Herbert Hrachovec: Wittgenstein on line / on the line

THE CHANGED STATE OF WITTGENSTEIN SCHOLARSHIP

Two independent publishing projects have thoroughly changed the state of Wittgenstein scholarship in recent years. Michael Nedo's 'Wiener Ausgabe'[1] offers a traditional critical edition of Wittgenstein's philosophical writings ranging from 1929 up to and including the 'Big Typescript' (1933). Considering the eclectic and - at times - arbitrary editorial policy underlying previous publications from the *Nachlass*[2] Nedo's project offers unprecedented philosophical rigor as well as textual criticism in volumes designed for comfortable reading. A second, more ambitious, attempt at a critical edition is the Bergen electronic edition.[3] It is planned to include 4 CD-ROMs, covering the entire range of the philosopher's unpublished writing. Two disks are currently available, comprising all of Wittgenstein's manuscripts from 1929-1939, as well as type-scripts, beginning with 'Notes on Logic' (1913) and leading up to Typescript 226, composed in 1939.

Wittgenstein's writings from the Thirties are, therefore, available in independent, reliable printed and electronic editions respectively. Readers can, for the first time, observe the philosopher at work, transferring paragraphs from pocket notebooks to handwritten 'volumes'; picking acceptable remarks to be included in type-scripts that are, at a later stage, cut up into slips of paper which are again annotated, rearranged and put together in further volumes and type-scripts. But this is only half the excitement. The 'Wiener Ausgabe' and the 'Bergen Edition' stake their success on different media, inevitably provoking a comparison between the well known features of printed scholarly editions and the not so familiar realm of digitized texts.

Some of the differences are immediately obvious. Scrutinizing philosophical texts on a printed page implies sensual qualities lacking in electronic space. Many readers will prefer a material sheet of paper over its virtual substitute. There are, on the other hand, definite advantages in digitally stored transcriptions. A CD-ROM does not occupy desk-space and allows almost instant access to every single remark of the extended Wittgenstein *corpus*. In addition to the actual texts, the 'Wiener Ausgabe' contains separate volumes of sophisticated registers, cross-referencing all the printed material. Considering the fact that the Bergen edition includes an excellent search function Nedo's tables are an anachronistic nicety at best. In a recent volume Nedo, in fact, announces a 'comprehensive electronic Apparatus, supplementing the *Wiener Ausgabe*'[4]. And there is simply no viable alternative to an electronic medium if one wants to present facsimiles of every page of the *Nachlass*, suitably linked to diplomatic and normalized versions of its content. These features make the Bergen edition a far more comprehensive enterprise. It seems that,*pace* the predictable skepticism stemming from deeply ingrained scholarly habits, there is a convincing case in favor of switching to the digital format. The present paper will, at any rate, proceed from this assumption. But matters of technical

convenience should not be allowed to decide the more profound issues arising from the competition of the media involved.

The accessibility of Wittgenstein's texts has been tremendously enhanced by putting them on CD-ROMs. If this were information like the listings in a telephone directory one could let the issue rest at this point. It might be confined to a discussion of the availability and design of necessary electronic interfaces. Philosophical production, and in particular Wittgenstein's literary remains, raise more interesting questions, though. Can conceptual content be neatly separated from its presentation in a given medium? Since its inception philosophy was done by teaching, in scholarly discourse, or by writing books/papers. What will be the impact of current digital technology on those traditional practices?[5]

The preceding sketch has emphasized several characteristics of electronic texts that printed books cannot match. It does not follow that a given work actually demands - or even bears - digital treatment. Essential use of *single pages*, to mention a simple case, cannot easily be simulated electronically. The first section of this paper will, therefore, explore what might be called the textuality of Wittgenstein's *Nachlass*. Tracing the development of an important Wittgensteinian motive, this exploration surveys part of the newly available material, testing the suitability of computer-assisted scholarship to this particular collection of writings. Is there a general lesson to be learned from involving oneself in hands-on digital philology? As it turns out the Wittgenstein *Nachlass* provides an excellent occasion to reflect upon the range and limits of the Gutenberg heritage. This is discussed in section two. The concluding remarks focus on the Bergen edition. Given that digitization does not simply extend the established tool-set of textual scholarship but opens up new philosophical perspectives - how well does this particular enterprise support (and possibly inspire) a re-configuration of the philological *status quo*?

