

The Dynamism of Expertise: The Qualitative Content Analysis of the Articles of a Software Engineer Turned into Freelance Author

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Abstract: My paper studies the relationship of two different professional positions in the oeuvre of David Auerbach, an American software engineer who quitted his job at Google and became a cultural critic and freelance author. I am interested in the dynamism of Auerbach's career: though he—inspired by his literary and cultural affections—left his firstly chosen programmer vocation and became a freelance author, he, as a writer, turned back to the questions of computer science, besides the topics of humanities, and occasionally connected the two areas together. My qualitative content analysis, through two concrete examples, demonstrates how the different areas of interest mingle, confront and influence each other in Auerbach's articles. (My paper is a concise version of a longer work. Where it was necessary, I indicate that I shortened the given part of the original version of my text.)

Keywords: humanities, IT, contributor articles, pro-am, rhetoric of expertise

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1. Introduction: David Auerbach, a programmer who transformed himself from a literary hobby blogger into a freelance IT and cultural author

David Auerbach—sometimes he refers to himself as David B. Auerbach—identifies himself as a writer and software engineer. According to his personal homepage, he worked for big tech companies. Then, for a while, he was a contributor at *Slate*, and published articles in different other media outlets (in technological, literary, and philosophical topics). Furthermore, we are informed by Auerbach's homepage that he has managed his blog (“Waggish”) since January 2002, was active on Twitter from 2008 to 2017, has been producing his Substack news letter service since 2014 (see Auerbach). Auerbach published two nonfiction books: *Bitwise: A Life in Code* in 2018), and *Meganets: How Digital Forces Beyond Our Control Commandeer Our Daily Lives and Inner Realities* in 2023. (Cf. David Auerbach's personal homepage) On his LinkedIn-page, we can find a more detailed description of his career (cf. David Auerbach's LinkedIn page). He graduated in computer science from Yale at the end of the 1990s, then he worked at Microsoft till 2003, and at Google till 2008 (see Anthony; David Auerbach's profile on the homepage of Haslam College of Business; and also David Auerbach's LinkedIn page). There is a few-year hiatus in his curriculum vitae, because the next item is his contributor position at *Slate*, where he started in 2013 (David Auerbach's profile on the homepage of Haslam College of Business; and also David Auerbach's LinkedIn page). He became a fellow at a think tank called New America in 2015, and a lecturer at the New Centre for Research and Practice in 2019 (see Anthony; David Auerbach's profile on the homepage of Haslam College of Business; and also David Auerbach's LinkedIn page). Since 2020, Auerbach has been the author of Hachette Book Group (David Auerbach's LinkedIn page).

On his personal homepage and LinkedIn page, we cannot find any details in connection with the period from 2008 and 2013, or any explanations for the fact that he switched his software engineer job for a freelance author position. The key may be his first book (Auerbach 2018a). According to this memoir-like work, he studied computer science and humanities (literature, philosophy) parallelly at the university. However, the modern version of humanities became a hollow profession in his perception (Auerbach 2018a: 42). That is why, and also because of financial reasons, he decided to graduate in computer science and seek programmer jobs.

Nonetheless, his software engineer career did not eliminate his humanist affections. As he confesses in his memoir-like book, he started literary and philosophical MA studies during his years at Google (Auerbach 2018a: 4). Besides, he continued to post on his cultural blog, which he had started earlier. After a while, he became frustrated by the anxiety that what he created in his programmer job was not worthy of him to be created. So, after twelve years spent in the IT sector, he quit his programmer profession in 2008. (Cf. Auerbach 2018a: 193-97) Then, he started his freelance author career, which successfully managed to mix his literary and IT affections.¹

¹ As part of the the development of his career, Auerbach—already in the time of his programmer job (in 2003)—started his hobby blog focused on literature, music, and film. That is why, in the longer version of my study, I present my survey of the output of the blog's first ten years, reviewing the quantity of posts in each topic which the blog covered from 2003 to 2012. The conclusion of this survey is that the blog had become diversified thematically for 2011 (new topics had appeared, and even the literary topic had temporarily lost its leading role).

Although, Auerbach wrote in his memoir-like book that as a software engineer and as a writer he had simultaneously tried to connect to computer science and humanities (Auerbach 2018a: 4), the pattern of his career development, actually, was the following. First, he had become a programmer (consequently he had gained institutionally-legitimized qualification, he also started his career in the IT sector), and only later—as a hobby of an amateur—did he start to deal with the areas of humanities and social science. However, after he quitted the programmer profession in 2008, and he became a freelance author, Auerbach—beside the literary and humanities topics—turned back to the field of computer science; albeit, not from his programmer job, but as a writer who was seeking for his position in the press industry and on the book market.

Consequently, the different professional positions alternate with each other in Auerbach's career. In the train of thought of his writings, the combination of diverse courses of interest became really exciting from the beginning of the 2010s, when he started his article publishing activities outside of his blog, that is, in official and edited media outlets. Before I demonstrate the main characteristics of Auerbach's nonfiction prose, as a context for my analysis, I outline the main insights of some literature dealing with the relationship between professionals and amateurs, or with the genre of the op-ed article, and also with the topic expertise. Then, briefly, I refer to some dilemmas of the methodology of content analysis.

