge, die er noch zu übersteigen hat. Der Mechanismus muß auch hier erst ausgerottet, und durch Zeigung der einzelnen Wörter in einem andern Buche, die Vernunft herbeygezogen werden.) (Röder 900)

Hence, Röder's main critique of established teaching traditions concerned the artificial separation of what originally belonged together. Standard teaching imposed a linearity on the process of reading acquisition that did not meet with the complexities of the reception process or the text in question: the children's actions were divided into physical and mental ones, their role was first passive perception and then active production, the process of reading was separated into repetition and variation, the sign's phonetic and graphic aspect were taught separately, matter and meaning were torn apart.

In contrast, Röder's approach to reading acquisition defined reception in reading as a synthesis of such complementary aspects. His reading machine was designed to overcome the artificial splitting of the reading acquisition process "to accustom the child [...] through playful arousal to attentiveness and use of reason from the beginning" ("das Kind gänzlich anfangs durch [...] spielende Erweckung zum Lernen, zur Aufmerksamkeit und zum Gebrauch der Vernunft zu gewöhnen"; Röder 901).[12] Paradoxically, as it seems, the reading machine was meant to transform the reading process into something *less* mechanical and to provide space for enlightening children's minds: reasoning and meaning were thus defined as an effect to evolve at the boundary and in interaction between man and machine.

As there is no surviving picture, the following description shall serve to provide an idea of what Röder had in mind: his reading machine is a construction

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12 It was already some thirty years earlier, that the French Louis Dumas invented the *Bureau Tipographique* (1732), "une machine à enseigner faite essentiellement d'un bureau de bois et de cartes à jouer qui doivent mettre les yeux, les oreilles et les mains au cœur du processus d'apprentissage en même temps que le jeu." (Grandière 36) This library of signs allowed the child to engage in instructive yet playful processes of selection and combination, as Dumas himself emphasized: "Il ne faut pas douter que l'exercise du bureau tipographique n'amuse et n'instruise l'enfant, si les maîtres ont beaucoup de douceur et de patience en lui fesant dire les letres, les silables, les mots, et les lignes, qu'il doit prendre dans sa cassete pour les composer et décomposer sur la table de son bureau." (Dumas 14) What is particularly striking, moreover, is the resemblance between this library of signs and Bush's "mechanized private file and library" (see above). As both descriptions already indicate, however, the *Bureau Tipographique* was, technically speaking, less a reading machine and rather a pedagogical library to store and sort cards with signs on them.

that combines the principles of a slide ruler and a typewriter, basically a box made of wood, steel or even bone on a desk, which contains a number of sticks on which letters, numbers and punctuation characters are strung. A button moves the sticks back and forth. A case lid closes the box and covers the sticks. The lid displays a white blank gap; when one of the sticks is pulled, a letter is shown.

By hitting a button, the turn of a stick and the representation of a character, the machine mechanically presents a graphic sign, which the teacher comple-ments with its phonetic counterpart. As the child's attention will be undivided, the reading acquisition process will be improved:

> The teacher shows the machine, resembling a thin folio book, to the child [...] as nothing is to be seen in the blank gap the child's attention and eyes are focused on it even more intensely. The teacher then for instance announces a letter named 'g'. The child will be curious to see such a 'g': it is then that the teacher pulls the stick, namely the 'g', into the blank space. Such an attention and direct view immediately imprints the letter's name into the child's memory. [...] Using this method the child, depending on its intelligence, can be taught the whole alphabet within two or three days, as [...] the stick's pulling appears to him like a game, which, along with the related pleasant variation and diversion, complies with the child's inclination. The alphabet is followed by words of two letters. [...] Whole lines and sentences can be pulled afterwards until the reading is learnt and the child is presented with a book.

> (Der Lehrer legt dem Kinde die Maschine, die einem dünnen Foliobuche gleichet, vor; [...] weil nun in dem ganzen leeren Zwischenraum nichts zu sehen ist; so wird das Kind bewogen, seine Aufmerksamkeit und Augen gänzlich und allein dahin zu richten. Hierauf sagt z. B. der Lehrer, es würde ein Buchstabe kommen, der g heisse. Das Kind wird begierig seyn, dieses g zu sehen: worauf er ein Stäbchen, und zwar, das g, in den leeren Raum ziehet. Diese Aufmerksamkeit und genaue Ansicht präget sofort die Figur und den Namen des Buchstabens unvergeßlich ins Gedächtniß des Kindes. Das ganze Alphabet kan einem Kinde in zweyn, längstens drey Tagen, nachdem die Genies der Kinder sind, durch diese Methode gründlich beygebracht werden, weil [...] das Ziehen der Stäbe ihm gleichsam als Spiel vorkömt, welches nebst der damit verknüpften angenehmen Veränderung und Abwech-slung, der Neigung des Kindes schmeichelt. Ist man mit dem Alphabete fertig, so werden Wörter von zwey Buchstaben genommen. [...] Ganze Zeilen, als Sprüche zum Zusammenle-sen, können nachher auch gezogen werden, bis das Lesen fertig geht, und man dem Kinde ein Buch vorlegt.) (Röder 903 f.)