TOOTHACHES: PHILOLOGY

The so-called 'private language' argument laid out in *Philosophical Investigations* §§ 243ff has been widely discussed in the literature. One of Wittgenstein's ways to introduce the problem is to argue for the incomprehensibility of naming pains in a strictly solipsistic setting. What are the circumstances enabling us to identify sensations? We have to participate in interpersonal activities *expressing* e.g. pain.

Wie wäre es, wenn die Menschen ihre Schmerzen nicht äußerten (nicht stöhnten, das Gesicht nicht verzögen etc.)? Dann könnte man einem Kind nicht den Gebrauch des Wortes 'Zahnschmerzen' beibringen. (PhU § 257)

The fleeting reference to toothaches here does not carry conceptual weight in the context of the *Investigations*. But, surprisingly enough, Wittgenstein's earliest treatment of the issues that were to lead to his private language argument centers around this very sensation. There are at least three methods available to reach the present conclusion. By juxtaposing them we get a first glimpse at the possible scope of computer-assisted textual criticism.

(1) Five volumes of the *Wiener Ausgabe* have hitherto been published, comprising - in appr. 1300 pages - Wittgenstein's manuscripts from the time when he took up philosophy again, ending his self-imposed moratorium subsequent to the completion of the *Tractatus*. These manuscripts contain, in chronological order, Wittgenstein's discussions of a wide range of issues. In essence they are philosophical diaries, freely switching between different matters of interest, developing threads of thought up to a certain point, interrupting and returning at a later date. One might read through all of this material and pick out remarks concerning toothaches. The term appears for the first

time on Nov. 19, 1929: 'Warum nenne ich Zahnschmerzen ' *meine* Zahnschmerzen' ?' (MS 107, 199; WA 2, 114[6]). Wittgenstein then develops this motive from different angles up to Dec. 14, 1929 (MS 108, 8f; WA 2,136) and returns to discuss it in a loose sequence of remarks from Jan. 31, 1930 (MS 107, 270; WA 2, 186) to Feb. 7, 1930 (MS 107, 288; WA 2, 196). All of those entries are intermingled with reflections on many different topics: probability, theory of measurement, Euclidean geometry, realism *et.al.*. No guiding principle is discernible. Wittgenstein is following his own idiosyncratic lines of thought that often consist of digressions, retractions and cognitive jumps. It is not impossible, but exceedingly hard, to recognize the making of the private language argument in those scattered aphorisms. This should not come as a surprise since, after all, the manuscripts are Wittgenstein's philosophical workshop. Philological attention is often informed by prior knowledge of the *results* of such incipient processes.

In the light of Wittgenstein's way of doing philosophy the first approach does, anyway, make little sense. Examining his manuscripts he picked a number of remarks for dictation. Copies of the resulting type-scripts were consequently cut into slips of paper and rearranged according to rules that seem to be revised within the organizing process itself. This procedure can be appropriately illustrated by tracking the course of Wittgenstein's notes on toothaches. Typescript 208, which is an extract from manuscripts 105-108, is only partially preserved.[7] As far as toothaches are concerned, only the paragraphs dating from Dec. 14, 1929 can be found in this compilation. Alois Pichler has reconstructed the likely shape of TS 208. According to his conjecture most of the material on toothaches was contained in the missing pages 1-144[8]. It reappears, completely rearranged, in TS 209, which is the text source for *Philosophische Bemerkungen*, edited by Rush Rees and published in 1964. Wittgenstein's original typescript shows no classifications whatsoever. At first inspection it is simply a very long sequence of paragraphs. Rush Rees divided the script into sections and invented groups of paragraphs which he numbered according to an undocumented, inscrutable scheme. A collection of Wittgenstein's reflections on toothaches happens to make up section VI of *Philosophische Bemerkungen*. This is a promising place to look for the conceptual genesis of his later views on mental states, sensations and language.

