Stefan Gruner[*]

Digital Humanities and Trans Humanities – Some Research Problems for the Humanities of the Not-Too-Far Future [**]

ABSTRACT: *In this paper I speculatively discuss an array of issues which might become relevant for the digital humanities disciplines in the not-too-far future. Most important is the question whether the digital humanities will simply vanish from the academic curriculum and just become "the" humanities again when the digital computer will simply have become a "normal tool" and a matter of course in all academic disciplines. Nonetheless, the availability of a new tool will surely call for new methodological considerations in the meta-theory of the humanities, such that we will not apply this new tool with wrong expectations about its capabilities. This current situation in the (digital) humanities might perhaps be somewhat comparable to the introduction of the telescope as a new tool into the science of astronomy after the end of the middle-ages, which also gave rise to a number of science-philosophical considerations. For this reason it will become important also for the scholars of the humanities to understand at least in principle what digital computers can(not) do. Last but not least also the central question of the humanities, namely: what is genuinely human?, will become highly relevant again as soon as machines will be able to simulate human capabilities with astonishing similarity.*

KEYWORDS: *Digital humanities, digital computers, philosophy, computation.*

1. Introduction

Before any speculative outlook into the future of the Humanities can daringly be attempted, it seems tempting to first look back into this discipline's (or, rather: family of disciplines) past in the hope of finding some re-assuring "orientation" there. However, not much consolation can be found in the past, because

[*] Department of Computer Science, University of Pretoria, Republic of South Africa, e-mail: sg@cs.up.ac.za.

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prima facie and on the "broad scale" the Humanities seem to have been the "losers" of the past 2500 years of humanity's intellectual, philosophical, scientific and technological development. Gone are the days in which (for example) medical practitioners were firmly grounded on "classical" (Latin-based) education and were easily able to quote Dante in their conversations as well as Paracelsus, Cicero or Seneca as well as Galen of Pergamon. Rare are nowadays examples such as the ones of Hans Driesch or Humberto Maturana, in which – as in the times of Aristotle – biology and philosophy were both held firmly in one pair of hands. A book written as late as in the 1960s by the biologist and ethologist Konrad Lorenz, with its numerous "nods" towards Goethe or Kant as indicators of its author's high-cultured "classical" upbringing, already radiates the "smell" of having been written in a past culture-historical epoch. Once honored as the "queen of scholarship" – so much that the middle ages, in the wrong belief that all relevant science of nature would have been exhaustively dealt with already by Aristotle, almost entirely lost interest in quantitative nature-scientific studies – the faculty of the humanities is nowadays almost permanently under attack. At least since the appearance of "the two cultures"[1], the former "queen" is now forced – like a little weather flag in the wind of the socio-political environment – to permanently indicate her own contemporary societal relevance and usefulness by means of ever quicker methodological or hermeneutical "turns", ever more short-lived intellectual "fads", and ever more fashionable research projects which seem to have at least a slight chance of temporarily pleasing the funding agencies by which those "projects" are financially supported. For comparison, Fig.1 shows some of the recent student enrolment numbers in the various faculties of the University of Heidelberg (est. 1386) which I have (somewhat arbitrarily) "picked" as one example (out of many) of a "classical" European university with several centuries of institutional history[2]. These dry numbers of Fig.1 represent the societal (cultural and political) background and the intellectual atmosphere of all the recent debates about the Humanities in general as well as the Digital and the "Trans" Humanities in particular.

Another peculiarity of this idiographic domain[3], which – unlike it is the case in the nomothetic disciplines of mathematics and the natural sciences – additionally inhibits its international "understanding", is the different emphasis which different national traditions have put on some of its parts or sub-domains. For example: whereas the German tradition has put much emphasis on the human being's (and the academic field's) *intellectual* (philosophical, psychological, philological and linguistic) aspects – *Geisteswissenschaft* (Dutch: *geesteswetenskap*) literally means "science of the spirit" – other national academic traditions emphasised more strongly the (embodied) human being *as a whole* (hence: humanities) which seems to be a more beneficial or fruitful understanding of this discipline at least as far as the pre- and post-modern search for cross-disciplinary

1 Cf. Snow 1956, 1959, 1963.
2 https://www.uni-heidelberg.de/studium/interesse/faecher/statistik.html.
3 See Windelband 1998.

bridges (between Snow's "two cultures") into the fields of the natural sciences (including anthropology, human biology, and medicine) in the entire "web of knowledge" is concerned.

However, the price which must be paid for this wider understanding of the Humanities, in contrast to the more narrowly defined German *Geisteswissenschaften*, is the permanent risk of confusion about what this discipline actually stands for, as well as the permanent risk of getting somehow "absorbed" by the many sister-disciplines which deal with the human being on the other side of Snow's cultural chasm. In this context the critical question may well be asked whether the most recent scholarly manoeuvres of the Digital and "Trans" Humanities troops will be suitable to effectively reinforce the embattled positions of the "classical" Humanities in their defence against our current mass-cultural technological and technocratic *Zeitgeist* (which holds the "chattering classes" of the numerically dwindling high-cultural *Bildungsbürgertum* in rather low esteem)[4], or whether these manoeuvres are merely the last few withdrawal skirmishes before the field of the Humanities is by-and-large taken over by an entirely different scholarly-academic organisation of knowledge in a not-too-distant future.