Two aspects of the reading process that Röder describes are particularly interest-ing. First, the machine links the oral and written dimension of reading acquisi-tion, which have been separated before; from the beginning on, a sign's phonetic and graphic representation are taught in relation to each other. The reading machine's blank gap materializes in a way the notion of the mind's tabula rasa that becomes imprinted with letters. Secondly, the child's active and playful engagement with the machine links its perception with matters of reception: the

interplay of sticks and signs, letters and words intertwines the material and conceptual dimension of signs and sentences and opens up new potentials of meaning. This very "playful arousal" that the reading machine encourages serves to accustom the child to the use of reason.

As a medium, the reading machine links, figuratively speaking, disparate discursive norms and approaches to teaching, it bridges the didactic gap between teacher and child, overcomes the gap between perception and production, and synthesizes the linguistic potentials of sound and scripture. In his closing remarks, Röder even envisions another enlightening potential when relating his reading machine to a socio-political dimension: he conceives of it as a tool to teach the rural population, a remedy to treat analphabetism and to make education accessible beyond the boundaries of class or geography (Röder 906) – a truly enlightened machine, so to speak, engaged with reading as a linguistic competence and with the critical reflection of the pedagogical discourse.

An Aesthetic Reading Machine

More than a century later, the situation was quite different: against the background of new technological inventions, such as photography and the phonograph, the reading machine was conceived of not so much as a tool to improve reading acquisition but as a medium to enhance the very process of reading itself. Numerous inventors claimed to have made literary reading easier and more efficient. They filed patent applications and wrote manuals on what they variously called "reading machines" (Fiske), type-reading "optophones" (Fournier d'Albe 1920) and even "whispering reading machines". In 1883, almost a century before Sony introduced its first Walkman, the Swede Evert Nymanover already came up with the idea of a portable audio book machine that translates the letters of a book into sound "conveyed to the ear by wires" (Balmer 496 f.). Such technological developments came, however, with an aesthetic price that was not reflected in their economic value. First, they intertwine media-related processes of perception (seeing, listening) with processes of reception (e.g. reading), and secondly, their new medial modes of aesthetic presentation (such as in sound or on screen) affect the aesthetic reception of the individual literary text.

At first glance, Bob Brown's reading machine of 1930 does not seem to be an exception, both in its mechanical and material implementation as well as its 'theoretical' framework:

All the arts are having their faces lifted, painting (Picasso), [...] writing (Joyce, Stein, Cummings, Hemingway). Only the reading half of Literature lags behind, stays old-fashioned, frumpish, beskirted. Present day reading methods are as cumbersome as they were in the time of Caxton [the first British book printer] and Jimmy the Ink. [...] Though we have advanced from Gutenberg's movable type through the linotype and monotype to photo-composing we still consult the book in its original archaic form as the only oracular means we know for carrying the word mystically to the eye. [...] To continue reading at today's speed I must have a machine. A simple reading machine which I can carry or move around, attach to any old electric light plug and read hundred thousand word novels in ten minutes if I want to, and I want to. (Brown 28)

Unsurprisingly, the *New York Times* only recently crowned Brown as "The Godfather of the E-Reader" (Schuessler 2010).[13] Yet, the ironic style and the playful contrast of aesthetic and technological developments already indicate Brown's awareness that medium and aesthetic value are mutually interdependent, suggesting that his reading machine and its presentation in the book *The Readies* (1930) rely on kind of a double bottom. As Michael North points out, a major aspect of Brown's invention is his "assumption that new technological developments in the media should converge with experimental writing" (74) – a process that in turn produces new strategies of 'experimental reading', displayed not least by the interplay between his reading machine and the reception it gained among certain literary artists.

Rather than actually suggesting an acceleration of the reading process by technological interventions, Brown signifies and comments upon their aesthetic

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13 On the relation between Brown's machine and contemporary digital poetics see Pressman 2011.

consequences: he sets up a dialogue between the medium and *The Readies* (the latter's title is an analogy to the talkies, the first sound movie). In contrast to other reading machine manuals, this hybrid text stages a pluralism of forms that selects and combines various modes and meanings of writing and reading, transforming them into a composition that unites technological description, aesthetic reflection and literary form. Indeed, its five chapters read like a theatre text on the construction of meaning between man and machine.

As an exposition, Brown's first chapter demands "a revolution of the word" (1); it directs attention to the story's leading characters, not the machine but the very linguistic and literary sign itself. Almost like an experimental manifesto, the text combines an associative literary writing style with theoretical concerns:

> I'm for new methods of reading and writing and I believe the up-to-date reader deserves an eye-ful when he buys something to read. [...]
>
> I don't mean maybe breakemup words I mean smashum (from the ancient Chinese ginseng root s a m s h u). [...]
>
> I do not hiss in pronouncing Tzara's name. t r a n s i t i o n is my transit. I bathe in Apollinaire. (1)

From the outset, *The Readies* promote experimental, playful readings as a strategy to explore aesthetic and literary problems: the reader is encouraged to play with the net of aesthetic quotations, to experience different reflective and performative modes of writing, to read scripture as picture and sound, to be eventually confronted with the conclusion: "I want words to be made free" (Brown 10).

