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DH: un dialogo a più voci*

1. Question: Currently there is an ongoing discussion concerning the research of methodological principles and empirical patterns in the history of humanities. Do you think that the concept of computation can be one of these patterns, able also to overcome the traditional dichotomy between humanities and science?

Answer: Thank you very much, esteemed academic colleagues, for this interview opportunity as well as for this interesting and difficult opening question. It is obviously not a question that could be briefly answered with a simple yes or no already at this point. First of all, we have to keep in mind that "the" humanities are nowadays a very wide field which cover many, and actually quite different, academic disciplines. Since the olden days of the two Wilhelms (Dilthey and Windelband), who might with some degree of justification be regarded as two founding fathers of our modern-day humanities, the rapid process of the history of ideas has led to a remarkable diversification and sub-specialisation within what we still conveniently call "the" humanities.

The question whether or not or to what extent computation is applicable to all these disciplines might thus differ considerably from discipline to discipline and will therefore have to be investigated (and answered) case by case. This seems especially true for those disciplines which are located at the ill-defined "fringes" of the humanities: take, for merely one example, anthropology, which is a discipline that floats from the humanities into the natural sciences without halting at any clearly defined border lines. Moreover, to make matters even worse: it seems not yet very well known among many "classical" or "traditional" scholars of the humanities that also the notion of computation is science-philosophically contested and disputed among contemporary philosophers of science and philosophically educated computer scientists.

In other words, whilst every school-child nowadays seems to know naively what a computer is, it is, to-date, still far from clear at a deeper level of philosophical investigation what computation actually is or how this notion ought to be defined. In summary: Before your noteworthy and important question can be answered with yes or no, we still need to arrive at greater clarity about (1) what shall be the

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specific context (or field) of application for computation within "the" humanities, and (2) what would (or shall) be the appropriate science-philosophical notion of 'computation' for such a context-specific application.

As far as the traditional dichotomy between the humanities and science is concerned – which seems to have been the main issue of your opening question – I would like to invite you to consider my following tentative conjecture: If there are any stark conceptual and epistemological science-philosophical differences between the humanities and the (natural) sciences, then a mere tool – be it the digital computer in hardware or a formal technique of computation in software – will not be able to wipe out such fundamental differences. If we agree, a priori, to define, with Windelband, the (natural) sciences as *nomothetic* (or explaining) and the humanities as *idiographic* (or understanding) in their most fundamental world-orientation, then all we can subsequently do is trying to apply (where possible) the computer *for* nomothetic purposes in the sciences, or *for* idiographic purposes in the humanities, such as pen and paper can be used by a physicist for writing down a mathematical calculation as well as by a theologian for writing down a speculative train of thought about the immortality of souls.

Thus, I conjecture (at least at this early point in our interview) that the above-mentioned dichotomy could be dissolved *only philosophically*, namely by deliberately *changing the conceptual definitions* of our notions of humanities and science. By the way, such a science-philosophical change of definitions need not be as arbitrary and implausible as it might perhaps seem at this point: "history of nature", for example, is an already known *idiographic natural* discipline (in which we cannot experimentally repeat or reproduce by-and-large the unfolding of this one and only cosmos in which we are living), whereas pure mathematics is clearly a *nomothetic Geisteswissenschaft*.

However, I cannot yet see at this point how the digital computer – or any abstract notion of computing – could possibly be utilized to motivate or to enforce such a meta-scientific change of definitions in a plausible and widely acceptable manner. In all intellectual honesty we are not allowed to deduce what "ought to be" from what "is", however the existence of digital computers is merely an empirical fact, whereas the classification of academic disciplines into groups and families is by-and-large a normative issue with plenty of choice options, plenty of classificatory criteria, and plenty of possible alternatives.

2. Question: From your point of view, does the definition of digital humanities make sense the interpenetration of digital technology in humanistic research?

Answer: I know of some universities (names do not matter here) at which the establishment of digital humanities as an academic curriculum in its own right has been attempted with much public media fanfare. To me, this seems like obvious (and actually quite reasonable) academic politics. We all know that the classical humanities are not attracting students (hence also subsidy funds and support grants) in very large numbers, and we also know that anything called 'digital' has

nowadays the potential of attracting our internet-app-connected youth in quite large numbers. Thus, the creation of a digital humanities curriculum at university appears to me as a predominantly administrative (not scholarly) strategy to halt the decline of student enrolment numbers in the historically oldest faculty of higher education. If you are skeptical about my conjecture, then you might look for comparison at what had happened in the faculties of "classical" engineering with their departments of electrical and electronic engineering: With the rising popularity of the personal computer (PC) among the youth of the late 1970s and early 1980s, these classical electronic engineering departments also started to 'digitalise' their academic curricula – about which the only recently established faculties of informatics and computing were not too happy for fear of intra-institutional competition – in order to attract new generations of students, who were already familiar with digital home-computers, into the various branches of the classical engineering faculties.