2. Literature review: pro-am characteristics, op-ed articles, and the rhetoric of expertise

In the longer version of my paper, I present a detailed overview of the category of the prosumer (Ritzer and Jurgenson 2010), or the pro-am position between the institutionalized position of professionals and the occasionality of amateurs (Leadbeater and Miller 2004), and also the participatory culture of fans acting as creators (Jenkins 2006.). However, beyond these phenomena and literatures, my most exciting and useful inspirations were the writings of Axel Bruns (2013a, 2013b).

I am dealing extensively with the ideas of Bruns in the longer version of my study, but now it is enough to mention that he tries to exceed the concept of “prosumption”, and instead of it, he focuses on the category of “produsage”. That is, he is interested in a form of collaboration, emerged in the relationship between the corporate side and the user community, which invites and integrates the “producers” (the users acting as content creators) into the in-house processes of media companies. So, the point of Bruns's approach is not that he only substitutes “user” for “consumer”. Instead, by transcending the general category of “prosumption”, and also by narrowing the focus, his “produsage” model departs the questions of the exploitation or the independence of the amateur actors, and it also departs the utopistic mission of positioning the culture of active fans as a model for democracy. Bruns is interested in the ways of establishing sustainable and mutually beneficial collaborative interfaces between professionals and the user community.

In the history of journalism, one of the most exciting *interface* between pros and ams is the genre of op-ed article (that is, pieces, written by external and occasional contributors, which are published opposite the editorial page). Michael J. Socolow, in his paper presenting the birth of the famous op-ed section of *The New York Times*, writes that the op-ed format was not a novelty when (in 1956) the idea of the section first popped up in the head of the NYT-editor John B. Oakes. The genre had already existed in other newspapers, even for half a century (Socolow 282). In general, the authors of the op-ed writings are external, occasional content creators (they publish journal articles, but they are not journalists). Thus, these authors should be considered as amateurs. At the same time, they are professionals and experts in the fields which are the subject of their writings. The consequence of this pro-am hybridity is an extra task of the op-ed authors: the mission of knowledge-transfer. Since the op-ed articles are not published in a trade-specific or subculturally niche media outlet. So, the expert authors have to transform their own professional point of view and manner of speech in ways that are adapted to the requirements

of common comprehensibility. Simultaneously, the authors cannot forget that their task is not only to adapt to the audience, but also to develop their thinking. John B. Oakes compared this double duty of op-ed-writing to higher education, since he suggested that the mission of journalism in general, and especially that of the op-ed section he developed, is to make its audience think by the mechanisms of doubt and questioning (Socolow 283). Though Socolow's paper reveals the mediating function of pro-am authors through the example of the op-ed section of *The New York Times*, he does not provide further details in connection with the manners of speech should or can be used in the mediation between the lay audience and the expert authors of op-ed articles.

The rhetorical approach of the communication of experts may complement interestingly our knowledge on the mediating role of pro-am actors. In the longer version of my paper, I highlight more details and aspects of the work of Elin Johanna Hartelius, entitled *The Rhetoric of Expertise*². But now the most important for my argument is what Hartelius reveals in connection with the “procedural expertise” through the example of amateur content creators (Hartelius 206). She demonstrates how the lay contributors of Wikipedia have to be simultaneously comprehensible and professionally-intellectually thorough (Hartelius 212). Damien S. Pfister, in his paper entitled a “Networked Expertise in the Era of Many-to-many Communication”, also focuses on the knowledge-transferring practices of Wikipedia. He argues that in the network society the efficiency of the amateur actors of knowledge transfer depends on the ways they “arrange an argument in a novel form” (Pfister 224). However, the “procedural” expertise in Pfister's approach is inseparable from *inventio*, and, at the same time, the proceduralism refunctionalize this rhetorical act. Because, according to Pfister, invention should not be considered as simply the *discovery* of a fact or statement, but rather as “the ability to craft information” (Pfister 225), which may establish the wide acceptance of professional statements.

In my literature overview, I aimed to outline a wider context for the analysis of David Auerbach's articles, based on works focusing on the pro-am position, the genre of op-ed articles, and the rhetoric of expertise. These literatures are useful for me because they provide the following insights. (I) One of the main characteristics of pro-am actors in a given field—according to Axel Bruns—is that they themselves may become mediators between professionals and amateurs. (II) This mediating role can be found in the position of the expert turned to occasional op-ed writer, which—as the Socolow revealed—requires the adaptation to the lay audience, but also the intellectual challenge of the very same audience. (III) Hartelius and Pfister demonstrated, through the example of Wikipedia's pro-am contributors, that one of the main rhetorical achievements of the knowledge transfer, which simultaneously adapts to and challenge its audience, is the ability of arranging professional knowledge into a new form.