This objective runs through the book like a red thread: the 'rising action' of chapter two tries to free the words in bringing extensive and reductive, experimental versions of word definitions into a dialogue, stressed by their graphic presentation (Brown, 14):

I AM A TWO – WAY FISH

YEZNO	NOYEZ
For	**Against**
(Notes)	(Text)
A 2-way Fish is a Coney Island contraption used in a Prize Fish Pond; on one side it bears a winning number and on the other side a losing number, each concealed by a sliding tin tag painted fish color. The player of course is as unconscious of this as is the modern reader of other things.	A twiceweighed twofister tooarmlong twotooto and lovetoyou, two-toothy two trouty underoverishway Fish.

The descriptive and the performative 'narrative' of the word's semiotic world mutually emphasize their constructed character. Their parallel reading stages the productive tension between content and form, and between the sign's graphic and phonetic level.

It is against this backdrop of making the reader actually experience the constructed, even fictional, character of language that the machine is introduced at the narrative's climax in chapter three in the course of theoretical reflections on the process of reading:

> [R]eading is for the eye and the INNER Ear. Literature is essentially Optical – – – not Vocal. Primarily, written words stand distinct from spoken ones as a colorful *medium* of Optical Art. Reading is intrinsically for the eye, but not necessarily for the naked optic alone. Sight can be comfortable clothed in an enlarging lens[.] (Brown 33)

This chapter is where Brown addresses some of the most pressing issues of his time, most importantly the redefinition and re-appreciation of written language at a time when the new medium of the phonograph had changed and fundamentally influenced established concepts of artistic production and reception. As indicated, this was not usually reflected upon by earlier inventors of reading machines. Brown explores and plays with the written medium's means of expression (by means of capitalization, ellipses, highlighting, and arrangement as in the second chapter).

It is only the fourth chapter, at the moment of final suspense to stay with the language of theatre, which reveals the "enlarging lens" by means of which the machine actually promises to accelerate the literary reading process:

> My reading machine, by its very existence, makes a need for new words and demands the deletion of some worn-out ones. [...] No educated reading eye of this age catches the little, useless, conventional conjunctions, articles, prefixes, suffices, etc. unless they are needed for emphasis. (Brown 36)

The machine determines the text but, in turn, the text also determines the machine: consequently, the fifth chapter stages as a resolution an experimental "story to be read on the reading machine" (Brown 41ff.), performing all the requirements mentioned above:

> Harry-virtuoso-born-musical-mid-Midwest-mellow [...] Harrys-white-gloves-first-public - - - - performance-church-sociable [...] Ta-te-de-de-dum-ta-te-te-ta-dumb-Harry-Empty-Head-musical-pastels-fussy-fugues-balmy-a r i e t t a s-tinkling-tarantellas- - - - (Brown 41)

In pushing the automatizing of language to extremes, the text performs and comments on the mutual interdependency between medial presentation and

aesthetic production and reception: the text is adjusted to the machine to empha-
size that the media by means of which we access the text, including language,
influence our writing and reading and vice versa. The interplay between the
machine and *The Readies* thus tells a story of the liminal space between medial
matters and matters of meaning, signifying playful interruptions as constitutive
of reading processes and bringing the relation between perception and reception,
between content and form, into a dialogue that makes it literally visible.

Not only did the playful reading of that dialogical constellation perform the
"revolution of the word" that Brown had called for. His aesthetic reading machine
actually initiated a process of rereading and rewriting when only one year later
experimental authors of the time, Gertrude Stein, Ezra Pound and James Joyce
amongst them, published the anthology *Readies for Bob Brown's Machine*, assem-
bling texts "expressly written to be read on the reading machine" (Brown 1931,
Brown 7). More or less explicitly, some texts, both formally and content-wise,
entered into dialogues with Brown's reading machine. This was the case with
Filippo Tommaso Marinetti's poem on "Words in Freedom" (Brown 46), A. Lincoln
Gillespie's "Readie-Soundpiece Readievices" (Brown 83) and William Carlos Wil-
liams' "Readie Poem" (Brown 114). To quote North, Brown's aesthetic reading ma-
chine thus initiated a process of discursive challenge that was "valuable in expos-
ing certain inevitable blind spots in the machine vision of [...] modernism" (77).

A Critical Reading Machine

At a time when the digital age has in a way fulfilled some of the visions that
inventors of the turn of the century had suggested, including inventions of poetic
writing and reading machines, the Karlsruhe University for Arts and Design
(2007) has presented a critical reading machine designed to challenge today's
aesthetic and discursive automatisms with a particular focus on literary recep-
tion. Both technologically and in its critical claims and theoretical implications,
the machine stands in the tradition of Hans Magnus Enzensberger's famous
poetry machine that he first suggested in 1974 (Enzensberger 17 ff.). In a short
essay, Enzensberger elaborates not only on the history of the machine but, more
importantly, also on the (aesthetic) impossibility of its existence, referring to the
paradox relation between machine and meaning:

> The combinatory, syntactic and semantic rules do not suffice for a poetry programme. They
> have to be modulated by a poetic secondary structure. As is generally known, however,
> poetics is a system of rules of a prescientific nature. For centuries, literary theory tried to
> change this in vain. From this it follows that an exact description of the poetry programme is

already impossible for methodological reasons. One could only, step by step, tell how it came into existence. This, however, would be rather boring.