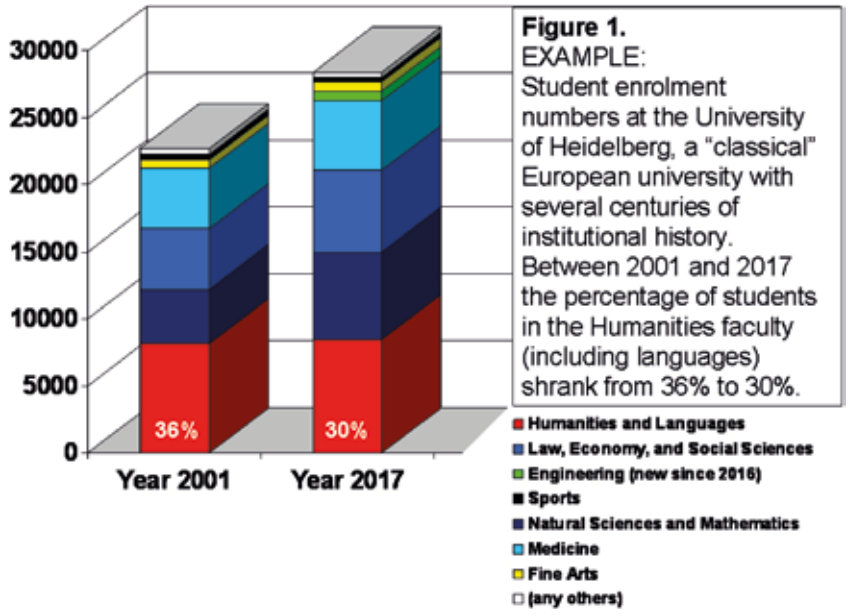

Figure 1.
EXAMPLE:
Student enrolment numbers at the University of Heidelberg, a "classical" European university with several centuries of institutional history. Between 2001 and 2017 the percentage of students in the Humanities faculty (including languages) shrank from 36% to 30%.

4 See Ortega y Gasset 1931, 1972.

2. Digital Humanities

In this section I dare to make a – highly speculative – conceptual and epistemological connection between the newest *artificial intelligence* (AI) or *computational intelligence* (CI) techniques of machine learning (including deep learning)[5] and the age-old human conviction that it is (or at least ought to be) possible to learn something "from history": *historia magistra vitae*[6]. For the remainder of this section let us pretend that we would already sufficiently know what exactly learning and history actually are. Otherwise, a critical analysis of any or both of these philosophically highly questionable and disputable "basic notions" would blow the remainder of this paper out of all acceptable proportions.

For the sake of illustration let it be sufficient at this point to merely mention that our current historic epoch knows some deeply heart-felt paradigmatic proclamations – e.g.: "never again! a world-war", "never again! a holocaust" – which all have that old Ciceronian *magistra*-worldview as their gnoseological foundation. *If* – by contrast – the Nietzsche'an worldview (with its eternal-perpetual recurrence of everything) would be materially correct, i.e.: *if* the universe would behave like a deterministic finite-state computer program stuck in a WHILE loop without satisfiable Boolean EXIT condition, then any of those strongly believed "never again" proclamations of our epoch would ultimately be as futile as any other merely sentimental expressions of foolishly deluded wishful thinking.

Ethologists such as (for example) Konrad Lorenz have taught us that humans do not only have an innate capacity for passively detecting "patterns" of regularity, form and gestalt in the immediately given sense data as well as in their memorised long-time experience; we have, moreover, also an inborn *drive* to (pro)actively apply this epistemic capability and to *search* for regular patterns of form and gestalt where none of such is prima facie visible at first glance. We have an innate *desire* to find regularities as much and as far as possible. This innate epistemic capacity provided us with a beneficial evolutionary survival advantage – hurt once, hurt twice, lesson learned, third time escaped – in a natural environment that was harsh however not entirely chaotic and unpredictable. Here we can thus immediately see a threefold deep connection between:

1. an external environment that is objectively (ontically) not entirely chaotic or irregular,
2. an internal epistemic apparatus that "knows" a-priori the idea of regular pattern, and
3. the notion of "learning from the past".