Through the insights summarized above, the articles of David Auerbach seem to be quite exciting examples. (1) Because of his peculiar life path Auerbach should be considered a figure who, as a qualified and institutionalized representative of computer science, have become a freelance article writer but not a journalist; at the same time, he have gained deep knowledge and become embedded in another field (that is, in literature and literary studies), though he does not consider himself a professional of this area. (2) In Auerbach's oeuvre, the position of an occasional contributing author has emerged, which realizes its knowledge-transferring function, on the one hand, by adapting to the lay audience's expectations of common comprehensibility, and, on the other hand, by intellectually challenging its readers with the combination of technological perspective and literary affections. (3) Finally, the peculiarity of Auerbach is based on the fact that he realizes the knowledge-forming potentialities of the rhetoric of the pro-am expert through the back and forth shifts between the two really different areas of his interest. More briefly: the articles of Auerbach are exciting examples because they demonstrate the continuous movement of argument between the ideas of two professional field.

² At this time, I can only consult with the dissertation version of this work.

3. Analyses: the continuities and ruptures between literary-cultural and informatics-technological topics in Auerbach's articles

3.1 Methodological reflection

In the longer version of my paper, as a foundation of the analysis of articles, a separate and extensive chapter that covers the dilemmas of qualitative content analysis and the humanistic approach of content analysis, inspired by the considerations of Siegfried Kracauer. Here, I abandon the detailed presentation of my results, but I briefly outline my main conclusions.

Among others, the exegesis of ancient classics and the Bible or the Freudian interpretation of dreams are considered to be the antecedents of content analysis (Mayring 2000). These kinds of cultural historical retrospections are, supposedly, meant to strengthen the prestige of content analysis, but they may be a bit far-fetched. It will be more precise if we derive this methodology from the mid-20th-century research on the WW2 and Cold War propaganda.

According to Morris Janowitz, Harold D. Lasswell laid down the foundations of the quantitative content analysis, and then, he elaborated it in his "Wartime Communications" research project conducted by the Library of Congress, and documented his post-war book, *Languages of Politics* (Janowitz 646-47).

The critique of the quantitative approach emerged already at the middle of the 20th century warning that the numerical analysis may become simplifying and distorting. During the 1970-80-90s, besides the quantitative type, a qualitative version of content analysis developed (Mayring). However, a hybrid approach also appeared. The representative of this approach was, for instance, Philipp Mayring, a German psychologist, and Klaus Krippendorff, a German American communications scholar and methodologist.

When the qualitative analysis is discussed independently, its virtue is considered to be the study of contextual elements and deep layers of meaning. But, at the same time, the method is often criticized because it may give too much space for the analyst's subjectivity or impressionistic approach, also because it may not be easily standardized and because its results are not precise and cannot be generalized, and because it can hardly support decision-making processes (Devi Prasad). According to Udo Kuckartz, a German education researcher, the reference to qualitative analysis (or one of its authors) may often have a kind of labelling or name-dropping function. Those who choose this way may pretend that qualitative analysis has become a unified method, and they seem to forget that this method, actually, exists in different variations (Kuckartz). All in all, there may be the consensual view that the name of the method originates from Siegfried Kracauer.

In summary, based on a paper by Kracauer (1952-53) and a manuscript from 1951 (Kracauer 2012)—which was the antecedent of the previously mentioned paper—and based also on Kracauer's intellectual portraits written by his close friends/colleagues (Adorno 1991; Löwenthal 1991), we can say that the "humanistic" approach of the analysis of media texts and documents may be driven by the following aspects and characteristics. (A) Kracauer does not provide a methodology which is systematically elaborated in concrete and standardized steps. Instead, according to him, what counts in qualitative analysis is the way through which it can reveal how the elements of media texts form an organic totality. (B) At the same time, he warned that the communicative acts and documents, which arrange the previously mentioned elements into a whole, cannot be considered as permanently fixed systems of meaning. They are rather interpretative challenges including uncertainties, which need the involvement of the whole personality of the analyst. (C) However, the Kracauerian humanistic approach of content analysis avoids the dangers of becoming extremely partial or capricious. The *disciplined* subjectivity, needed for avoiding these dangers, can be found on a way of thinking driven by the humbleness of consistency (which, in the past, meant adaptation to great ideologies). (D) It is quite piquant that it is Kracauer who highlighted the importance of the intellectual frameworks in regulating the individuality of reading, because—according to his scholar friends—he was an *antisystematic* thinker resisting totalities. Nevertheless, the commitment to his own topics,

which was able to connect different elements with *gentle carefulness*, was a central characteristic of his intellectual habitus.

For me, the Kracauerian approach summarized above provides useful guidelines for the analysis of the articles of David Auerbach. Kracauer's understanding of the qualitative content analysis is focused on the systematic integration of elements in documents, but, at the same time, it attributes important role also to the unsolved challenges and deficiencies of the creation of meaning. This approach may be a model for the exploration of the dynamism of expertise and pro-am knowledge-transferring role, that is, the movement between the ideas of IT and those of literary-humanistic education.

3.2 On the material of the analysis

Fifty-nine articles, essays, and writings are registered on the "Publications" subpage of David Auerbach's personal home page. Since I was interested in the coexistence of two very different fields of knowledge (humanities and technology) in Auerbach's oeuvre, I narrowed the area of my examination: I wanted to deal only with those texts of Auerbach which focuses either on literary/cultural or IT/technological topics, and, in addition, which can be reached freely online. Thus, thirty-five texts were left for detailed study from the fifty-nine publications (fifteen literary/cultural and twenty IT/technological articles). This material demonstrated that Auerbach, after his exit from IT sector, in the first half of the 2010s primarily focused on literary and cultural topics (he published eleven such texts till 2015, and eight technological articles). In the second half of the decade and during the 2020s, his publication activities were dominated by IT/technological writings (he published twelve such texts, and only four literary/cultural articles).