While *all* sections of *Philosophische Bemerkungen* are the invention of Rush Rees it is, nevertheless, also true that it was Wittgenstein who assembles the pieces into one particular order, thus emphazising his interest in an analysis of how first-person talk determines our understanding of pain. These notes have been available for a long time and attentive readers have doubtlessly noticed connections between them and later discussions of similar issues. This material was, however, entirely separated from its context of origin, a stand-alone compilation of philosophical insights. There is nothing *per se* wrong with restricting oneself to this state of affairs. It can very well serve as a starting point for enquiries like the present essay. Yet, the recent publications from the *Nachlass* have opened up a range of exiting possibilities. What used to be philologically opaque collections of Wittgensteinian ideas can now be disassembled and regarded as intermediate results of an ongoing process of creative writing and revision. It has become feasible not only to identify the building blocks of Wittgenstein's more elaborate editorial arrangements but - what is more important - to actually observe his philosophical labor, i.e. the decision process leading from day-to-day notes towards (as he envisaged it) eventual publication of his thoughts.

(2) Conventional methodology offers indices and synopses to assist such an enterprise. Both are provided by the *Wiener Ausgabe*, suggesting a second approach to access the Wittgensteinian *corpus*. 'Toothache' is an index entry; it can be looked up and the resulting items can in turn be traced through the Wittgenstein papers. *Wiener Ausgabe - Apparatus, Register zu den Bänden 1-5* consists entirely of tables correlating every single paragraph from the manuscripts to its subsequent occurances in these volumes and (more commonly) to its location within the *Philosophische Bemerkungen* or *Philosophische Grammatik*. On Nov. 29, 1929 Wittgenstein noted:

Von Sinnesdaten in dem Sinne des Wortes in dem es undenkbar ist daß der Andere sie hat, kann man eben aus diesem Grunde auch nicht sagen, daß der Andere sie nicht hat. Und aus ebendiesem Grunde ist es sinnlos zu sagen, daß *ich* im Gegensatz zum Anderen sie *habe*. (MS 107, 215f; WA 2, 124)

As the synopsis shows this remark was included in TS 209 (aka *Philosophische Bemerkungen*) presumably in mid-1930[9] as entry VI, 61 and taken up again on Jun. 1, 1932, when Wittgenstein started a revision of his earlier ideas on the topic. Investigating this kind of dependency is standard procedure in textual criticism. Until very recently this had to be done by consulting printed synopses. It seems fair to say that there is very little sense in carrying on the old way, if the advance of digital technologies is taken into account.

The point is not just that it is quite cumbersome to work with multiple versions of basically the same paragraph located in different places in various bound volumes. This impediment could be alleviated by liberal use of the xerox machine. Printed synopses of material as complex as Wittgenstein's *Nachlass* face a more serious problem. It seems next to impossible to *combine* indexing and synopsis. The reader is presented with either a list of significant terms or a table of correlations of textual segments. She cannot simultaneously look for the occurance of a word *and* the history of rearrangements of the paragraph it is included in. No one would finance a series of books (or care to use them) containing the astronomical number of relations between index entries and changes of contexts in gory detail. Consider the remark quoted above. Instinctively one would at least consider the terms 'Sinnesdaten', 'Sinn', 'Wort', 'der Andere', 'Grund', 'sinnlos' and 'Gegensatz'.[10] The quote considered here does not even contain the term 'Zahnschmerzen' which is, at this point, Wittgenstein's guiding paradigm. Imagine all those terms put into correlation with all the *changes* of their occurrences elsewhere in the *Nachlass*. The ensuing combinatorial explosion effectively prevents putting the result on paper. In the present case one cannot have a general, usable, semantics-to-(section)-numbers *and* (section)-numbers-to-(section-)numbers mapping, one on top of the other, in a print medium.