However, from a strictly science-philosophical point of view, which cannot take mundane academic politics nor intra-institutional competition about student enrolment numbers into account, the notion of digital humanities would make as much (or as little) sense to me as for example the (fictive) notions of "digital metallurgy" or "digital geology". Beheld from a methodological point of view the digital computer appears as a useful *tool*, which has specific potentials, as well as also limits of applicability in different contexts. By the way: if we were to behold, by contrast, the digital computer from a classical 19th century thermodynamics point of view, then our device would merely appear as a producer of useless heat; that is why I put so much emphasis on methodology at this point.

Historically, scientists of all branches and fields have always tried to make the best possible use of available tools and instruments, and whenever new tools became available (due to technological progress) they had to be taken into account also meta-theoretically (w.r.t. their most appropriate and most fruitful application) in the specific sciences' methodologies. Look, for example, at the science of astronomy in the faculty of the natural sciences: Astronomy had been done already long before the instruments of telescopes became available. As soon as the telescopes became available, the astronomers gladly integrated these new tools into their discipline's arsenal. However, they also had to begin to reason methodologically (in order to avoid tool-related measurement errors and false conclusions) about the technical details, the physical features and the epistemological limitations of their new instruments in order to make their application scientifically trustworthy.

As you and your esteemed journal are located in Italy, I am merely carrying the proverbial "Owls to Athens" if I allow myself to remind you at this point of the often-told anecdote about Galileo Galilei and the cardinal of the so-called "holy inquisition": that dispute was not merely a dispute at the empirical level (about which celestial bodies are moving from where to where); it was also a methodological and epistemological dispute concerning the grounds and reasons of the trustworthiness of the telescope as a novel type of auxiliary tool in the arsenal of the researcher, as well as a model-theoretical dispute about how the raw facts of the telescopically perceived sense-data *ought* to be *interpreted* in the face of two

(possibly explanatory) alternative models of the cosmos. The eventual acceptance of the telescope as a legitimate and trustworthy scientific instrument for scholarly purposes (while the military had already welcomed it enthusiastically without any theoretical hesitations for tactical purposes on the battlefield), however, has *not* at all lead to the establishment of any new branch of astronomy called "telescopic astronomy". Until today we still study only astronomy as always – not "telescopic astronomy" – albeit with help of a different and greatly enhanced technical arsenal. By analogy: also in this new millennium we will eventually still study *only* humanities – not traditional humanities plus some additional digital humanities – albeit with a technically enhanced arsenal of digital auxiliary instruments and, hence, also with an advanced methodological meta-theory about the applicability (and the limits) of such instruments for specific epistemic purposes.

For these reasons I conjecture that the current academic fashion phenomenon of institutionally separate digital humanities will sooner or later disappear, namely when the purposeful and insightful (i.e.: methodologically guided) application of the digital computer in these areas will have become as normal and self-understanding as the application of telescopes in astronomy. In fact, we have been in similar epistemic situations in the Humanities already long before the digital computer became widely available.

Please consider, for the sake of illustration, the following realistic example: A historian finds an ancient pot somewhere in the west-Asian desert. Of course, the historian can (and will) apply all the newest nature-scientific instruments and methods to determine as precisely as possible the age of this pot as well as its exact material composition. But this instrumental application alone does not yet bridge the above-mentioned gap between material physics and oriental history (see again Question 1), because the historian has entirely different kinds of epistemic interests. He wants to know, for example, if this specific pot was a profane household pot, or if it was perhaps a sacred pot for religious purposes. Obviously, the historian's material-physical auxiliary instruments alone cannot answer this culture-hermeneutical question – because the terms "profane" and "sacred" do not belong to the terminology of the natural sciences – and that is the reason why we also do not have any "material-physical oriental history" curriculum at university. I trust that you see this example's analogy with the digital humanities about which you had asked your very noteworthy question.

3. Question: What do you think is the relationship between computational science and philosophy? Are there any common approaches or shared concepts that can be identified?