However, in my study, I did not want to describe only the *competition* of the topics. Instead, I was to demonstrate how the ways of thinking, perspectives, and concepts of the two fields of interest connect or complement each other in Auerbach's certain articles. Only in certain articles, because I did not analyze in detail the relationship of the subjects in the whole material (thirty-five texts). I wanted to work with a shorter list of articles, because, inspired by Kracauer's understanding, I pursued an analysis which explores patiently and in depth the complexities, ruptures, and interpretative challenges in the texts, instead of the collectivized and standardized readings of coding processes. I picked a few writings from the thirty-five articles, the ones in which, in my reading, certain concepts/ideas/phrases became central because of their *intensity* (that is, these concepts/ideas/phrases can mold or turned over characteristically the train of thought of the certain text), and not only because of their quantity (numerical presence) of the concepts/ideas/phrases. Thus, the given article might abandon its own subject and could connect to the concepts or way of thinking of the other area.

During my research, I produced a simple tabular overview of the thirty-five articles which, in two columns, collected and highlighted the key concepts and ideas of the texts. I considered as main concepts not the ones which might occur most frequently, but the ones which might be the most characteristic (that is, they became crucial because of their central role in the argument of the text). So, my tabular overview was not based on standardized categories or numerical/statistical accounts. I selected the key concepts and ideas in an overtly incidental/intuitive/subjective way. Since I was interested in the connection and switches between the literary/cultural and IT/technological fields, I highlighted in bold the key words, phrases or direct quotations in the cases when the two topics were simultaneously present in an article. Since my tabular overview is a lengthy background material (an eighteen-page long document), I do not have the opportunity to embed it in its complete version in the present paper. That is why I demonstrate the structure and content of my table only through one example:

Excerpt from the table overviewing the main concepts of David Auerbach's articles

THE TITLE OF THE ARTICLE	KEY CONCEPTS, CENTRAL IDEAS
<p>Google Torah? (<i>Tablet</i> 13 May 2020)</p>	<p>creation of meaning</p> <p>the process of <i>human reasoning</i></p> <p>the complexity, holism, functional imperfection of natural languages</p> <p>translation is as much about thinking as it is about language</p> <p>concepts (interconnections) and particular contexts (using language in a world which accepts or rejects it)</p> <p>programs do not possess knowledge, but they are the indicators of knowledge</p> <p>statistical working</p> <p>neural machine translation (the process of training: the iterative process of listening/observing/trial/error)</p> <p>black box mechanism (the internal logic is unknown even for the designers)</p> <p>children's language acquisition, human language use, midrashic tradition, peculiarity of the Bible and literature in general: the role of differences and similarities in the creation of meaning</p> <p>what is decisive in the relationship of language and meaning: the meanings of words are not only embedded into the language in which they are used, but also in a wider social context</p> <p>neural machine translation (NMT): it creates the connection of each and every word to every other words -> a step toward holism without grasping the level of semantic meaning</p> <p>these connections are evaluated by machines which lack the sensitivity to the use of language in its relation to the world -> but this is not the way humans make such a determination, because we are trained by</p>

	<p>the experience of using language against a world which accepts or rejects language</p> <p>equivalences/matchings which are produced by machines, impose themselves upon the development of language: they standardize and flatten the creation of meaning</p> <p>the most neural machine translating methods are still working in a homogenizing way, based on the hypothesis that the connections among words exist independently from context</p>
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Out of the thirty-five articles, sixteen writings (eight in both topics) were proved to be such a text in which the literary-cultural and the technological ways of thinking were combined organically and interestingly. In the present paper, I cannot deal with all the sixteen writings in detail. Instead, I chose only one literary/cultural and one IT/technological text.

Literary-cultural article:

- “Choose Your Own Formalism” (*The White Review* August, 2012)

IT/technological article:

- “When English and Code Both Feel Like Foreign Languages” (*Literary Hub* 30 August, 2018)

The main criterion of the selection was whether the chosen texts provide thoughtful, refined, and nuanced examples of the connections/shifts of the two fields of interest.

3.3 “When English and Computer Code Both Feel Like Foreign Languages”: the covert dominance of IT in the demonstration of dual (literary and technological) interest

I do not deal with the two chosen articles chronologically. Instead, my starting point is the text entitled “When English and Computer Code Both Feel Like Foreign Languages” (Auerbach 2018b). Because, in my reading, this article demonstrates the connection of literary/cultural and IT/technological topics quite interestingly, even if it is not the *densest* or the most *spectacular* example of key concepts and central ideas. However, this text may demonstrate the mediation between the topics of literature and IT through the acknowledgement of ruptures between the two areas. The article was published on Literary Hub, as an excerpt from Auerbach’s book, entitled *Bitwise*.³ Based on its primary place of publication, I might have categorized this article a literary-cultural writing. But my analysis argues that, beside the literary and philosophical aspects, the technological topic becomes central—and, finally, more crucial—in the text.