(3) It is easily done if the texts have been properly digitized. Since words are encoded by numbers it is quite simple to set up an index and it takes just another couple of numbers to represent the trace of 'words' to and from given contexts. Much of this can be done automatically; there is no need to actually visualize the necessary relational apparatus. If a correlation seems interesting it can be called up at will, with no time lost for browsing, copying or shuffling around papers. Searching for 'Zahnschmerzen' in the Bergen edition immediately yields 138 hits across the entire collection. The search can be restricted to particular (groups of) volumes and modified to include co-occurring or proximate terms as well as dates. A query for 'Sinnesdaten and Zahnschmerzen' produces as a result precisely three common occurances. First is a paragraph from MS 114 (MS 114, 16; WA 5, 179) into which Wittgenstein had assimilated separate earlier notes, followed by its typescript derivatives in TS 211, 755 and TS 213, 510 (Big Typescript). The quote previously presented (MS 107, 215f; WA 2, 124), lacking the term 'Zahnschmerzen', is picked out among the 30 hits returned by querying 'Sinnesdaten'. It occurs in a stand-alone paragraph in TS 209, 23 (PhB VI, 61) and is flagged accordingly. In other words: a couple of straightforward enquiries lead directly to an important juncture in Wittgenstein's investigation of the logic of talk about sense impressions and toothaches in particular.

But wait. There is something suspicious about the last sentence. Manipulation of the index mechanism *per se* cannot produce *important* results. The disappearance of manifest meaning is, in fact, the price to pay for enhanced electronic facilities. One can easily pick any combination of terms and search constraints - but there is no guarantee whatsoever that this will lead to an interesting result. So where does 'importance' come

in? This is a category of reflective assessment, crucially different from automated procedures. The discrepancy is at the center of any discussion about computer-assisted philology. A certain amount of cheating is necessary to reach the comfortable conclusion presented in the previous paragraph. Criteria enabling one to judge upon the importance of algorithmic procedures have to be *presupposed* in order for such procedures to be of any help. To put it very simply: elaborate tools are of little help without knowledge of their proper use. One has to have a hunch about the possible significance of a term to profitably employ the electronic search function. The non-sequitur above may serve as a reminder to first-generation digital scholars. It is easy to fall into the trap of overestimating technology. None of the powerful programming at work below the WYSIWYG-surface guarantees philosophical content.

The difficulty, consequently, is the following one: How can technological advancements in textual criticism be constrained by a sense of proportion relating to a prior understanding of the subject matter. This type of question is well-known and often discussed between technophiles and technophobes. The present paper is a case study, trying to answer the question for one particular instance of the general problem. But we have not yet assembled the necessary evidence. It remains quite unclear why a philosopher should worry about toothaches. A powerful mechanism has been sketched, yet it is fair to assume that Wittgenstein scholars go about their business projecting hypotheses to understand the complexities of the *Nachlass* quite independently. The above account does not include a reason for using the mechanism. Providing such reasons is itself a philosophical activity. This section has offered a rough overview of the itinerary of some sample paragraphs. One has to explore their content and in particular the conceptual significance of their *itinerary* in order to get the full picture. A satisfactory answer to the issue at stake between digital technology and its critics has to appeal to philosophy in action.

TOOTHACHES: PHILOSOPHY

Wittgenstein's first entry into manuscript 107 refers back to the *Tractatus*. There he had claimed: 'Das denkende, vorstellende, Subjekt gibt es nicht.' (5.631) And he had explained this *dictum* by pointing to the visual field: 'nichts *am Gesichtsfeld* läßt darauf schließen, daß es von einem Auge gesehen wird.' (*Tractatus* 5.633). Compare MS 107, 1 (WA 2,3): 'Der Gesichtsraum so wie er ist hat seine selbständige Realität. Er selbst enthält kein Subjekt. Er ist autonom.' In 1929 Wittgenstein's anti-intentionalism is still in place, but his views on atomic sentences begin to change. The basic units of his epistemological account are not single sentences any more: 'Ich lege nicht den Satz als Maßstab an die Wirklichkeit an sondern das *System* von Sätzen.' (MS 107, 35; WA 2, 149) The logic of color terms has, as Wittgenstein discovered, to take account of the field of *possibilities* given by the spectrum. Atomic sentences cannot be independent of each other since 'This plate is blue' logically implies - among many other propositions - that it is not red. Yet, this is not a tautology. Given the visual field and the customary color space one has *a priori* knowledge of the structural dependencies of *possible* colors. To look for any actual one necessarily includes mastery of a presupposed color scheme. 'Wie es einen Sinn hat zu sagen die Farbe R ist am Ort P wenn ich überhaupt den Gesichtsraum mit dem Farbraum "vor mir" habe.' (MS 107, 158; WA 2, 92) Wittgenstein's quotes indicate that he is still officially unwilling to grant the existence of a subject. But it is interesting to take a closer look at his day's work (Oct. 10, 1929).