Answer: As we all know, classical philosophy of science was conceived by-and-large as philosophy of physics (meta-physics). However, whenever new branches of science appeared and grew in the tree of knowledge, their philosophical meta-studies were never far away: well-known examples (from the 20th century) can be found in the science-philosophical works of Ludwik Fleck (philosophy of medi-

cine), Hans Driesch (philosophy of biology), or Walter Vincenti (philosophy of engineering). These three examples of modern philosophy of science that is not philosophy of physics shall suffice at this point. Today, the philosophy of computer science (or, somewhat more general, the philosophy of computing) is an already well-established and very active sub-branch of philosophy of science, with many conferences, journals, and scholars dedicated to this topic and its various research questions. The volume of publications in philosophy of computing has grown already so vast that I cannot even attempt to provide any concise overview here. One of the noteworthy pioneers in this field was the Austrian philosopher-engineer and computer-pioneer Heinz Zemanek, who began to philosophise about various epistemological problems of computing and information already in the second half of the 1960s, i.e.: not very long after the young academic discipline of computer science itself had been newly established at various universities. At this point it is interesting to note that Zemanek's early philosophy of computing was strongly influenced by the language philosophy of his famous compatriot Ludwig Wittgenstein: as far as I know, Zemanek, the engineer, was the first scholar in the late-modern history of philosophy who has *seen* the conceptual links and connections between Wittgenstein's language-philosophy and the digital computer with such great visionary clarity. What happened (or what might perhaps have happened) in England, where the late Wittgenstein had taken political refuge *and* where also the world's first fully operational electronic computer had been developed during WW2, I do not know. Anyway, we do not seem to have (to-date) any written accounts of English philosophers already *seeing* a conceptual link between the digital computer and Wittgenstein's philosophy before Zemanek had noticed it.

Last but not least, to complete my answer to your question as comprehensively as possible, I should not omit to mention that the disciplinary borderlines between the (newer) *philosophy of* computing and the (older) *philosophy of* mathematics (meta-mathematics) are historically and systematically as fluent as the disciplinary borderlines between mathematics and computer science themselves. In other words: I would not raise any protest against assuming a historiographic vantage point from which the famous (or notorious) *Grundlagenstreit* (foundational quarrel) of mathematics (among Hilbert, Brouwer, *et al.*) in the 1920s would already appear as the first chapter of the philosophy of computer science, because the subject of formalised logic can be taken as a *bonding glue* between these two science-philosophical discourses.

Most recently in this context the fundamental science-philosophical question: "What is computation?" (see again Answer 1 of above) has been asked anew with a great sense of urgency – and ditto the conceptually closely related question: "What is information?". Specifically with this information-question we can open doors to many other areas of scholarly inquiry, be it psychology (in the faculty of the humanities), be it physics (in the faculty of the natural sciences), etc. Other important computer-philosophical topics, which I cannot discuss at this point due to the shortage of page space, are the problem of whether the discipline of computer science as a whole is truly a science (in the modern understanding of the term science), the problem of the epistemological value of model-based computer-simulations, and many more.

4. Question: Is there really a risk of digital determinism in the digital humanities and, if yes, what could be the border with an idea of freedom as possibility to do otherwise (counterfactual libertarianism)?

Answer: By way of the somewhat unusual term "digital determinism" you presumably want to express the concern that the tool (here: the digital computer) might begin to dictate the *modus operandi* of its users – for example, that particular research problems are no longer keenly pursued because they do not seem to be solvable by means of the given tools at hand. In asking your question you might perhaps have remembered the nice old aphorism: "to the man who only has a hammer the whole world looks like nails". This issue is related to the somewhat more general question of technological determinism (or techno-determinism for short) which historians of technology such as Hans-Dieter Hellige (as well as many others) have often discussed. Indeed, your concern cannot be so easily dismissed, because the computer *has* indeed changed quite dramatically the way in which millions of humans are nowadays carrying out their daily work, especially in the "white collar" office world, and whenever for some reason "the system is down today" or "the system does not allow me to do this" then these poor clerks are really stuck. In such contexts the question has already been raised often times to what extent the computer is still a helper of the human, or *vice versa* to what extent the human has already become a mere appendix to the machine (especially in the lower echelons of the labour world). However, the idea of techno-determinism, which has a number of adherents, can be (and has indeed been) refuted empirically as well as conceptually (philosophically) by various historians, historians of technology, philosophers, philosophers of technology, and philosophers of history.