(Für ein Gedicht-Programm reichen die kombinatorischen, syntaktischen und semantischen Regeln nicht aus. Sie müssen durch eine poetische Sekundärstruktur moduliert werden. Nun ist aber die Poetik bekanntlich ein Regelsystem vorwissenschaftlicher Natur. Die Literaturtheorie hat sich jahrhundertelang vergeblich bemüht, daran etwas zu ändern. Das bedeutet, daß eine exakte Beschreibung des Poetik-Programms schon aus methodischen Gründen nicht möglich ist. Man könnte allenfalls, Schritt für Schritt, erzählen, wie es zustande gekommen ist. Das wäre freilich ziemlich langweilig.) (Enzensberger 29 f.; my translation)

While each poetry programme employs certain primary poetic structures, none, by definition, generates texts modulated by a meaningful secondary structure. The critical reading machine pushes these thoughts a step further by linking them to an ability to identify such secondary structures in poetic reading.

Two objectives define the critical reading machine's working: as the preceding examples, it is concerned with the interplay of medial perception and aesthetic reception, though unlike the others it technologically incorporates and stages this interplay. Secondly and more specifically, it examines the boundary between literary reception and production, and challenges the very discourse of literary critique by inversing its procedures: It automatically generates reviews in the style of Marcel Reich-Ranicki's *Frankfurter Anthologie* (1974) for texts not yet written but only to be composed by its very own integrated poetry generating machine.

The critical reading machine is designed as a materially accessible installation that performs and promotes medial interaction as a process and a constitutive part of reading experience. The machine's two terminals, the review machine CENSEO and the poetry machine GENERO, are linked via a monitor that gives instructions: here the user reads and experiences that the whole construction is "a system for the automatized production of metapoetic and poetic texts" ("ein System der automatisierten Herstellung von metapoetischen und poetischen Texten"; Krass 13; all translations from Krass are mine) Interacting with the machine's devices, the user literally experiences the potentials of and the tensions between analogue and digital media:

The whole installation is a hybrid: the automaton's technological features mirror the standards of the digital age, yet, what it presents, the review and the poem, is not displayed on a screen but on one of the oldest analogue storage media: a printed sheet of paper. [...] The installation CENSEO/GENERO thus combines old and new media.

(Die gesamte Installation ist ein Hybrid: Die technische Ausstattung des Automaten entspricht den Standards des Digitalzeitalters, was er auswirft, die Rezension und das Gedicht, erscheinen indes nicht auf einem Bildschirm, sondern auf einem der ältesten analogen

Speichermedien überhaupt: einem bedruckten Blatt Papier. [...] In der Installation CENSEO-GENERO liegen alte und neue Medien unmittelbar nebeneinander.) (Krass 15)

Thus, it is the interactive medial experience in its optic, haptic, acoustic and other dimensions of perception, which is signified as constitutive of aesthetic experience, something the digital age tends to conceal: the reader is conceived of as a "homo ludens" (Krass 26) in playful interaction with the medium and the text.

The lack of such an interplay transforms the reading process into a mechanical procedure, which the review machine CENSEO pushes to extremes, challenging established critical practices:

For programming CENSEO hundreds of singular sentences have been extracted from the *Frankfurter Anthologie* and entered into the programme. Decontextualized, those single sentences appear vulnerable and naked. Fragments of meaning are floating in the wide ocean all by themselves. They do not find protection in the semantic fleet cluster of their neighbouring sentences. As a result they become vulnerable and have to find new affiliations, making collisions inevitable.

(Für die Programmierung von CENSEO wurden Hunderte von singulären Sätzen aus dem Konvolut der *Frankfurter Anthologie* herauspräpariert und eingegeben. Aus ihrem ursprünglichen Zusammenhang genommen wirken die Einzel-Sätze schutzlos und nackt. Die Sinnfragmente schwimmen jetzt allein im weiten Ozean. Sie finden im semantischen Flottenverbund ihrer Nachbarsätze keinen Schutz mehr. Dadurch werden sie angreifbar und müssen neue Verbindungen eingehen. Dass es dabei zu Kollisionen kommt, ist unvermeidlich.) (Krass 22)

Collisions add to the machine's critical potential. The texts it generates are not 'smooth', they have edges, and are defined by disruptions. In his playful interaction with the machine, the reader has to deal with such disruptions: he reads the generated reviews, stumbles over flaws, reads a poem, stumbles over even more flaws as review and poem do not seem to fit together all that well.

In different ways, processes of playful interaction between immersion and interruption defined all reading machines discussed in this essay: technological taxonomists who are given a new frame of meaning as a critical means to challenge, explore and transform the way we read. All three machines are concerned with textual and discursive surfaces, structures and materialities, thus serving as a means to challenge discursive traditions, aesthetic paradigms or critical approaches to literature: their common purpose is reflection, their mode is interaction and their principle is interruption. First, they shed light on the liminal space between language and tool, more specifically on the interaction between the tool's and the sign's material surfaces. Second, they uncover how that interplay affects the reception of meaning, particularly within the framework of a

certain discourse. Finally, they unveil the mechanisms of semiotic and discursive trouble that the tension between reading machine and written text produces in the reception process and, as a result, also for further processes of semiotic production. They serve as a means to reflect on how we read – literally, aesthetically and critically. Thus, they both perform and transform established modes of reading.