The point of reference of the previous quote ('Wie es einen Sinn hat ...') are *stomach aches*. Wittgenstein is discussing the meaning of negation. How can one truthfully deny the presence of stomach aches? Such sentences seem to lack external sensual corroboration. They cannot be constructed as somehow linking stomachs and pains either. 'Es ist nur wesentlich, daß ich den Raum vor mir habe in dem der Magen liegt und

den worin die Schmerzen liegen.' (MS 107, 157; WA 2, 92) Like colors within the visual field pains are a kind of sensation constitutivly associated with stomachs. This seems an unobjectionable parallel - with a twist. We have noted Wittgenstein's avoidance of the common notion of a subject in his discussion of the visual field. This strategy cannot, however, be carried over to the case of 'internal' sensations. There is nothing comparable to the geometry of shared, public, visible spaces in the realm of our intestines. If you remove the subject from stomach aches not even the illusion of a legitimate issue remains. Switching from the visual field to internal sensations, Wittgenstein's doctrine of the subject is severely shaken. He cannot but employ the first person pronoun in these contexts, even though his commitment is to exclude it from the scientific vocabulary. Such is the dilemma apparent in his first remark on toothaches: 'Warum nenne ich Zahnschmerzen " *meine*Zahnschmerzen" '? (MS 107, 199; WA 2, 114)

Wittgenstein does not follow any pre-set agenda that could lead to a systematic investigation of various modalities of the senses. His move from vision to stomach aches to tooth aches is obviously not aimed at establishing a coherent and comprehensive view. Ten days after raising the issue of toothaches being *my* toothaches Wittgenstein comes up with the brilliant aphorism quoted above. The private language argument is, *in nuce*, contained in two extremely compact sentences (MS 107, 215f; WA 2, 124). If another person cannot be said to be the subject of my internal sense data it is meaningless to *deny* her those very sense data. Their *possible* occurrences do not include this kind of bearer. Alas, this is no comfort for anyone tempted to regard awareness of one's own intentional states as privileged knowledge. There is no force in such pronouncements. I cannot determine something uniquely subjective in appealing to an incomprehensible option, i.e. another person's having my internal states. The *Tractatus* view of the subject was of a metaphysical entity, a border of the World, not part of it (*Tractatus 5.641*). The early post-Tractarian manuscripts are gradually abandoning this dualism, conceding a role for first-person talk. Yet, most of the original skepticism remains. How can one conceive of a role for 'private' sensations and avoid idealism?

Such questions are external to Wittgenstein's writing in the manuscripts. The present sketch puts emphasis on only a small number of issues discussed within those volumes. The general line of argument is, however, supported by Wittgenstein's own subsequent selective rewriting of the material. When he cut up TS 208 to rearrange its content into what is now known as the *Philosophische Bemerkungen*, one of his points of emphasis was toothaches. His discussion of logical features of talk about the subject centers around a selection of remarks devoted to the remarkable fact of *me* - Ludwig Wittgenstein - having toothaches (cf. PhB VI, 58). This revision introduces complexity of a higher order. Many of Wittgenstein's paragraphs are initially small, self-contained philosophical analyses. The next auctorial step is to try and put them together so that some larger, overarching connection is established. *Philosophische Bemerkungen* VI does, in fact, offer extremely dense philosophical substance, much too involved to be discussed here. Just an outline of Wittgenstein's strategy of using his *arrangements* as *arguments* can be given.