As I cannot go into all the details of their various arguments against techno-determinism at this point, only two remarks shall suffice here to answer your question. One is the amazing flexibility of the digital computer which (albeit *not* omnipotent) can be programmed to solve an astonishingly large amount (or class) of computable problems: such that a desirable helpful software tool, which is not yet at our hands today, might soon become available in the not-too-far future. Thus, we can reasonably hope that the digital humanist is not only in possession of the proverbial hammer as his one and only tool; on the contrary, the digital tool box will surely grow and become more and more diversely equipped as time goes by. Secondly, I must remark that the academic scholar – though also sitting in an office like many clerks in the labour-force – is (at least still, to-date) not (yet) merely an office labourer. As long as academic freedom still exists (which is, by the way, under attack and in need of defence in these days in many places), the academic researcher also in the digital humanities still has the option to fall back to any classical methods of research if and where a digital computer is not (or can never be) of help in a particular research situation.

Indeed, as I have mentioned above in my answer to Question 2, I do not even believe that the Digital Humanities will enjoy a very long history as a separate academic discipline, because the digital computer is merely one auxiliary tool in addition to many others, and its usage will become so self-understanding as a

matter of course that it will not even be regarded as worth mentioning any more in the not-too-far future. As far as I can see the current situation, the research directions in many academic fields nowadays are to a noteworthy extent dictated by money (stipends, grants and funds being handed out under conditions stipulated by vested extra-academic interests) as well as by institutional-managerial publication pressure, such that researchers in these days always tend to be on the look-out for the lowest-hanging fruits to be picked from the trees of knowledge (i.e.: the ones that will lead to the quickest possible publication of yet another zero-citations-paper for the scholar's curriculum vitae page on his publicly visible internet profile).

As long as these strong pressure forces are generally still in place in the academic realm, I would not be too worried about any "digital determinism" (or, more generally, technological determinism) induced by the computer-tool in the field of the digital humanities. In this context I believe that there is some hierarchy of dangers to be worried about prudently: when your house is on fire you do not worry too much about your car's dry gear-box that is in need of re-lubrication, but when your house is safe then you must also not forget to re-lubricate the dry gear-box of your car in the not-too-far future. Last but not least at this point: Whether the human being is genuinely free, or whether our *idea of freedom* is merely somehow generated by some kind of "soul-apparatus" of our human bodies, is a deep onto-philosophical problem for which I cannot offer any solution here.

5. Question: What is the role of the social memory of the past (intended as "taking charge of…") in the apparent "presentism" of algorithms?

Answer: This is a very interesting question that touches several issues the connections between which have rarely been seen and recognised thus far, namely: the context-free propositional semantic atoms in Wittgenstein's early *Tractatus* (as discussed by Zemanek for the philosophy of informatics), the observational protocol sentences of logical empiricism (Wiener Kreis), and in the philosophy of history the (hypothetical) complete and gap-free event descriptions provided by the (hypothetical) "ideal chronist" as soon as they happen in the (hypothetical) "ideal chronicle" (IC) by Arthur Danto (as discussed by Kurt Rȍttgers on the history-philosophical topic of "transcendental narrativism"). Deeper analysis of Danto's IC *gedankenexperiment* reveals that it is indeed impossible for the IC to contain event protocol sentences such as (for example): "today I witnessed the beginning of the Thirty Year's War", because nobody was able to know in the year 1618 that the first skirmishes of that time would continue to devastate central Europe for the next 30 years. Thus, only later, in hindsight, we possess the context-sensitive information that allows us to speak of 1618 as "the beginning of the Thirty Year's War". Similarly, only in hindsight the historians were able to speak of the so-called "long 19th century" that actually began (somewhat paradoxically) already in the last decades of the 18th century and actually ended (also somewhat paradoxically) only in the first decades of the 20th century. For all these kinds of judgments about

the past the historian needs context-information of later times, and the more of such "later time" elapses the more the events of the past can be (and actually are) subject to re-evaluation, re-interpretation, and re-contextualisation. For example, from the new informational perspective of our early 21st century, some historians have already begun to question the currently accepted canonical start and end dates of WW1 and WW2.

Interesting for our topic of conversation is now the fact that, as already emphasised by Heinz Zemanek, the computer does not have such crucial context information in the same manner in which we humans have it. The digital computer as we know it (i.e.: as long as it is really *merely* a computer and not a complete technological emulation of what we accept as human being like in the science-fiction movies) can merely have the Wittgensteinian propositional "semantic atoms", or the Viennese "protocol sentences", or the event descriptions of Danto's (hypothetical) IC, all of which are context-free (or context-less). Of course, a programmer could now come along and cast a little bit of context information into the form of protocol sentences and feed those ones into a computer's database. However, that would be a never-ending process, because every context information has its own meta context information which has again its own meta-meta context information, and so on ad-infinitum.