Already in the introduction of the article, we can read about the author’s relations to the two different fields or ways of thinking. In the very first paragraph, Auerbach reveals how he has been attracted to computers since his childhood

Computers lack skill with the interface—language—that humans use to tame and conceptualize the world. I sympathize with computers in that regard. I was four when I first spoke in English. I was six when I first programmed in Logo. Brain development varies wildly among children. Math and science came relatively easily to me; human language has

³ In the book, it was published as the chapter entitled “Interlude: Foreign Tongues” (Auerbach 2018a: 80-85).

always been harder. Foreign languages come slower to me than to most. English feels no more like a native language to me than Logo and C. (Auerbach 2018b, first paragraph)

Then, there is a quick, not very detailed switch in the text. Right after the statement previously quoted, the second paragraph counterbalances Auerbach's mechanical-mathematical interest, since it embeds him into a different field: "Perhaps as a consequence, I have kept my feet in multiple social environments simultaneously, most often through a combination of humanities and technology work. I read Ralph Ellison while learning C, Robert Musil while writing a compiler, James Joyce while working at Google" (Auerbach 2018b, second paragraph). The third and fourth paragraphs go on with the topic of the relationship between the two *professional cultures*. The text describes how the representatives of the two areas misunderstand each other.

These two groups by and large thought ill of each other. My caricature, while exaggerated, is not too far off: to tech wonks, humanities scholars build ill-founded castles in the air with meaningless words to prove that nothing means anything. To the humanities scholars, tech wonks are imprisoned by a positivistic mind-set that leaves little capacity for context, speculation, or modes of thought that cannot be reduced to logical form. (Auerbach 2018b, third paragraph)

However, Auerbach himself wants to quit this opposition, and he declares that both professional fields are equivalent but foreign areas.

To my mind, the two domains were equal—and equally foreign. The exactitude of computer science provided me with useful checks on linguistic hot air. Humanistic fancy, however, enabled me to figure out what I was doing in this technocratic labyrinth, and to ask myself why I was doing it and where it was going. I no longer program full-time, but I miss the mental practice it gave me, which served to focus my mind in a rigorously geometric fashion. (Auerbach 2018b, fourth paragraph)

How does he demonstrate in the train of thought of this article his methods of connecting to both literary and IT topics, and, at the same time, he can also look at these areas from a distance?

After having written, firstly, on his sympathy for computers (and their relationship to language), then, rather on his dual-literary and IT-embeddedness, Auerbach reaches a kind of zero point in his train of thought. In the fifth paragraph, he reveals that he, as a child, "didn't belong to either community. I was a poor fit whether the topic of conversation was econometrics or Hegel" (Auerbach 2018b, fifth paragraph). Actually, his fundamental experience was dumbness or *communicative loneliness*: This was his world view, until he—in his teenage years—discovered such literary modes of utterance which inspired him to develop the power of expressivity:

I felt poorly served by the English language, and well into my teens I saw few models for how I could bend and mold it to the shape of my mental images and feelings. My favorite authors became those, like Virginia Woolf and Ralph Ellison, who were practiced in ventriloquizing through a wide variety of voices and putting each one into question through its proximity to others. But before I had those reference points, I found myself silent. (Auerbach 2018b, fifth paragraph)

Based on this recollection, the inspirational examples of the polyphony of modernist novelists may seem to be life-changing in Auerbach's linguistic development. This interpretation can be confirmed by the sharp temporal divide assigned by the sentence starting with "But before I had those reference points . . ." The idea of such a turn is formed here which, after the *dumbness* of the previous period, changes Auerbach's relation to his mother tongue. However, the train of thought of the article moves away from the belletristic ideals and their liberating power. Since

Auerbach, in the further paragraphs, firstly contemplates on the reality of his own linguistic limitedness, then his argument moves away from the literary-humanistic topic.

In the seventh paragraph, he confesses that he “marveled at practiced speakers who could give the same stump speech on whatever topic of their choosing (the mind-body problem, the Republican majority, the Turing Test) without so much as thinking about the words they were saying” (Auerbach 2018b, seventh paragraph). At this point, Auerbach’s train of thought still switches to a literary-philosophical inspiration. In the eighth paragraph, he refers—not explicitly, but in an identifiable way—to Heinrich von Kleist’s essay, entitled “On the Gradual Construction of Thoughts During Speech”, and he also quotes directly from Kleist’s text in the ninth paragraph. But then the article—contrary to the examples of Woolf and Ellison—make the reader confront the basic rupture of linguistic utterance. Auerbach demonstrates the distance between the contents of the mind and the wording through his own university experiences.

In college, I found that the freewheeling mode of essay writing I preferred did not make a good impression on most professors. There were exceptions, which made it that much more baffling. Most did not welcome the confused, inchoate flood of ideas that my teenage self liked to set down, and I was asked to adopt a very precise and academic subdialect to get high marks. This dialect varied by discipline and even by class. Many of my humanities classes were exercises in deriving the dialect required and forcing one or two ideas into the necessary framework, throwing away 90 percent of what I had found interesting. (Auerbach 2018b, tenth paragraph)

He lost hope of being able to create a written work that could satisfy both him and his professors. So, he decided to move into another field: “By the time I needed to decide between a job in programming or going to graduate school for philosophy or literature, the choice was obvious.” (Auerbach 2018b, tenth paragraph).

