

1 PROLOGUE – PROGRAMMING CREATIVITY

In May 1991, ecologists in New York's Hudson River discovered a peculiar alteration in the river's habitat. A new species of shellfish appeared that originally only occurred in the Asian part of Russia but expanded globally since the 19th century: the zebra mussel. This invasive species quickly spread along the Hudson's stream, displacing native species to a point where some of them were on the verge of extinction. With the zebra mussel as the predominant species, the number of individual native life forms was temporarily reduced to only 1% of their pre-invasion population.¹ The former diverse ecosystem gradually evolved into a so-called monotypic habitat, meaning a place where an invasive species supersedes or hinders the growth of other species, in particular native ones.² From the surface of the water, this process goes unnoticed. It is silent and quiet, but rapid and steady.

In the context of Saussure's distinction between a signified and a signifier,³ the habitat – whether diverse or monotypic – represents a *signifier*

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- 1 David L. Strayer, Nuria Cid and Heather M. Malcom, "Long-term changes in a population of an invasive bivalve and its effects", *Oecologia* 165, no. 4 (2011): 1063-1072, doi: <https://doi.org/10.1007/s00442-0101792-0>, p. 1065.
 - 2 Enacademic, "Habitat", *Enacademic*, [accessed 7th April, 2019], https://enacademic.com/dic.nsf/enwiki/776335#cite_note-4.
 - 3 Ferdinand de Saussure, *Course in General Linguistics* (London: Peter Owen, 1974), p. 67. Saussure inspired the majority of contemporary semiotic research; his explanation is inadequate by modern standards, however, because his definition of *the sign* excludes many elements that are understood as part of semiotics according to the current state of research. Cf. Umberto Eco, *Einführung in die Semiotik* (München: Wilhelm Verlag, 2002), p. 28. Within this thesis, Saussure's concept of signs is used in the knowledge that many experts regard his work as the foundation of semiotics (still called *semiology* by Saussure). As such, however, it was significantly improved and refined within the framework of semiotics (e.g. by Eco or Roland Barthes).

here, capable of inheriting a variety of different species that echo, in consequence and again according to Saussure, different meanings of the *signified*. Remaining in this metaphorical image for another while, creativity resembles the Hudson. Just as the river originally harboured many *species*, so did creativity harbour many *species of meaning*, which, through its lexical uncertainty and definitory imprecision saw a multitude of meanings expressed in itself. And just as the diversity of living creatures and plants in the Hudson were now displaced by the invasive zebra mussel, a discursive narrative appropriated the shell of creativity, hence creativity as a sign, transforming it almost into a *monotypic sign* through its predominance of meaning. What is implied here as the predominant species is the narrative of creativity by large tech companies.⁴

This in itself is by no means novel or even unique, though, for each discourse knows the interpretive sovereignty of a dominant participant to a greater or lesser extent. Unlike other discourses, however, the discourse on creativity is of rather unprecedented supremacy. Because the concept of creativity's career is breath-taking to begin with. The notion has long ceased to be a hype but become an imperative matter of course and a social norm.⁵ The same goes for IT: hardly any area of everyday life, work or other social reality is not either directly affected by IT or at least by the technologies it develops. The boundaries between the digital and the analogue are gradually blurring and dissolving.⁶

In addition to these two rather evident (and often discussed) phenomena of creativity and IT, the subject of this thesis is particularly acute with regard to two other areas in which both concepts – IT and creativity – are deeply entangled and have a crucial part to play. These discursive phenomena have been

4 These *large tech companies* are in particular those American companies that have significantly shaped the technical development of the last decades and are now considered to be among the most powerful companies in the world, such as Amazon (rank 1), Apple (2), Alphabet (3), Microsoft (4) or Facebook (6). For the sake of simplicity, the term *IT* is commonly used when referring to these companies and in particular its logic. Cf. Roland Lindner, "Amerikas Tech-Giganten demonstrieren ihre Macht", *Frankfurter Allgemeine Zeitung*, last modified 1st August, 2019, https://www.faz.net/aktuell/wirtschaft/diginomics/us-konzerne-feiern-apple-ist-wieder-eine-billion-dollar-wert-16311893.html?printPagedArticle=true#pageIndex_0.