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Serious Games als Lernmethode zur Steigerung der Informationssicherheit

Conference Paper · October 2022

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Skill Up View project

Serious Games als Lernmethode zur Steigerung der Informationssicherheit

Frauke Prott[1], Ulrike Küchler[2], Regina Schuktomow[3] und Margit Scholl[4]

Abstract: Sensibilisierung für Informationssicherheit und die Förderung entsprechender Kenntnisse sind essentiell für eine gelungene Digitalisierung. Im vorliegenden Projekt werden dafür u. a. digitale Serious Games entwickelt und erprobt. Serious Games bieten in der Nachbildung realistischer Alltagssituationen einen geschützten Raum, in dem Fehler gemacht, Konsequenzen von getroffenen Entscheidungen ohne Folgen für das wahre Leben erlebt und verschiedene Wege ausprobiert werden können. So kann sicherheitsbewusstes Verhalten im Falle eines Angriffs auf die Informationssicherheit eingeübt werden. Die Ergebnisse eines Usertests zeigen, dass narratives Lernen mit Serious Games zum Thema Informationssicherheit positiv angenommen wird und zum Lernerfolg beiträgt.

Keywords: Serious Game, digitale Lernszenarien, Informationssicherheit, Sensibilisierung, KMU

1 Einleitung

Erfolgreiche Digitalisierung benötigt ein hohes Niveau an Informationssicherheit [BMI21]. Da Informationssicherheits-Vorfälle häufig durch Unwissenheit und/oder aktives Handeln ermöglicht werden (z. B. Klicken eines Links, Öffnen eines Anhangs), ist die Sensibilisierung von Nutzenden für ein sicheres Verhalten im digitalen Umfeld unerlässlich [BMI21]. Insbesondere kleine und mittlere Unternehmen (KMU) sind aufgrund mangelnden Bewusstseins für die Risiken des Einsatzes von Informationstechnologie, knapper Ressourcen und fehlenden Wissens besonders gefährdet [BMI21] [BSI21].

Daher verfolgt das Projekt „Awareness Labor KMU (ALARM) Informationssicherheit", gefördert vom Bundesministerium für Wirtschaft und Klimaschutz, das Ziel, ein innovatives Gesamtszenario zur Unterstützung von KMU zur Erhöhung ihrer Informationssicherheit und zur Etablierung einer nachhaltigen Sicherheitskultur zu entwickeln und zu erproben. Das Gesamtszenario umfasst analoge und digitale Lernszenarien (Serious Games) sowie „Vor-Ort-Angriffe" (z. B. Phishing-Simulation) zur Sensibilisierung für Informa-

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tionssicherheit sowie Befragungen, Wissenstests, Awareness-Messungen und Reifegrad-aussagen. Informationssicherheit soll (be-)greifbar und emotional erlebbar werden. Der vorliegende Beitrag widmet sich den digitalen Serious Games in diesem Projekt.

2 Literaturüberblick

2.1 Game-based Learning

Game-based Learning (GBL) wird als unterhaltsame und motivierende Form des Lernens beschrieben [LA09]. Lernförderliche Eigenschaften von Spielen sind klare Zielvorgaben und direktes Feedback [FZC13]. Die Teilnehmenden arbeiten auf ein Ziel hin, wählen und führen Aktionen aus und erleben unmittelbar die daraus resultierenden Konsequenzen. GBL ermöglicht, in einem geschützten Raum Fehler zu machen sowie zu experimentieren [Tr14]. Die gemachten Erfahrungen sind gut von der simulierten in die reale Welt zu über-tragen [Tr14]. Game-based Learning ermöglicht statt einer passiven Informationsaufnah-me (Vortrag, Video, Lesen) eine aktive Auseinandersetzung mit den Lerninhalten.

Aufgrund dieser Eigenschaften belegen zahlreiche Studien positive Wirkungen des Ein-satzes von Spielen und Spielelementen: GBL-Umfelder sind hoch involvierend und unter-stützen daher effektiv den Lernprozess [Bu15]. Spiele als Lernmethode verbessern kurz-fristige und langfristige Lernergebnisse [Wo13]. Spielebasierte Lernszenarien erhöhen die Motivation und fördern Verhaltensänderungen [BK11] [Hs08]. Wichtig ist die spezifische Ausrichtung an der Alltagswirklichkeit der Zielgruppen, da die Verbindung zu realen Situ-ationen und Herausforderungen den Lernerfolg verbessert [Lo07].

2.2 Serious Games

Serious Games nutzen (Computer-)Spiele, um für ein Thema zu sensibilisieren sowie Wis-sen und Fähigkeiten zu entwickeln, indem sie den Lernenden ermöglichen, in Situationen einzutauchen, die sonst schwer oder selten erlebt werden können [Yp14]. Im Gegensatz zu Unterhaltungsspielen zielen Serious Games neben Unterhaltung auf die Vermittlung von Lerninhalten [MM16]. Serious Games fördern den Lernerfolg durch die Ansprache mehre-rer Sinne (z. B. visuell, auditiv) und somit verschiedener Lerntypen sowie durch die aktive Einbindung der Spielenden, die dadurch relevante Bezüge zu realen Situationen herstellen können [Yp14].