The experience of the ruptures of the utterance, which was first inspired by belletristic examples but finally distanced Auerbach from the humanistic studies, leads the train of thought of the article to the field of IT. So far, the text has dealt mostly with the literary influences and Auerbach’s relationship to natural language. In the eleventh paragraph (that is, in the middle of the text, on the basis of the numbers of the paragraphs), appears firstly the questions of computer science. What is important here for the author is that the applicability of the different paradigms of programming languages changes in the cases of different tasks. But Auerbach immediately—still in the eleventh paragraph—returns to the topic of natural language. “The paradigms match different tasks better or worse than one another. So it is with human languages. Certain modes of speech and thought work better than others in certain contexts, so I learned how to speak in different settings. Algorithms can be expressed in different programming languages.” (Auerbach 2018b, eleventh paragraph).

The problem of the relationship with the natural language and the difficulties of utterance regain their leading role in the train of thought. In the twelfth paragraph, Auerbach quotes a comment of his wife which suggests that “[his] writing often reads like it was translated from German—all complex noun phrases and dependent clauses” (Auerbach 2018, twelfth paragraph)

Then, he acknowledges that it is a great effort for him to communicate simply and clearly. In the fourteenth paragraph, he, again, demonstrates his situation through a literary-philosophical example: “I had different reference points for this sort of social autodidacticism, one being Denis Diderot’s *Rameau’s Nephew*, in which a bon vivant discusses how he has learned the arts of conversation, flirtation, and social parasitism through hard work and study” (Auerbach 2018, fourteenth paragraph).

The idea of rigorously monitored communication, which is distanced from spontaneity, is switched back again to the concepts of computer science in the eighteenth paragraph. The previous paragraphs suggested that while the majority of people followed their instincts during

the linguistic development and socialization, Auerbach had to acquire such a communicative habitus which applies a rational and accurate—in summary, a distancing—observation. But in the eighteenth paragraph he reveals

I used to look down on this sort of apparent fakery, prizing some ideal of honest and earnest self-expression. I slowly came to see, though, that it was not fakery but communication that I was after, and that only by learning such mechanisms could I be understood. To put it another way, I gave up feeling entitled to be understood on my own terms. And so I adopted stylistic dialects just as a computer runs different applications and compiles different languages into machine code. (Auerbach 2018b, eighteenth paragraph)

This passage of text is worth to be highlighted because it—compared with the previous paragraphs—unexpectedly increases the importance of IT and computer science in moulding our thinking, self-reflexivity, and communicative habitus. Though the argument of the article mostly focuses on literary-philosophical inspirations during the demonstration of Auerbach's language socialization, this latest quotation outlines an interpretation which switches the direction of influence in the relationship of literary and IT inspirations. While the eleventh paragraph started from the context-dependent multivocality of natural language to different applications of various programming languages, in the eighteenth paragraph, the translation mechanisms of computer science become model for stylistic variety.

So, the last three—that is, the eighteenth, nineteenth, and twentieth paragraphs generate not only an emphasis-shift or change of priority in the relationship of literary and IT topics. This is what was implied in my syntagm above (“switch[ing] the direction of influence”). The realignment of the relationship of the two topics, in the closing of the article, makes the reader retrospectively reconsider the whole argument of text. The nineteenth paragraph returns to the work of Diderot once mentioned in a previous passage of the article, but now it is translated into IT terms:

The character of Rameau's nephew is a general-purpose machine that runs varieties of social interaction software. I have strived to be similarly adaptable. But to be a universal social machine is also not to have the immediacy of instinct and the rushed emotions of saying what I mean and meaning what I say. That translation puts a kink in the process. I am slower and more error-prone than machines that run a particular social language natively. The writer's eternal demon—do these words mean what I think or are there better words for it?—was with me long before I became a writer. (Auerbach 2018b, nineteenth paragraph)

In this passage, because of the halts and the slowness of communication, Auerbach considers the linguistic utterance as a machine-like mode of operation. This translation is graphically demonstrated by the fact that Rameau's nephew is called here a *general purpose social machine*, while he was introduced as the emblem of language socialization in the fourteenth paragraph. The transfer of the eponymous character of Diderot's literary-philosophical work into the field of ideas of IT and computer science retrospectively rewrites Auerbach's relation to language outlined in the previous passages of the article. The seventh, eighth, and tenth paragraphs, based on a literary example (Kleist's essay) and on Auerbach's own humanities studies, highlighted the impersonalizing effects of language, that is, the ruptures between ideas and words, between self-expression and comprehensibility. Contrarily, the nineteenth paragraph puts Auerbach's thinking on communication into a new perspective by transforming the speaker into a machine, moreover, more mechanical than real machines. Since he describes himself as a really erratic communicator (cf.: “I am slower and more error-prone than machines that run a particular social language natively”).

So, the technological topic, which became substantive only at the end of the text, may posteriorly define the whole of the article's argument. The reader may suppose that the phenomenon—which, in the previous passages of the text, was described as a literary-

philosophical dilemma of the rupture between ideas and words—have been present in Auerbach thinking as the problem of the relationship of technology and human environment lacking immediacy, and it have been present for a much earlier time period, even from his childhood, due to his very early technological interest. Maybe this is what is implied in Auerbach’s sentence which claims that “the writer’s eternal demon [...] was with me long before I became a writer.”