For these reasons I conjecture that a digital computer (as we know it) cannot and will never be a good historian, because the good historian is much more than merely a chronological database: the good historian is producing all the times novel historiographic hypotheses including tentative hypothetical hermeneutical explanations of the events of the past (explanations here *not* understood in the sense of Hempel-Oppenheim) for which the available facts (protocol sentences) must be (and are) re-contextualised and re-interpreted all the time.

This is one of the fundamental limitations of the digital computer which every computer scientist and every historian or philosopher must be aware of before the digital computer can be sensibly and responsibly utilised as a useful supportive auxiliary tool in the fields of the humanities. Wrong expectations about the capabilities of the digital computer can (and will) only lead to many disappointments. Indeed, it is so as the old aphorism from the early days of digital computing had said: "garbage in → garbage out".

Perhaps you can remember the famous hilarious science-fiction parody novel by Douglas Adams of 1979, in which a computer was asked to provide a definite answer to the question about the meaning of life: after millions and millions of years of computing the eventually emitted answer was: "42". That is not merely a funny satirical pop-cultural illustration of the old principle "garbage in → garbage out": it can also be taken (more seriously) as a warning about the fundamental limits of computer applications in the humanities. This is because for the digital computer, such as for the staunch Viennese neo-positivists, the term "meaning of life" itself is simply a meaningless term (i.e.: garbage), whilst the humanities (in this aspect somewhat similar to the fine arts and the religions) in their *raison d'être* are all about providing meaning and life-orientation (against the onslaughts of nihilism and existential despair).

Nonetheless, it is still the task of the (human) historian to interpret and re-interpret the past, to conjecture novel historiographic hypotheses, and even to expand the scholarly language of historiography with new conceptual words and terms (or with new meanings for the already existing words and terms). For example, consider Nietzsche's outrageous and hitherto unheard-of history-philosophical notion of the *ewige Wiederkehr des Gleichen* (eternal recurrence of the same) which no digital computer could have ever inferred algorithmically from a finite basis of empirical chronological data; the computer can only provide highly valuable support-services in the provision of the chronists' data with which every historian has to work.

Thereby, with effectively implemented algorithms, the computer might even be able to pre-process a given data base for the sake of its better human comprehension, to cluster the data according to specific criteria of similarity, and the like. Look, for example, at the recent work by historians such as Georg Vogeler (as well as many others not mentioned by name at this point): in their digital humanities projects they tagged medieval documents (*charters*) with additional meta-information tags that make it possible to automatically (algorithmically) group and re-group very large sets of charters into clusters (according to whatever criteria of related-ness) which the "naked eye" of the human historian would have never detected due to the sheer numeric mass of the given data. This is actually no small feat and not to be underestimated!

However, after the computer has algorithmically detected a new cluster (*corpus*) in a given set of charters, the genuine work of the historian is only starting (not ending): the historian must then *deeply study* this computer-generated cluster/corpus of charters, must come up with novel interpretive or explanatory hypotheses concerning the contextual background of those documents, must creatively conjecture novel historiographic themes and topics for future research on that basis, must design feasible projects for M.Sc. and Ph.D. students, etc…

This is, as far as I can see, the (rather utilitarian) relationship between the *a-historicity* of algorithms and the *historicity* (in your words: the "social memory") of the humanities which you had mentioned in your philosophically very important question. The "social memory" which you have mentioned, as far as it consists of context information, cannot be completely (nor even sufficiently) captured by the context-free (mere) data which the digital computer is storing and processing. Once again, we will have to thank Heinz Zemanek for this fundamental insight which he has had already long time before the first academic chairs for Digital Humanities were established at various universities.

6. Question: Currently there are specifically defined research areas such as digital philology, digital history, digital lexicography, etc. In your opinion, what are the prospects of DH in the philosophical field, and how can we define a philosophy that makes computation and "the digital" an essential and integral part of its methodology and research practices?