A first group of remarks, serving as a kind of prolegomenon, is derived from entries for Dec. 14, 1929 and Oct. 11, 1929, expounding the general direction of the succeeding paragraphs. The use of the first person pronoun is fraught with difficulties, particularly if talk about perception is modelled according to external circumstances. 'I am experiencing a red patch' is quoted as a case in point. To analyze the difficulties one might re-write the puzzling descriptions, substituting some un-objectionable term for the offensive 'I'. This exercise is next. Remarkably, Wittgenstein switches from sense impressions to internal sensation again, as he designs a language game supposed to exhibit the same logical multiplicity as the common idiom and yet to avoid mention of a subject. His idea is to externalize the privileged position of subjectivity by designating one particular person as an universal point of reference. If 'I am' Ludwig Wittgenstein, 'I have toothaches' becomes 'There are toothaches' and 'A has toothaches' can be rephrased as 'A behaves

like Ludwig Wittgenstein when there are toothaches'. (PhBemerkungen VI, 58). The apparent uniqueness of subjective experience is transformed into a qualitative difference in public discourse; the mysterious realm of subjectivity replaced by an idiom of matching complexity: *everyone* can take center stage in this language. Once this focus is set the remaining moves of the language game are equivalent to the traditional one. Wittgenstein offers a playful simile. The logic of first-person talk recalls oriental despotism, with the subject taking the place of the despot in providing the origin of the communicative coordinate system.

The point is that talk about sensations is inevitably dualistic. 'The subject' - as well as an oriental despot - is supposed to fall outside ordinary discourse directed towards physical things. If Timur Lenk's state of health is taken as the measuring device of health-talk it makes no sense to ask whether he *has* toothaches. In the event, toothaches simply *are* among his personal states and *having* toothaches is a condition derived from this primordial condition. Even though Wittgenstein has thus eliminated first-person talk the *Tractarian* criterion of meaning fails, however. It is impossible to attribute possession of toothaches or lack thereof to a suitably designated individuum. (The discussion prefigures later reflections on the Paris ur-meter.) After this setting of the stage Wittgenstein embarks on a series of grammatical investigations, exploring the comprehensibility of our dualistic idiom. There is no obvious way to stratify his dialectical dialogues into a single argument. 'I cannot feel your toothaches.' Does this sentence express an empirical truth or rather a kind of logical necessity Wittgenstein had not provided for in his *Tractatus*? (cf. PhB VI, 61) Rather than answering questions like this, Wittgenstein keeps changing his focus and his examples, circling around the issues. What is he up to? To a casual reader it looks like an open-ended, aporetic elenchus. But Wittgenstein, surprisingly, and without so much as minimal warning, does actually close his argument by the strategic placement of one paragraph.

Wittgenstein's transposition of first person talk was anchored in the neutral statement: 'There are toothaches'. The following quote is an obvious echo, concluding the argument:

Das Phänomen des Schmerzgefühls in einem Zahn, welches ich kenne, ist in der Ausdrucksweise der gewöhnlichen Sprache dargestellt durch ' *ich habe* in dem und dem Zahn Schmerzen'. Nicht durch einen Ausdruck von der Art, 'an diesem Ort ist ein Schmerzgefühl'. (PhB VI, 66)

As it turns out, it is impossible to capture the subjectivist intuitions in Wittgenstein's alternative scheme. There cannot be pains outside of consciousness. Designating a physical body to be the paradigmatic bearer of pain is no better than ascribing pain to some tooth put on a table (*Philosophische Bermerkungen* VI, 65). Timur Lenk is, inevitably, located in public space, so we are back to Wittgenstein's initial reminder: the problem arises because physical circumstances are inappropriately projected onto another context.