Narrative – sinnstiftende Erzählungen – fördern das Eintauchen in ein Serious Game, was entscheidend für den Lernerfolg ist. Narrative laden die Spielenden ein, an der Geschichte teilzuhaben sowie ihren Verlauf mitzubestimmen, und fördern die intrinsische Motivation

zu lernen. Dabei sollten die Geschichten unter anderem die Fantasie anregen und empathische Charaktere beinalten [NL20].

2.3 Sensibilisierung für Informationssicherheit

Klassische Lernmethoden, bei denen Fachpersonen in z. B. Vorträgen Lerninhalte an Lernende vermitteln, scheinen eher ineffektiv und passiv im Vergleich zu moderneren Methoden, die auf „learning by doing" oder experimentellem Lernen basieren [Yp14]. Gleichwohl erfolgen die Sensibilisierung für Informationssicherheit und die Schulung entsprechender Kenntnisse in der Praxis oftmals nach diesem Prinzip durch die Bereitstellung von Web-Based-Trainings (WBT) oder durch Vorträge [Al16].

Gerade ein oftmals abstraktes und komplexes Thema wie Informationssicherheit erfordert eine aktive Auseinandersetzung mit Lerninhalten, wie es Game-based Learning ermöglicht. Im Ernstfall eines Angriffsversuchs auf die Informationssicherheit sollten Nutzende fähig sein, richtig zu handeln. Um das richtige Verhalten für den Ernstfall, bei Bedarf auch wiederholend, einzuüben, empfehlen sich Serious Games. Sie bieten in der Nachbildung realistischer Alltagssituationen einen geschützten Raum, in dem Fehler gemacht, Konsequenzen von getroffenen Entscheidungen ohne Folgen für das wahre Leben erlebt und verschiedene Wege ausprobiert werden können [Tr14]. Im Gegensatz zu kognitiven Informationsvermittlungen ermöglichen Serious Games ein stärkeres Involvement der Teilnehmenden, mehr Lebendigkeit sowie Interaktion und Lernen gemäß der von Pestalozzi geprägte Formel mit „Kopf, Herz und Hand" [BroJ].

Daher haben in den vergangenen Jahren vermehrt Forschungsprojekte [Ha20] [HAB16] und kommerzielle Anbieter [Ka22] [FaoJ] Serious Games zur Sensibilisierung für Informationssicherheit und Vermittlung entsprechender Kenntnisse entwickelt, um Schulungen mit reiner Wissensvermittlung zu ergänzen. Sowohl analogen als auch digitalen Serious Games werden positive Wirkungen auf die Beteiligung der Teilnehmenden und den Lernerfolg zugeschrieben [Ha20] [Ya19] [GS18].

3 Entwicklung von digitalen Serious Games zur Steigerung der Informationssicherheit

3.1 Storykonzept

Die digitalen Serious Games im vorliegenden Projekt sind immersive Geschichten, die Alltagssituationen aus dem Berufsleben in KMU darstellen. Die Spielenden erleben die Geschichten in der Ich-Perspektive. Dies ermöglicht eine intensive Auseinandersetzung und Identifikation mit den enthaltenen Lerninhalten – und damit auch eine besondere Effizienz und Nachhaltigkeit in der Wissensvermittlung. Für die Entwicklung der Serious Games wurde das Visual Novel Format gewählt – eine Art interaktives Buch, in dem die Spielenden Entscheidungen treffen und damit den weiteren Verlauf der Geschichte bestimmen [Ch19]. Die Lernszenarien sind von Bildern, geschriebenen Dialogen und Situationsbeschreibungen geprägt. Dreidimensionalität wird durch Ambient-Hintergrundmusik und Soundeffekte (z. B. Räuspern, Telefonklingeln, Türzuschlagen) erzeugt.

Das Storykonzept der insgesamt sieben Serious Games zeichnet sich durch Vielfalt, Individualität und Kontinuität aus. Jedes Lernszenario behandelt schwerpunktmäßig ein anderes informationssicherheitsrelevantes Thema: von Passwörtern, über Datenschutz in der Cloud und CEO Fraud[5], bis zu Informationsklassifizierung. Dabei nehmen die Spielenden wechselnde Rollen ein – einmal agieren sie als Sicherheitsexpertin, ein anderes Mal als Hackende oder Ermittelnde oder sogar als Künstliche Intelligenz. Dies erlaubt nicht nur ein abwechslungsreiches Spiel, sondern ermöglicht, die Themen aus verschiedenen Blickwinkeln kennenzulernen und zu verstehen. Die sieben Serious Games können unabhängig voneinander und in beliebiger Reihenfolge gespielt werden. Jede Geschichte und jeder Lerninhalt sind in sich geschlossen. So können die einzelnen Themen in einer größeren Breite und Tiefe behandelt werden. Gleichwohl sind die einzelnen Geschichten durch eine übergreifende Gesamtstory, die in einem fiktiven Unternehmen spielt, miteinander verknüpft und die Spielenden begegnen in jedem Serious Game denselben Personen (Chef, Disponentin, Auszubildender, Werkstattleiter) und lernen sie immer besser kennen.