Answer: A visionary answer to your question has already been provided around the turn of the 17th towards the 18th century by nobody less than the polymath Gottfried Wilhelm Leibniz, who famously wrote in one of his scholarly communications: "Quo facto quando orientur controversiae, non magis disputatione opus erit inter duos philosophos quam inter duos computistas. Sufficiet enim calamos in manus sumere, sedereque ad abacos et sibi mutuo (accito si placet amico) dicere: calculemus!" In other words, Leibniz already understood that the path away from annoying ambiguities towards precision and mutual understanding in philosophical arguments is the path of symbolic formalisation.

This same philosophical motivation, a deep-felt desire for clarity in scholarly arguments, lead Gottlob Frege to the formal notation of his famous *Begriffsschrift* approximately hundred years later in the final quarter of the 19th century. As it was pointed out with very strong emphasis, lest it be forgotten, yet another century later, namely in the 1970s by Heinz Zemanek with reference to Ludwig Wittgenstein (see above: Answer 3), the digital computer as we know it is a formal symbolic device. As such it can be successfully applied exactly to those type of problems (philosophical or otherwise) that are amenable to formalization, however not to those types of (philosophical) problems that defy any formalisation attempts. By way of formalisation we are actually trading precision for scope: the greater the precision with which we talk, the smaller the domain of discourse about which we can talk. That is the high price we will have to pay for the benefits of computer-assisted or computer-aided philosophy, as it was already anticipated by Zemanek.

About anything else the digital computer "must remain silent" in accordance with the famous §7 of Wittgenstein's *Tractatus Logico-Philosophicus*. What does all this imply for any envisioned digital philosophy of the future? At this point I can only guess (or suggest) that many research efforts in such a field would need to be directed towards the following three meta-philosophical meta-problems: (1) Which ones are philosophical problems that are amenable to formalisation? (2) Are these amenable philosophical problems also sufficiently salient, non-trivial, and (hence) *worth* the (costly) work-effort of formalisation? (3) How can we, finally, cast the such-identified problems into suitable digital *representations* (i.e.: algorithms and data structures) such that the digital computer can effectively help us with finding the desired answers?

In case that this meta-philosophical exploration project reminds you somewhat uncomfortably of the fierce and overly dogmatic anti-metaphysical stance of the Wiener Kreis (factual verifiability or nothing) then you may find some consolation in the plausible hypothesis that the digital computer itself is so mind-less that it does not (and cannot) know at all whether it is talking about the goodness of God or whether it is talking about an algebraic theorem. All that the computer does is meaningless formal symbol transformation according to the rules of some formal calculus, whereby the symbols' meaning is, to say, "in us", and not "in" the machine. At this point you can find me well *in line* with the meta-mathematical philosophical position of the above-mentioned David Hilbert (see Answer 3).

Hence, the digital computer will never be able to tell us, for example, whether God exists or whether God is good – questions which the Wiener Kreis would have apodictically dismissed as meaningless. But it can tell us very accurately whether Anselm of Canterbury's medieval God-existence argument is intrinsically consistent or logically flawed from a purely formalistic point of view, provided that somebody is first of all willing to invest the not-to-be-under-estimated work-time needed for transforming Anselm's medieval Latin utterances into a formal representation which the digital computer can then digest. This is actually no small feat; just ask a group of Philosophy students in your seminar room to analyse the logical structure of Anselm's argument, and watch how many different answers (if not merely "blank faces") you will receive.

Of course there will be also many other practically useful auxiliary functions with which a digital computer can in future support the daily work of a philosopher, such as analysing the stylistic features of a given philosophical text, discovering linguistic similarities between two or more given texts, counting and highlighting the frequencies of potentially salient keywords, translating snippets of texts from a foreign language into the philosopher's mother tongue, and the like, but these are (at least in my opinion) not genuinely philosophical issues.

In summary: Whether or not the philosophy of the future will truly be "digital philosophy" will strongly depend on the human philosophers' epistemic interests: *if* in the spirit of Leibniz and Frege the human philosophers of the future are willing to tackle symbolically formalisable philosophical problems (if any of such problems can be found) then there will be "digital philosophy". But if the human philosophers prefer to work on other philosophical problems which are not symbolically formalisable then there will be no genuine "digital philosophy" in the strict sense of the term. This meta-philosophical problem choice decision, which is normative, not objective, is entirely up to them, and I cannot even attempt to guess at this point what types of philosophical problems the philosophers of the future will choose to tackle.

Last but not least, for the sake of terminological clarity, I would like to emphasise once more that philosoph*ising* about comput*ing* (see Answer 3) is not the same as philosoph*ising* with comput*ers*: the rather vague term "digital philosophy" might perhaps be mistaken to refer to both, but in my understanding it refers only to this latter activity.