Das *ganze* Feld dieser Erfahrung wird in dieser Sprache durch Ausdrücke von der Form 'ich habe ...' beschrieben. Die Sätze von der Form 'N hat Zahnschmerzen' sind für ein ganz anderes Feld reserviert. (PhB VI, 66)

In other words: Wittgenstein advises himself to desist from trying to battle ordinary language. He is quite aware of the tension: In order to unravel the philosophical knot one has to re-trace the complicated movements underlying it. Thus ends the second take on toothaches. Resting content with the ordinary was, however, always a temporary affair for Wittgenstein. In 1932 we find him returning to the very issues he had supposedly resolved in MS 110, 30ff (WA5, 179ff). These are the quotes remarked upon earlier in this paper: Wittgenstein's second, condensing revision of the material on toothaches.

This third stratum of the textual evidence and its further development will not be pursued

here. The sole purpose of the preceding *intermezzo* was to redress the balance between the digital toolkit and topics in established Wittgenstein scholarship. The problem was to mediate between proponents of largely syntactic manipulation of linguistic data and traditional approaches that turn to texts with a prior understanding of their subject matter. The way to escape a stand-off is to refuse the contra-position from the very start. Semantic data-mining[11] as exemplified by the previous sub-section, is *simultaneously* an exercise in digital philology and philosophy.

Wittgenstein's *Nachlass* is an excellent place to look for such a synthesis because the author's ideas are, to a large extent, expressed by arranging and rearranging small textual units. Tracking the dynamics of Wittgenstein's philosophical variations can, admittedly, be done in the conventional framework of a printed edition of his manuscripts and type-scripts. Computer-assisted procedures do, however, push philology towards horizons previously out of reach. To repeat: No collection of printed volumes can conceivably present *any* synopsis of *any* terms, occurring at *arbitrary* dates, in just a few seconds. Such opportunities are bound to have a major impact on future Wittgenstein scholarship. This concludes the philological assessment of conventional versus digital approaches to the Wittgenstein papers. A more detached attitude has already been hinted at. It seems that Wittgenstein's writing is particularly well suited to a post-Gutenberg environment. In order to get the full picture regarding the Bergen edition we have to take a closer look at Wittgenstein's failure to turn his writings into a book.

BEYOND BOOKS

J.C. Nyíri has made a strong case for considering the Wittgenstein *Nachlass* in the light of recent media philosophy. Quoting Walter Ong and Erich Havelock he reminds his readers of the prospect that the age of literacy might be giving way to a period of secondary orality, with the spoken word regaining the most influential position in a broadcast society. According to Nyíri's suggestion Wittgenstein's failure to distinguish between the written and the spoken word might explain his 'ultimate inability to complete the "book" he always wanted to complete'[12]. The ductus of his writings is, indeed, more akin to on-going conversations than to neatly delineated propositions. Did Wittgenstein miss the adequate medium for his exertions? Nyíri draws attention to the fact that his writing is, in certain places, a direct rejoinder to the Socratic dialogues. 'Ich finde bei Plato auf eine Frage wie 'was ist Erkenntnis' nicht die vorläufige Antwort: Sehen wir einmal nach, wie dieses Wort gebraucht wird.' (TS 211, 17) Wittgenstein's inverse Socratic role consists in dissolving platonic confidence in essences and is, therefore, ill suited to be put into a classical philosophical treatise. As Nyíri (following Havelock) rightly reminds us, Platonic ideas are inextricably connected to the rise of literacy over an oral tradition which lacked expressive means for a proper treatment of abstract terms. Yet, Wittgenstein *could* have rested content with his actual teaching, leaving it to his disciples to provide written records. He did not do so, but rather forced himself, against better knowledge, to conform to the given standard.

Wenn ich für mich denke ohne ein Buch schreiben zu wollen, so springe ich um das Thema herum; das ist die einzige mir natürliche Denkweise. In einer Reihe gezwungen fortzudenken ist mir eine Qual. Soll ich es nun überhaupt probieren?
Ich *verschwende* unsägliche Mühe auf ein Anordnen der Gedanken, das vielleicht gar keinen Wert hat. (MS 118, 185)

The key word is 'vielleicht' indicating Wittgenstein's ambivalent ambitions to write a book. His difficulties are methodologically profound. One way to bring this into focus is to position them at the crossroads between books and hypertext.