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5 Betrugsmethode, bei der Kriminelle sich als Führungskraft der Organisation ausgeben und Mitarbeitende auffordern, Geld zu überweisen [LS20]
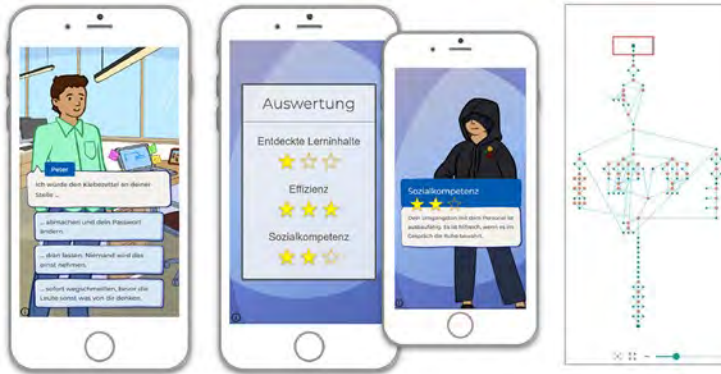
Abb. 1: Beispiele einer Entscheidungsauswahl, eines Feedbacks und eines Entscheidungsbaums

Jedes Lernszenario bietet ein personalisiertes Lernerlebnis. Zu Beginn wählen die Spielenden ihren Charakter und ihren Namen. Mit jeder Entscheidung, die echte Konsequenzen im Spielverlauf mit sich bringt, begeben sich die Spielenden auf ihre ganz persönliche Lernreise, die von ihrem Wissen und ihren Präferenzen bestimmt wird. Jedes Serious Game enthält zwei bis drei Lernpfade, die die Spielenden durch ihre Entscheidungen einschlagen. Die gewählten Wege bestimmen, wie viele Lerninhalte den Spielenden begegnen und welche Schwierigkeiten sie zu bewältigen haben. In jedem Serious Game können die Spielenden unterschiedliche Fähigkeiten (z. B. Sozialkompetenz) stärken und Kenntnisse (z. B. Sicherheitsverständnis) vertiefen, die für Informationssicherheit wichtig sind.

Die Spielenden werden stets von einem Charakter der Gesamtstory begrüßt und darauf aufmerksam gemacht, worum es im vorliegenden Spiel geht, was konkret bewertet wird und worauf sich die Spielenden konzentrieren sollten. Am Ende gibt derselbe Charakter Feedback zu den erzielten Punkten. Dieses beinhaltet zum einen Erläuterungen, wie die Punkteanzahl zustande kommt, und zum anderen Vorschläge und Aufforderungen an die Spielenden. Auch bereits im Laufe des Spiels werden Feedbacknachrichten eingeblendet, die auf vorteilhafte oder nachteilige Entscheidungen und Verhaltensweisen aufmerksam machen. Zudem bietet ein Lexikonmodul die Möglichkeit, wichtige Begriffe der Informationssicherheit vor und nach dem Spiel nachzulesen. Die Spielenden werden nicht alleine gelassen, sondern auch in diesem digitalen Format beim Lernen begleitet.

3.2   Technische Anforderungen

Die Serious Games wurden mit der Gamebook Technologie von Gamebook Studio erstellt. Die Gamebook Technologie ist ein Werkzeug zur vereinfachten und schnellen Produktion von interaktiven seriellen Inhalten. Sie verbindet klassische Erzähltechniken aus Literatur und Film mit modernen digitalen Produktionsmethoden und ermöglicht, aus einem analogen Drehbuch eine interaktive Sequenz zu erstellen. Die Lernszenarien werden als statische Inhalte in einer abgeschlossenen HTML5 Webapplikation bereitgestellt und können per iFrame in die Projektwebseite eingebunden werden und sind dort über den Browser abspielbar. Aufgrund der Allgegenwärtigkeit des Smartphones sind die Zielplattform mobile Endgeräte. Somit können Nutzende auf die Serious Games direkt über die Webseite des Projekts zugreifen.

3.3   Usertest

Mitarbeitende der Pilot- und kooperierenden Unternehmen des Projekts evaluieren die Serious Games aus Sicht der Praxis. Die Rückmeldungen aus den Usertests sind die Grundlage für die finale Erstellung der Serious Games. Die Usertests werden von kurzen, standardisierten, schriftlichen Vorher- und Nachher-Befragungen begleitet, die deskriptiv ausgewertet werden. Die Teilnehmenden werden gebeten, auf einer fünf-Punkte-Likert-Skala zu verschiedenen Aspekten (z. B. Inhalt, realistische Darstellung, Spielzeit, Schwierigkeitsgrad) ihre Zustimmung mitzuteilen. Zur Messung des Lernerfolgs dienen Selbsteinschätzungen zur Erfahrung mit dem Thema Informationssicherheit sowie zum Wissenserwerb. Im Folgenden sind die Ergebnisse des Usertests zum Serious Game „Der Hackerangriff" dargestellt. Hier nehmen die Spielenden die Rolle eines Hackenden ein und versuchen, sich auf dem Firmenserver des fiktiven Unternehmens einzuloggen. Beurteilt werden die Spielenden nach Effizienz – gelingt ihnen der Hack – und Variabilität – wie viele Wege sind die Spielenden zur Erreichung ihres Ziels gegangen.