In the last paragraph of the article, Auerbach connects the topic of the relation to language and that of the human–computer relationship.

The hesitation I feel in using particular words or idioms, and the uncertainty I have that they ever truly fulfill my intentions, are not merely private matters for me. Even as I negotiate between my words and my thoughts, there is a much larger, but parallel task facing society: the primitive, dissonant relationship between *our* words and our computers’ code. We have been teaching computers how to translate crudely between human language and computer code. What they are able to understand and misunderstand now has the power to shape our lives. (Auerbach 2018b, twentieth paragraph)

In summary, the article entitled “When English and Computer Code Both Feel Like Foreign Languages” is about the different types of professional affections or expertise of its author. Auerbach reveals how his IT and literary orientations have alternated and also influenced each other during his career. Above, I tried to demonstrate how the article’s train of thought provides exciting interconnections and oppositions in the relationship of two topics (relation to language and technological interest), and thus, how the text rearranges the relationship of two different types—that is, literary and IT—expertise. But the text is also enlightening because it can exemplify the Kracauerian insight which suggests that linguistic elements and intellectual contents may become crucial not necessarily on the basis of numerical multitude. Till the middle of the article IT is not really mentioned, and even in the second half of the text, the problem of utterance returns as a dominant topic, the imagery of technology becomes an argument-determining factor only in the last few paragraphs. So, IT is not a topic which penetrates the whole text. However, as the concept of the “universal social machine,” appearing only at the end of the text, transforms the topic of the connection between ideas and words into the human–machine relationship, IT, after all, becomes equivalent to literary-philosophical inspirations, though it appeared to be only marginal. Through paragraphs, the humanities or literary dilemma and the mechanical/technological interest alternate (*chase* each other), despite the oppositions between them, Auerbach finally connects the two fields, by revealing a common characteristic in both of them: that is, the communicative breaks which appears as the rupture of ideas and words, and as the gap between human language and machine code.

3.4 “Choose Your Own Formalism”: the literary-artistic creation of meaning and the fate of cultural training in a formalized technological environment

Auerbach analyzed the relation of technology toward linguistic-literary complexities already in an article (“Choose Your Own Formalism”) published in 2012 on the online site of *The White Review* magazine.

Auerbach’s train of thought, in the first twenty-nine paragraphs, starts from the examples of an art game (Rod Humble: “The Marriage”), an interactive comic book (Jason Shiga: *Meanwhile*), and a hypertext publisher (Eastgate Systems). Then, he concludes (in the thirty-second paragraphs) that, music—in comparison with literature—started technological experiments much earlier and reached much farther, due to its formalized characteristic. That is, due to the fact that “Western music had established a vocabulary that was quite precise: tone, volume, tempo, the entire musical structure” (Auerbach 2012). On the contrary, literature, despite every modernist *adventure*, did not reach a similarly rigid formalism (cf. the thirty-third paragraph).

Auerbach, after the examples of different arts and creative fields, concludes that the relationship of literature and technology is much more fragmented and asymmetric. According to the thirty-fourth paragraph, literature cannot meet the expectation of precise and formal regimentation of content, which is the requirement of technological systems for integrating artistic works into themselves. In a long and interesting digression (from the thirty-sixth to the sixty-fifth paragraph), Auerbach provides a detailed analysis of the genre of the electronic text adventures (“interactive fictions”). According to his insights, “[t]he seeming miracle of text adventures was that they appeared to understand English, albeit a restricted form of it” (Auerbach 2012, thirty-eighth paragraph). In these games, “[o]nce the player agreed to this restricted framework, however, a great deal was possible” (Auerbach 2012, forty-ninth paragraph). In Auerbach’s interpretation, “[i]t is the interactive fiction equivalent of twelve-tone music, except that the formal system has only been known to a handful of gamers, rather than a vast swath of Western culture” (Auerbach 2012, sixty-fourth paragraph). So, “interactive fiction” is the phenomenon in the field of literary-linguistic works which got the closest to music’s formalization acceptable for technology.

Beyond electronic text adventures, aspiration for linguistic formalization also appeared in the wider field of traditional literature. Among them were the work of Oulipo, the French experimental literary group, Dadaist sound poetry, and the prose of Gertrude Stein. However, the article warns us that “semantic meaning is too tricky a monster to formalize, and so the most fascinating – and for the purposes of technology, most promising – formalizations have been achieved by abandoning the notion of sense altogether and treating words as sounds, which attempt to turn language into music” (Auerbach 2012, sixty-sixth paragraph).

Beside the supposed supremacy of literature and creation of meaning over technology, Auerbach does not forget about the importance of IT education—even in other fields. The article criticizes Kenneth Goldsmith, an American contemporary poet—otherwise the creator of UbuWeb, an avant-garde archive—and his book (*Uncreative Writing*), which examines the chances of language and literature in digital environment (see Auerbach 2012, seventieth paragraph). The problem for Auerbach is that Goldsmith “confuses DOS and Linux, reads line numbers as code, and mistakes files for their contents. I can already imagine the response: these things are to be appreciated naïvely, as art. Yet to do so is to ignore any possible meaning of technology in our world in favour of its incidental surface appearance” (Auerbach 2012, seventy-first paragraph). This example leads the train of thought of Auerbach’s article to a conclusion which claims that IT skills are necessary because valuable art emerges only from formalizing experiments of people who know technology inside and out.