If the external environment would be objectively (ontically) chaotic and irregular, i.e.: if our mental ideas of regularity would be mere fantasies in accordance with the philosophical doctrines of radical constructivism, then no innate

5 Schmidhuber 2015.
6 Cicero 1963, II.36.

epistemic pattern recognition apparatus would be able to provide us with any evolutionary survival advantage in such a harsh and hostile natural world. Likewise, *vice versa*, we would not have gained any evolutionary survival advantage if we would not possess any kind of Kantian inborn (*a priori*) pattern recognition ability even if our external world would be so perfectly regular, periodic, repetitive and reliable like the best Swiss clockwork. Later in human history this innate epistemic ability of pattern detection did not only help us to survive in a harsh natural environment; it also helped us to discover and "learn" the regular laws of nature, the periodic movements of the planets in their orbit around our sun, the periodic fertility cycles of female humans, etc. Alas, a certain price for this evolutionary survival advantage has to be paid: Because our innate desire does not merely make passive observations but *wants* to *seek* and find patterns everywhere, we are *sometimes* erroneously fooled into the wrong belief of having detected a meaningful and objective pattern of regularity where in fact there was nothing; the seemingly detected pattern was only spurious, merely a construction of our mind, with no lawful material basis in the objective ontic reality. In fact: every sufficiently long sequence of entirely arbitrary random numbers, intrinsically utterly meaningless, must also contain such spurious and meaningless (pseudo) patterns[7]. Hence, *two types of errors* can occur in our attempts at learning (including "learning from the past"):

1. *false-negative*: an objectively existing ontic regularity (pattern, periodic repetition, form, or gestalt), which has indeed some material basis in the laws of nature, *could not be detected* by our imperfect innate epistemic apparatus. For example, we humans are typically not very good at recognising very long and slow "chains of causation" in which cause and effect are temporally separated by decades or even centuries. Indeed, the current debates and disputes about global climate change can provide much insight into this "shortage" of our inborn epistemic apparatus with which we have been equipped by mother nature already in the earliest dawn of mankind only for the sake of immediate survival.

2. *false-positive*: our innate epistemical apparatus *construed a spurious pseudo pattern* which, without any ontically lawful material basis in the objective external reality, is arbitrary and meaningless. This is the type of mistake which Karl Popper might perhaps have had in mind when he cautioned all honest historians not to fall into the luring traps of historicism[8].

In the remainder of this section I show how both these two error types, which have their onto-epistemological source in our naturally evolved *conditio humana*, threaten the best efforts not only of *historians* in the Geisteswissenschaft but also of the deep learning algorithms in the technological disciplines of automated Data Mining (DM) and Artificial Intelligence (AI). After the clarification of these looming "threats to validity" in scholarly academic research activities I suggest

7 Cf. Olivier 2020.
8 Cf. Popper 1957.

how those kinds of algorithms might nonetheless – albeit skeptically "with a pinch of salt" – be utilised fruitfully by Digital Historians of the future in search for meaningful and "learn-able" patterns in mankind's ever growing data bases of historic information[9].

Closely related to the epistemological problem of whether (according to Cicero) it is possible to learn something from history *in a hermeneutically non-trivial sense of the word "learning"* – i.e.: learning as more than a mere accumulation of brute facts in a temporally ordered database of event reports in the form of the Viennese Circle's protocol sentences – is the old and highly disputed question of whether (and, *if* yes: to what factual-ontic extent or in which sense of the term) history "repeats itself". In this context the readers might recall the well known aphorism: "he who does not learn from history is doomed to repeat it", in which the word "learning" acquires a strongly wishful meaning of "being able to prevent the future recurrence of past occurrences". My deliberately provocative insinuation – if only for the sake of debate – at this point should already be obvious: If non-trivial learning implies "pattern detection" by means of our evolutionary grown innate epistemical apparatus, then Cicero's *magistra vitae* can *teach* us anything about history only under the condition that recognisable patterns and regularities are objectively present in the material course of events – and not merely spuriously construed by our wild-running innate desire to find regularities and meaning even in the most arbitrary sequence of random numbers. If, by contrast, history would factually *not* "repeat itself" in any manner, then any attempt at "learning from history" would merely be a futile fantasy of our inborn epistemic apparatus. To the advantage of the *human* historian, however, this epistemological problem does not present itself in the rigorous binary yes/no absoluteness of digital machinery, because any meta-historical (or historico-philosophical) attempt at answering this question, with highest relevance also for the Digital Historian of the future, depends strongly on:

1. what is *normatively* admitted (and beheld from what chosen vantage point of abstractness or concreteness) *to "count" as a noteworthy historic "event"*, as well as on
2. what *degree of similarity* (and, again, beheld from what chosen vantage point of abstractness or concreteness) is *normatively* demanded of two historic "events" in order for the later one *to count* as *repetition* (i.e.: copy) of the earlier one.

I emphasise these points so strongly because both Windelband and Popper had in their highly influential meta-theories of historiography emphasised so strongly that matters of history are in essence and principle *idiographic* – i.e.: *law-less* (as a consequence of human's *free will*). The following *examples*, which I deliberately exaggerated to highlight the problem, shall suffice to illustrate these points:

– Is my body's regular heart beat of approximately 60 pulses per minute sufficient evidence for "history repeats itself?" – if yes, why; if no, why not?

9 For comparison see also my dialogue-interview with Cristina Marras, Riccardo Fedriga and Fabio Ciracì published in this special issue.

– Is my regular appearance in the lecture hall on Mondays at 8:30h in front of my students sufficient evidence for "history repeats itself?" – if yes, why; if no, why not?

– Is the 2nd *Hauptsatz* (main theorem) of Thermodynamics, which confronts us with the brute facts of non-shrinking entropy in irreversible processes, sufficient evidence against "history repeats itself?" – if yes, why; if no, why not?