An dem Usertest nahmen mehrheitlich Männer (65%, N=26)[6] im Alter von 25 bis 50 Jahren teil (69%, N=26). Die Testpersonen arbeiten hauptsächlich im Vertrieb/Außendienst (23%), in der IT (19%) und im Personalwesen (19%) (N=26). Im Durchschnitt benötigten sie zehn Minuten für das Serious Game (N=22). Diese Spielzeit wurde im Mittel als „genau richtig" beurteilt (N=31). Auch der Schwierigkeitsgrad tendiert mit einem Mittel von 2,81 zu „genau richtig" (Skala 1=zu einfach, 3=genau richtig, 5=zu schwer, N=31).

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6 Die unterschiedliche Stichprobengröße N ist dadurch bedingt, dass nicht alle Befragten an der Vorher- und Nachher-Befragung teilnahmen bzw. nicht zu allen Fragen Angaben machten.

Beurteilung Lernszenario „Der Hackerangriff"
(1=überhaupt nicht, 5=sehr) (N=31)

	1,00	2,00	3,00	4,00	5,00
Das **Lernszenario** gefällt				3,65	
Die **Problem- und Fragestellungen** gefallen				3,71	
Das Lernszenario **empfehle ich Mitarbeitenden**			3,19		
Das Lernszenario möchte ich **erneut spielen**		2,48			
Das Lernszenario macht Lust, **weitere Lernszenarien** dieser Art zu **spielen**			3,35		
Das Lernszenario kann mir in meinem **Arbeitsalltag helfen**			3,26		
Die im Lernszenario dargestellten Situationen sind **nah am Arbeitsalltag**			3,06		
Das Lernszenario bietet **Anregungen für die tägliche Arbeit**			3,19		
Nachvollziehbarkeit der Auswertung			3,00		
Motiviert die **Auswertung**, über **Entscheidungen nachzudenken**			3,00		

Abb. 2: Beurteilung des Serious Games „Der Hackerangriff" im Usertest

Abbildung zwei zeigt eine gute Bewertung des Serious Games „Der Hackerangriff", da die Testpersonen nahezu allen Aussagen im Durchschnitt mit größer drei zustimmen (Skala 1=überhaupt nicht bis 5=sehr). Wir interpretieren Mittelwerte über dem Skalenmittelpunkt (=3) als zufriedenstellend in der Beurteilung der Nutzenden aufgrund der Heterogenität der Testpersonen im Hinblick auf Branchen, Tätigkeiten und Präferenzen in Bezug auf (digitale) Spiele sowie der Tatsache, dass das linke Ende einer Antwortskala häufiger als das rechte Ende gewählt wird [MB15]. Die geringe Zustimmung zur Aussage „Das Lernszenario möchte ich erneut spielen" wird relativiert durch die höhere Zustimmung zur Aussage „Das Lernszenario macht Lust, weitere Lernszenarien dieser Art zu spielen". Gleichwohl wurden im Feedback im betreffenden Serious Game Formulierungsänderungen vorgenommen, um Spielende stärker zu motivieren, das Lernszenario erneut zu spielen. Zudem attestieren die Testpersonen dem Serious Game eine lernförderliche Wirkung. Teilweise wurde neues Wissen erworben und/oder bestehendes vertieft (jeweils M=3,17, N=30). Die eigene Erfahrung mit dem Thema Informationssicherheit wurde nach dem Serious Game leicht höher wahrgenommen (M_{vorher}=3,12, $M_{nachher}$=3,32, N=25).

4   Mehrwert für Wirtschaft und Gesellschaft

Gleichwohl die Serious Games für Mitarbeitende in KMU entwickelt wurden, ist die Sensibilisierung für die behandelten Informationssicherheits-Themen für das Berufsleben insgesamt als auch für das Privatleben (z. B. Passwörter, Telefonbetrug) relevant. Somit besteht der Mehrwert darin, dass die Serious Games für alle interessierten Personen sukzessive auf der Projektwebseite kostenfrei zur Verfügung stehen. Organisationen können damit ihre Mitarbeitenden mit nur geringem Einsatz eigener Ressourcen sensibilisieren und schulen. Ferner können die Serious Games in die Ausbildung von jungen Menschen integriert werden, sodass Auszubildende als auch Studierende bereits mit einem Bewusstsein für Informationssicherheit in die Arbeitswelt starten.

5   Ausblick

Es wird angestrebt, Lernenden auf Basis ihrer erzielten Ergebnisse in den Serious Games einerseits Empfehlungen für das Spielen weiterer Serious Games zu geben, die, im Falle einer geringen Punktzahl, dieselben oder, im Falle einer hohen Punktzahl, andere Fähigkeiten stärken. Andererseits sollen die Teilnehmenden an einen Wissenstest verwiesen werden, in dem sie ihre Kenntnisse zu den im Serious Game behandelten Thema ausbauen können. Aufgrund begrenzter Ressourcen im vorliegen Projekt konnten nicht alle gewünschten Features in den Serious Games umgesetzt werden. In zukünftigen Projekten sollen weitere Ansätze zur Erhöhung der Interaktivität entwickelt und erprobt werden.

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