However, Auerbach changes his perspective once again and claims that

It is not semantics that produce such clunky marriages between art and technology. So much of Goldsmith’s uncreative writing shows the abdication of sense to be of no help in producing good art. The clunkiness is due to the lack of a well-defined formalism for them. Character, plot, and meaning can be regimented as explicitly as musical pitch and duration, at the cost of nuance and ambiguity. (Auerbach 2012, seventy-third paragraph)

So, in the future, the formalization of literary themes, narratives, and characters will reach a really strict and mechanical level.

We are living through an interstitial period, in which we are seeing the creation of a large number of formally restricted narrative systems that can then be varied and subverted in formalised ways. The world is too large for one system or set of systems to dominate, but within a particular subculture, people will internalise these systems as poets used to internalise metre and rhythm (and, at least in a few subcultures, still do). This will entail the quantification of narrative, character and even theme to a near-mechanical degree, in much the same way that baroque music permitted strict formulas allowing Vivaldi and Telemann

to write thousands of works, while after throwing away such formulae Beethoven could only manage nine symphonies. (Auerbach 2012, seventy-fourth paragraph)

Auerbach does not regard the simplifying formalization of literary culture only as future possibility, but also as present reality.

One already sees such manifestations in the glut of vampire novels, fantasy novels, science-fiction novels, romance novels, and so on and so forth. As subcommunities of fans blur the lines between writers and readers, the emerging standards will more closely reflect the attitudes of these communities' members. Somewhere around the five-thousandth iteration of *Twilight-cum-Fifty Shades of Grey*, we could well see something of quality emerge, just as Alan Moore was able to reassemble myriad tired superhero tropes into the far more substantial *Watchmen*. (Auerbach 2012, seventy-fifth paragraph)

The main thesis of the conclusion in the closing paragraph of the article is

The problem with formalism is that it produces art that grips life only tenuously. Artificially sequestering an explicit set of concepts, such art performs magic on them, but magic that removes itself from the world that created those concepts. The ethical sense, the psychological sense, the human sense may go missing. So it is with *Meanwhile*, *Spider and Web*, and even *Watchmen*: their achievements are not primarily those of human feeling, though we may feel touched by them. (Auerbach 2012, seventy-sixth paragraph)

However, according to the the closing of this paragraph, there is antidote for arts against the dangers of becoming generic and empty, which may be a *double twist* in the context of the relationship of technology and art. "The attachment of sentiment to formalisms, like the feelings we have on hearing Beethoven or Joy Division or Britney Spears, are a matter of gradual cultural training. We are currently in the process of retraining." (Auerbach 2012, seventy-sixth paragraph) In other words, Auerbach claims here the inevitability of *Bildung*, intellectual and emotional education, and as a part of it, the artistic-literary erudition. But right after it, in the very last sentence of the article, he warns us that howsoever we would appreciate the long tradition of intellectual education, in the contemporary media and IT environments, the role and power of this tradition inexorably transform.

4. Summary

In my paper, I have examined the relationship of different professional positions in the oeuvre of David Auerbach, a software engineer turned into author and literary critic. More precisely, I have attempted, on the basis of two examples of Auerbach's articles, to demonstrate the particular dynamism of his career. The dynamism which resulted the following changes in his life path: firstly, he chose IT education and profession, but he quitted them for his literary-cultural aspirations, and became a freelance author and literary critic, meanwhile in his writings—beside the literary and cultural topics—he turned back to the questions of computer science and IT. However, at this point he was writing not *only* a software engineer anymore, but an author who was searching for his place in literary culture and also on book market or in press industry. Thus, different professional positions have been interestingly altering each other in Auerbach's career. In his articles the mingling of different directions of professional interest is worthy of attention.

For the analysis of the moves of the train of thought, I have created a wider context on the basis of the literatures on the pro-am position, op-ed writing and the rhetoric of expertise. The insights on the pro-am category were useful for me because they revealed that in the cases of pro-am actors not only the transitional position may be important, but also the knowledge-transferring role. This connective position, in the practice of op-ed writing, demands that a contributing author should adapt to her/his lay audience, but the author also has to challenge her/his readers. In this double task of adapting and challenging, the main achievement of the

rhetoric of expertise is that it is able to arrange the professional body of knowledge into a new form.

I have demonstrated that David Auerbach is such a qualified and formerly institutionalized programmer turned into a freelance author who, in his pro-am expert activities and knowledge-transferring role, writes on IT and culture to a wider audience, and, at the same time, he may challenge his readers by blending mechanical-technological worldview with literary-humanities erudition. After studying Auerbach's articles, I have chosen two texts (1 literary-cultural essay and 1 IT-themes article) to perform a detailed content analysis focusing on the complexity, ruptures and challenges in the train of thought. The analysis exemplified how Auerbach, through back and forth shifts between two professional fields, achieved the knowledge-renewing possibilities of pro-am rhetoric of expertise.

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