– Are the densely packed pike formations in late medieval infantry warfare almost 2000 years after the classical Makedonian phalanx sufficient evidence for "history repeats itself?" – if yes, why; if no, why not?

– Is WW2 a "repetition" of WW1? – if yes, why; if no, why not?

– Can Heraklit of Ephesos – or can't he – swim twice in the same river?

The well known and often repeated aphorism according to which "history repeats itself in variations" is thereby *not* a decisive problem-solving answer to the question of whether history repeats itself; rather, this aphorism must be understood as a hint to the ultimate unsolvability of the dilemma with all its viewpoint-dependent hermeneutic and normative parameters. Can we, therefore, "learn from history" only that, paradoxically, learning from history is *not* possible (at least not in a deep and non-trivial sense of the word "learning")? Will our factual knowledge of WW1 and WW2 necessarily or sufficiently *enable* us to prevent WW3? And what has the digital computer to do with all of this, which is – at least in its currently available form – *not* at all able to deal with matters of normative hermeneutics any better than the intellectually struggling philosophers and *Geisteswissenschaftler*?

Digital computers are generally good at "crunching" vast amounts of data at rapid velocity, something that humans are very bad at. This is the current specific difference between the human and the machine which the Digital Historian of the future ought to exploit. Indeed, some interesting discoveries can be made by "bringing the data together" that had previously been kept in isolation in separate realms. For example: it is known today that the witch persecution fury in the human history of early-modern Europe shortly after the middle ages coincided with a meteorological era in the natural history of planet Earth which the climatologists call a "small ice age". If a computer is appropriately "fed" with the relevant data, then the chance is high that DM algorithms from the field of AI can discover such hitherto un-seen correlations.

Obviously, however, the computer can still not deduce any causation from any detected data correlations. Whereas superstitious folks in a pre-enlightened stage of development might perhaps insist that the witches themselves have magically *caused* the appearance of this small ice age by means of sorcery, the enlightened scientist, who insists that neither witches nor witchcraft nor sorcery can even exist, might perhaps feel rather inclined to search for an explanatory chain of causation from the small ice age in the history of nature to the mental psyche of the people who had to live in such uncomfortable circumstances in human history. To the digital computer, however, which might have discovered such a – *hopefully* non-spurious! – data correlation, the one

explanatory hypothesis would be as good as the other one. For this reason (as well as for many other ones) we must *not* allow ourselves to commit the fallacy of believing that "exact" digital computer applications would transform the Digital Humanities from a philosophical-hermeneutical into an exact science like physics or mathematics. In spite of all possible and desirable computer support, also the Digital Humanities are (and will) remain hermeneutical sciences in Dilthey's sense of the term, or otherwise they would no longer be any Humanities at all.

A distinguishing feature of the Humanities is (and has always been) their *self-reflecting discourse*. Whilst, by contrast, methodological considerations concerning the science of physics are *not* physics themselves – they are meta-physics – the currently fashionable buzzword "meta-philosophy" is really not more than a word, because any philosophising about philosophy is nothing but philosophy itself again. Hermeneutical methodological discourses of self-reflection will therefore not ebb down when and while the Humanities begin and continue to add more and more of the Digital to their technological and methodological arsenal, on the contrary!

In computer science and informatics we know since decades this nice and very true old aphorism: "garbage in → garbage out". Whilst some technological heralds and enthusiastic evangelists of Big Data and DM have already proclaimed the "end of all scientific theory" due to the advent of those new AI and DM techniques [10], these techniques themselves are in fact not yet very well understood and therefore still very much in need of meta-scientific methodological scrutiny. Above I have already mentioned Olivier's remarks concerning the stochastically necessary occurrence of utterly meaningless (pseudo) patterns in arbitrarily long sequences of random numbers by which any pattern-searching algorithm must get deceived (in analogy to the above-mentioned error possibilities of our inborn human desire for "seeing" form and gestalt); further science-philosophical remarks in this context (in particular, w.r.t. post-modernist relativism) were recently made by Yoshihiro Maruyama[11].

Indeed, *if* all the newest Data Science *would* merely turn out to be some quasi-magical "data dabbling" or "data quackery" – so-to-say alchemy instead of chemistry – without any rational (science-philosophical and methodological) basis[12], then the Digital Humanities would not have any plausible and philosophically acceptable reason for their own self-identification as Humanities. The *self-reflecting, science-philosophical, hermeneutical and methodological analysis and critique of their own digital algorithmic methods* (including in particular their limits of applicability) must therefore also be a highly important research topic of and within the Digital Humanities of the not-too-distant future.