5 See chapter 4.1 for a more detailed account and explanation.

6 See chapter 4.2.

emphasised not only by researching the topic, but also by several years of experience at IBM (the International Business Machines Corporation) Research in Zurich, Switzerland. One is the *changing conditions of work and labour*. New concepts of working and producing arose in the wake of arcade games and the “computer revolution”⁷ in the 1970s and 80s, which moved constantly further away from the process of physical production itself. The so-called platform economy systematically further develops this logic by no longer even dealing directly with immaterial labour or any type of production, but rather with connecting different *things* that already have been created. In short, the IT supplies the infrastructures and the tools to carry out work in times of the digital. But creativity is the ability to use and exploit these tools and infrastructures. New opportunities that arise thanks to IT are only actually activated and implemented through creativity, according to the liberal economic tenor.⁸ Simultaneously, concerns are repeatedly expressed from various perspectives about how the current transformation of work and society itself could lead to the loss of many jobs.⁹ Following the logic of a creativity imperative, *to be creative* became a strategy to overcome that threat. But with the advent of the phenomenon of supposedly artificial creativity, this potential solution has also started to falter. Debating the questions of whether artificial intelligence can be creative or not further expands the discourse on creativity in IT by adding an ontological perspective concerning possible differences and similarities of human and computational concepts of creativity. Although this is still a matter of semantic constructs, the discourse is turning towards the *big picture* on the future of humankind by incorporating more and more discursive strings coming from various domains ranging from the arts, humanities, psychology, to engineering and computer sciences.¹⁰ Combining these aspects creates the image of a mixture of uncertainties and sub-complex terms in which contradictory and ambiguous pairings of concepts such as utopias and dystopias, progression and depression, freedom and control, individuality and totalitarianism exist in parallel and amplify each other.

7 Steven Levy, *Hackers* (Sebastopol: O'Reilly, 2010), p. 371.

8 Amid these developments, a number of discourses are resonating, some of which exist much longer than the digital transformation or the computer revolution. For a more accurate description, see chapter 4.3.

9 Cf. Carl Benedikt Frey and Michael A. Osborne, “The future of employment: How susceptible are jobs to computerisation?” *Technological Forecasting and Social Change* 114, January (2017): 254–280, doi: <https://doi.org/10.1016/j.techfore.2016.08.019>.

10 See chapter 4.4.

All this happens with unprecedented speed but occurs in a comparatively subtle way. The effects of the digital are physically expressed on a smaller scale: whereas the transformation of society first became visible with the construction of huge factory complexes at the outset of industrialisation, today's façades of co-working spaces in already existing buildings fit seamlessly into the overall impression of a street's scenery, just like the cyclist who delivers food and the neighbour who, as a second job after work, now commutes even longer by car to bring passengers to their destination. Each of these short examples embodies a narrative of creativity characterized predominantly by IT. They demonstrate both the current volatile nature of the discourse on creativity in IT as well as its close connection to social practices. Moreover, the discourse is of a reciprocal nature: whereas the concept of creativity is linked to discourses regarding authorship and originality, an entrepreneurial logic framed the perception of creativity in IT. For a better understanding of all these discursive movements, a further integration and consideration of IT's notion of creativity in related debates may seem to be of great value.

However, the issue remains as to what is specifically supposed by IT when large tech enterprises refer to or act in the name of creativity. This raises the following number of questions: how and why did the semantics of an IT-specific creativity narrative emerge? How did it develop and organise itself? What is its purpose? How is creativity epitomised externally and how does it differ from the internal organisation within IT, hence, how aware is IT of its own creativity narrative? How does the narrative distinguish itself from other narratives and where does it make use of them?

For these reasons, it appears essential to examine the meaning, content and developed conjunctures, the performative portrayal and socio-historically situated practices of creativity within large IT enterprises. This dissertation equally aims to close this prospected research gap by carefully examining the research question formulated above, as well as by preparing the foundations for further research and creating alternative ways of connection that take greater account of IT's influence on the notion of creativity.