10 Anderson 2008.
11 Maruyama 2019.
12 Booβ-Bavnbek and Pate 1992.

3. Trans Humanities

> *The long-sought missing link between the animal and the truly "humaine" human being are we!*[13]

Whereas the above-mentioned topics and problems of Digital Humanities are a matter of near-future concern for the Humanities, the matters of "Trans" Humanities are not yet urgently pressing. Nonetheless, they should be taken seriously, i.e.: the "professional" philosophers will not for much longer be able to afford themselves the intellectual luxury of leaving the related themes and topics alone in the hands of "freelancing enthusiasts" and "futurists" (like Hans Moravec or Ray Kurzweil) with their highly influential, as well as highly exaggerated, assertions which we can find in various outlets of "popular science"[14]. These Moravec/Kurzweil'ian kinds of ideas are already in such wide circulation that the academic Humanities, in which almost everything can possibly be a research topic[15], would soon no longer be taken serious by the general public if they had nothing at all to say about those ideas. For example: I can still remember how we teenage school boys taunted our elderly Catholic high-school teacher in the religious education class with the question whether our human Jesus had died on the cross also for the salvation of the extraterrestrials, or whether God had sent to the extraterrestrials their own version of Jesus who looked like them[16]. What was then a silly schoolboys'prank, which our teacher did not at all consider to be a debate-worthy topic – the (perhaps only wisely pretended) anger of our taunted religion-teacher was always predictable, which we boys found always ever so hilarious – might in future perhaps become an earnest question for a serious professor of academic theology in the faculty of the (Trans) Humanities.

The question "What is human?" is *the* single most important foundational question of all schools and disciplines in the faculty of the Humanities. Since Charles Darwin's ground-breaking insights into the evolution of *all* biological species during the history of nature, and even more so since Nietzsche's in his own epoch outrageous postulation of a forthcoming *Übermensch*, the definition of "human" has become both *systematically vague* and *historically variable*, which poses a problem for any thinker in the Humanities who wishes to "fix" the *in*tension of such a definition apodictically in such a manner that its *ex*tension is precisely – not more and not less – the totality of all the people whom *we* humans customarily know and accept as "other humans" in the naive "natural attitude" (*natürliche Einstellung*: Husserl) of our pre-scientific, pre-philosophical and pre-critical life world

13 Lorenz 1963.

14 Kurzweil 1999, 1999a.

15 See for examples the many daily posts on the philosophical mailing list PHILOS-L@liverpool.ac.uk.

16 Metrodoros of Chios, *Peri Physeos*, 4th century BC: "To consider Earth to be the only inhabited world in the infinite universe is equally absurd the claim that only one corn of millet would grow in an entire millet field" (Zaun 2012: 13).

(*Lebenswelt*: Husserl). This problem of definition is known since (at least) the times of classical antiquity, when – according to the hilarious old anecdote – the school of Platon defined "human" first as *featherless biped* and later, after having been confronted with a plucked chicken as "the platonic human" by the mocking Diogenes of Sinope, quickly refined the initial definition to "featherless biped *with flat finger nails*". The following brief look at the sad cases of *anti*-human behavior shall further clarify the case in point.

Whereas in ordinary small-scale cases of deliberately intended (not accidental) homicide the perpetrator would (usually) still admit to have killed a *human* (albeit a specifically unwanted one), in cases of large-scale genocide the perpetrator typically denies – per normative decree – the victims'humanity as such, though all of them factually match all the defining criteria of any canonically accepted definition of "human being". Though these perpetrators would surely admit to have *killed* something living – without such an intention they would not have made their large-scale deliberate effort at all – they would typically reject the thought of having killed something *genuinely human* (in spite of all observable features and apparent indicators of humanoidity). Speculatively, according to Konrad Lorenz, the same situation might perhaps have occurred already in the earliest days of the nature-history of a still pre-cultural mankind, when the just vaguely awakening spiritual *idea* of human was, most likely, associated at first only and exclusively with the nearby and daily visible members of one's own small roaming horde.

The observation and consideration of those socially and historically extreme cases highlights once again, such as already in times of the school of Platon, the definition-dependence of human as a strongly *normative* (rather than merely factual) matter. Even our most modern DNA-based genetic definitions of "human", not merely technically impossible but also entirely unthinkable in times of the school of Platon, would not be *safe* for their intended purpose: This is because genetic disorders happen quite frequently, such as for example in the cases of humans with the *trisomy 21* syndrome who do not have exactly the normal DNA. In fact the happening of *any* genetic variations is one of the indispensable driving forces that has not only lead to the evolutionary emergence of all known species up to now (including us humans), but also *continues* to do its evolutionary work of further modifying the currently existing species as long as life goes on, from which also our human species is not entirely exempt (although the *human* species was indeed able to considerably diminish its environmental adaptation- and selection-pressure by means of its willful, purposeful and tool-supported *technical creation* of a sufficiently comfortable artificial environment).

For all those reasons it seems that in matters of "What is human?" the *classical* (Aristotelian) *types* of definition, which are meta-defined by the criteria of *generic class* (e.g.: featherless biped) and *specific difference* (e.g.: with flat finger-nails), are *not* satisfactory for the scholarly purposes of the Humanities. Those Aristotelian types of definitions of human must therefore be replaced in the Humanities by Wittgensteinian types of *family resemblance definitions* in which *no* individual instance of the extension matches *all* the defining characteristics or criteria in the definition's intension: see Fig.2 for a small example. These Wittgensteinian family

resemblance definitions do thus not only allow swans to be black without losing their swan-ness in the natural sciences; they are also *humaine* enough to allow (for example) *trisomy 21* children to be fully human in the Humanities.

However, as far as the prospective *Trans* Humanities of the future are concerned, these Wittgensteinian family resemblance definitions of human *also* provide some room, at least in principle, for a somewhat *wider extension* which might perhaps (some day) also include particular instances of animals, intelligent robots, half-biological cyborgs, evolutionary mutated post-humans, Nietzsche's *Übermensch*, or technologically advanced extra-terrestrial beings from other planets as sufficiently human[17]. In all these cases, in which huge amounts of parameters must be taken into account, it becomes very difficult to make the classical distinction and decide which of those many parameters are essential and which are merely accidental.

Indeed, when or where or if – as all holocausts in the recent and not-so-recent history of mankind have so shockingly revealed – the *having* of a human body (in the "featherless biped with flat finger-nails" form in which we currently know it) is *no sufficient* guarantee for being universally accepted as human, the logically related question of whether the having of such a body is a *necessary* condition is not far away. In this context the notorious *Turing test* comes to mind according to which – behaviorism *par excellence*! – the machine must (normatively) be accepted as intelligent if its artificial *speech acts* in a particular *Sprachspiel* are indistinguishable from the typical human utterances in the same Sprachspiel context[18]. What all the many critics of this Turing test concept (with its various notorious philosophical and scientific shortcomings) have typically *not* sufficiently mentioned is its potential to "back-fire" in a way entirely unintended by Turing himself, namely: As soon as algorithmically programmed machines begin to utter sufficiently understandable (albeit still quite simplistic and not always perfect) sentences and phrases – with our current "state of the art" we are nearly there! – those poor human fellows, whose own intellectually and linguistically limited verbal expressions are not much better in syntax, grammar and style than the ones uttered by a well-programmed machine, can easily slide down the social ranks into an existentially dangerous situation of being disqualified and despised as "stupid" or merely robotic. In our search for human excellence – the highest achievements in the fine arts, philosophy, science, etc., which might *perhaps* never be within the reach of "intellectual

17 In Ray Kurzweil's above-mentioned book not only the humans eventually accept or acknowledge that the AI entity is humanoid – even more so, the AI entity itself claims for itself: I *am* human.

18 Whether Ludwig Wittgenstein and Alan Turing ever met each other personally in England for some exchange of thoughts is not known to me – anyway the similarities between both men's ideas of "lingo-behaviorism" are notable. Wittgenstein's assertion that the words' meaning resides in the *Sprachspiel* of their occurrence – not in the words themselves – and Turing's assumption that the machine does not need to know the words as long as it can apply them intelligently are obviously of very similar philosophical pedigree. This matter is closely related to the question of whether John Searle's famous Chinese Room *as a whole* knows Chinese, even though the man sitting inside the room does not.

machines" and which certainly make us *proud to be human* – we tend to forget that the *individual* human capabilities are *statistically distributed* along the lines of a Gauβ'ian *bell curve* in which half of the population appears as "below average". Hence, while a super-capable "Einstein machine" or a super-creative "Beethoven machine" might still be too far away from any serious considerability, a possibly emerging competition between *sufficiently* capable machines and some rather not-so-capable men (from the bottom half of the *bell curve*) in the farther future – a competition which might also entail existentially important questions of employability on the labour market where peoples' material livelihoods are at stake – might perhaps usher in the newest variation of an age-old discussion theme well known in the history of the *Geisteswissenschaften*: Who is *geist-reich*, and who is a philistine? Who has knowledge, and who has merely superstition? Who has genuine art, and who has merely some decorative crafts?[19] Who is developed, and who is primitive? Who is civilised, and who is a barbarian? Who is cultured, and who is a savage?[20] Who is a saint, and who is a sinner? Who is noble, and who is plebs? Who is normal, and who is deviant? Who is healthy, and who is ill?[21] Hence, the Trans Humanities of the future might not only have to debate the questions of what to do with a machinic entity that *passes* the Turing (or similar) test, but also – and perhaps with even more urgency – how to treat a "biological" human being who *fails* such a test[22].

All in all, the over-arching problem in this context is sketched by the question of whether *we* will (or shall?) always define "human" only in such a *circular* manner that *only we* – by the design of our own definition – are (and will ever be) able to fulfill our own defining criteria of "human-ness" (featherless bipeds…), *or* whether we will be evolutionary and open-minded enough to come up with (and eventually also cordially embrace) a *circle-free definition* of human the defining criteria of which also other entities (beings and creatures) might possibly fulfill in the extension of a Wittgensteinian family resemblance definition. Or would we then – when suddenly confronted with the unpleasant surprises of unexpected new experiences that threaten to *blur* our convenient conventional border-lines between "human" and "not human" – once again quickly add yet another exclusive *ad hoc* criterion, such as the school of Platon had added "*with* flat finger nails", to keep all outsiders at bay? As we can in principle never know for sure whether or to what extent or degree "the spirit" can also be upon mice or apes or digital electronic circuits in the manner in which it is "upon us" (or upon our souls, which we can only know from subjective introspection, which is, however, not an acceptable nature-

19 See, for example, the computer-generated paintings as well as the computer-generated musical compositions mentioned by Ray Kurzweil.

20 Think, for example, about the mechanised devastations caused in WW1 and WW2 by people who read Goethe, Schiller, and Shakespeare.

21 See, for example, Laing 1967, and therein specifically chapters V-VI on schizophrenic and transcendental experience.

22 For your amusement see Bulhak 1996.

scientific method). I would like to *suggest* to behold evolutionary emergence (by auto-procreation, internal mutation, and environmental selection) as *one* of the most important characteristics by means of which we could, normatively, decide which other entities or beings we might possibly *want* to accept as "sufficiently human" in a farther future. I *doubt*, for example, that an *ad hoc* manufactured computer or self-driving motor vehicle could have any hermeneutically "meaningful understanding" of reality as long as such an entity does not need to "fight for survival" or try to protect its own offspring from getting devoured by other hungry eaters in a harsh environment. This opinion of mine is thus more skeptical than John McCarthy's who was willing to ascribe "mental qualities" even to the most simplistic technical artefacts, for example a bi-metal thermostat that regulates the temperature of a room in a house[23].

Anyway, without any basic "sense" of reality, on which everything is sufficiently firmly grounded, there can also be no "safe ascent" onto any higher levels of semantics, on which we operate – for example, when we make fun with a good sense of humour, when we communicate (with) jokes and puns, irony and metaphors, parables and allegories, theatrical pretensions, fictional fantasy, the masquerade of carnivals, and the like, which are all so typical in and for the realms of culture and art. Try, for example, to pretend – ironically and theatrically – to attack the big dog in your neighbour's garden: the dog will not "ironically pretend" to defend himself, and even for a small child, who has already quite a lot of life experience, grandmother's magical fairy tales are equally real as anything else. Thus, even if McCarthy's simplistic thermostat would really be able to "feel" – as McCarthy said – that the room is too cold, it would not be able (so I conjecture) – to play with such feelings hermeneutically and to articulate them ironically or allegorically at any higher levels of semantics.

However, where I said above that "I doubt", I also admitted that I do not have knowledge as far as this matter is concerned. Nonetheless, as we humans do not only have a spiritual history (see Hegel) in the development of culture and ideas, but at the same time *also* an animalic history in the evolution of nature on planet Earth, which, by the way, is the deepest source of all the notorious philosophical debates and disputes about *free will* and morality (spirit) *versus* innate instincts and the *causal laws of nature* (animal). I would *expect* (in my already admitted ignorance) any "quasi-human" being of the future to have (had) a "quasi-animalic" history of evolution in its own "quasi-natural" environment, too. One of the many *implications* of my bold conjecture could perhaps also be the rehabilitation and reintroduction of the almost forgotten topic *History* of *Nature* in the curricula of the (Trans) Humanities faculties of the future.

23 McCarthy 1979.

intension / Extension	*tall*	*blonde*	*blue-eyed*	*female*
Susie		√	√	√
Sandra	√	√		√
Sabina	√		√	√
Heinz	√	√	√	

Figure 2. Example of a Wittgenstein'ian *family resemblance relation*, in which the intensional intersection of attributes for the entire extension is the empty set Ø: in this case it is *not* possible to capture the entire extension 'naturally' by means of the classical Aristotelian type of definition (with genus and specific difference). Nonetheless they all 'belong together'.

4. Conclusion and Outlook

Some readers might perhaps be upset when I begin the conclusion of this paper with the following provocative conjecture: Since the 19th century, when *the* Humanities were formally established as a faculty at most universities, there existed – in analogy with Snow's remarks about the "two cultures" – basically two types of philosophy, namely:

1. philosophy by scientists who did not sit on academic philosophy chairs, and
2. philosophy from academic philosophy chairs who knew very little about the sciences.

Both had under all normal circumstances almost nothing to do with each other, and whilst many natural scientists and engineers actually *had* read their classics and *were* able to quote Platon, Aristotle, Kant, or Wittgenstein, I have not yet seen (so far) any academic philosophy institute that would seriously, systematically and regularly offer to its students any courses like: *introduction into the philosophy of Erwin Schrödinger*, or *seminar on the problem of eternalism in the metaphysical ontology of Albert Einstein* or anything similar.

Those almost entirely separate realms of philosophical thought were like two different storage rooms in our "cellar of ideas", one for answers which nobody had asked for, and one for questions to which there could not be any answers – especially if *philosophy* is meta-philosophically characterised as *radical questioning* or *radical asking* along the lines of (for example) the post-Heidegger'ian existentialism of Wilhelm Weischedel[24].

24 Weischedel 1971.

In the future of the Humanities – including the "Digital" and the "Trans" Humanities – however, those hitherto separate realms of thought will surely be connected with each other for everybody's benefits, (whereby the utilisation of digital support tools in the Humanities will sooner or later become so normal and self-understanding that the qualifying term "Digital" will no longer be needed at all).

In this paper I have – albeit speculatively and essayistically – grasped and used the opportunity of cross-disciplinary communication and bridge-building along the lines of what I have cursorily sketched in the foregoing paragraphs. In particular, I have highlighted some peculiarities in the semantics (meaning) of the term *learning* which is a crucial concept in the *Geisteswissenschaft* (*historia magistra vitae*) as well as in the *natural science* of evolutionary ethology (Konrad Lorenz, Karl Popper) and in the *artificial science* of digital computing and algorithms (machine learning, automated data analysis). In this context I have pointed out that "learning" – if it is neither understood trivially as a mere accumulation of factual Viennese style protocol sentences, nor as a trivial modal-logical conclusion of the form "*for all* X: [*happened*(X)→*possible*(X)]" – is deeply connected to the notion of "law", which leads to the following *paradox of learning from history*:

– We want to "learn from history" in order to prevent the repetition or recurrence of undesirable past events;

– Genuine (non-trivial) "learning" can happen only where non-spurious regularities, patterns, and repetitions are observable and recognisable by our epistemic apparatus;

– Non-spurious regularities (i.e.: those ones which emerged *neither* just by chance like the patterns in sufficiently long sequences of random numbers, *nor* as merely subjective products of our mental apparatus with its innate desire to find regularities) must have an objective material basis in reality which we call the "laws of nature";

– Laws of nature – by definition (otherwise they would not be laws of nature) – cannot be broken or violated by their subordinate governed entities[25];

– Repetitions of historic events cannot be prevented if those repetitions are based on natural laws;

– Ergo: *if* history does not "repeat itself" then nothing can be (non-trivially) "learned" from it. But *if* history genuinely "repeats itself" (on the real basis of material laws) then nothing can be done in order to prevent further repetitions from happening again (such that the study of history in the Humanities would merely amount to a nice intellectual amusement like collecting old postal stamps or old coins which we behold with pleasure in the light of the lamp in our room on a windy rainy autumn evening).

25 Any reader who is a solipsist, a Berkeley'an idealist, a radical constructivist / culturalist / conventionalist, or anybody else who firmly believes that the laws of nature would be "merely fictions": please raise my hand ☺. However, I must admit that we do not yet know with certainty any *meta*-law of nature which would once and forever *forbid* all other laws of nature to slowly change their "terms and conditions" as time goes by: the empirically un-founded assumption of the *eternal immutability* of *all* laws of nature is indeed meta-physics.

Would the term "learning from history" thus perhaps need to be given an entirely different meaning – e.g.: to adjust our purposeful willing to our insights into what is necessary and inevitable (i.e.: the old Indian *karma*, and Nietzsche's notorious *amor fati*)? I leave it as an exercise to the professional historians and philosophers of history to solve this paradox. Moreover, I have in this context hinted at the *interesting possibility of detecting hitherto un-noticed historic links and connections by means of algorithmically automated analysis of big historic data bases,* because the electronic computer is indeed much better than we are at the rapid processing of data in huge quantities. However, this includes the warning that any automatically detected correlations in such data sets might possibly be spurious, meaningless, or without any "material basis" in reality: as it was pointed out by Martin Olivier, pattern detection algorithms can "err" as strongly as our own innate epistemic apparatus with its "drive" and "desire" to "see" patterns everywhere.

In addition, I have also mentioned the currently weak science-philosophical foundation of the big data method by-and-large, which – according to Yoshihiro Maruyama – leaves the Digital Humanities with much homework still to be done in the field of their own methodology. As a consequence of all those considerations we may not allow ourselves to fall into any false beliefs according to which the precision of the digital computer would magically transform the Digital Humanities into exact sciences: also with the computer the Digital Humanities are going to remain as "hermeneutical" as the Humanities have always been.

Last but not least, I have also made some speculative remarks about the emerging themes and topics of the "Trans" Humanities, which *will have to* become a "proper" and "sober" academic discipline – unless we would wish to leave our youth alone under the influence of all sorts of enthusiastic amateurs, "popular science" and "science fiction" writers, exaggerating "futurologists" or more-or-less self-interested "entrepreneurs" in this important area of technological progress and philosophical thought. Sooner or later the academic youth *will* pick these topics up from the public domain of ideas – regardless of whether we proverbial "old men from the previous century" will stand by or not. In this context I have pointed out (*inter alia*) that classical Aristotelian types of definitions – by "genus" and "specific difference" – are *insufficient* to conceptually separate the "human" from the "non-human", and I have mentioned the less restrictive Wittgensteinian types of *family resemblance definitions* in which the classically sharp distinction between "essence" and "accidence", which was and still is often made merely on the basis of "intuition" or "feelings" about "how things *ought to* be, is rather vague. These Wittgensteinian types of definitions do not only provide us with a *formal ontological tool* to accept somehow other or different human beings as "fully human": they also equip us with the possibility to *come to terms* (literally!) with any possible "quasi-humans" which the *ongoing biological and technological evolution* might still have "in store" for us in the farther future. Thereby it does not really matter whether those "quasi-humans" might be "higher animals", cyborgs, robots, extraterrestrials, or an evolutionary emerging post-human *Übermensch* along the lines of Nietzsche's philosophical thoughts.

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