Decades of Wittgenstein scholarship have been shaped by editorial decisions made by the trustees of the *Nachlass*. Their general policy was to present provisional steps in

Wittgenstein's ongoing process of revision as standalone volumes, often effacing the dynamics demonstrated in the preceding section. David Stern, in his perceptive paper, correctly describes the state of affairs.

The Wittgenstein *Nachlass* is not a haphazard pile of working papers that happened to survive his death, nor is it a collection of works that only awaited publication. While it is both a carefully selected and highly structured record of his life's work, a collection of material that he deliberately assembled and left to posterity, it is also the record of a writer continually in flux, never entirely satisfied with anything he had written.[13]

In view of this situation it actually seems a little unfair to reapproach the editors of Wittgenstein's posthumous writing. There is no good way to capture the activity vividly described by Stern into the confines of a printed volume. Despite outward appearances there *are* no 'works of Wittgenstein' that could confidently be taken as points of departure. Even the *Philosophische Untersuchungen* are, as Stern observes, 'only one of a number of possible arrangements Wittgenstein proposed, many of which extend, amplify, or cast light on the remarks in the published book.'[14] References to current models of textual interdependency become almost irresistible at this point. 'Because the Wittgenstein *Nachlass* is the result of such an extensive act of rewriting, it is less a collection of texts than a hypertext, an interconnected network of remarks.'[15] Stern's remarks certainly point into the right direction. Still, there are some intermediary steps between the range of options available to Wittgenstein and writing that is embedded in digital technology. Those steps have to be spelled out if one wants to get a grasp on how the CD-ROM edition might change out habits of scholarship based on self-contained books.

One feature of a culture based on books deserves special attention as this culture is challenged by the advent of digital, globally distributed information. Books are marked by the coincidence of two seperate decisions: their *content* and its *appearance* are determined simultaneously. This is what *publication* of a book, in effect, amounts to - and it throws some light on Wittgenstein's qualms. He felt unable to decide on *one* shape for his ideas. Publication, throughout European history, simply *meant* drawing a line between a creative process and its (albeit provisional) results. Sending a manuscript to the publisher was to distinguish a line between sketches, preliminary attempts, experimental drafts and an entity exhibiting both the features of the most prestigious information technology *and* of auctorial closure. Books divided the lifetime of an author into continuous activity and singular results, texts that, from a certain moment in time, assume a life of their own. This arrangement is being thoroughly shaken by the advent of new media. First of all, digital encoding disrupts the familiar coordination between form and content. Characters are mapped into numbers that are, in turn, symbolized in an electronic format unsuitable for direct perception. And this transposition, secondly, triggers dramatic changes in the nature of publicity. Electronic texts can instantly be published to a world audience and still be constantly revised.

In the given context it is particularly instructive to notice the implication for posthumous 'works'. In the world of books a *Nachlass* is defined as all the material an author did not manage or see fit to get printed. Its peculiar character is that future generations retro-activly elevate such writing to the status of books. If books published by an author are what software developers call a 'feature-freeze', publications from a *Nachlass* are based on decisions to overrule such limitations. There is no way to escape the allure of 'works' in book culture. In *Nachlass*-publications auxiliary authors assume responsibility to supplement a writer's oeuvre with 'second order' books. Applying this to the case at hand yields a suggestive prospect. While the trustees failed to do justice to Wittgenstein's open-ended, conversations philosophical style, a digital edition of the *Nachlass* is much better suited to achieve this aim. Such an enterprise is not forced to turn a collection of tentative designs into bound volumes. The 'Wiener Ausgabe' seems set to publish the largely repetetive material from 1929-1933 in 12 weighty volumes. Michael Nedo sounds

apologetic in defending this expenditure:

... the book is still *the* carrier of thoughts, of written heritage in our culture, and familiarity with this medium certainly affects not only one's dealings with the texts themselves, but also the accompanying Apparatuses.[16]

One does not have to subscribe to deconstruction to find this eulogy anachronistic. The transitory character of Wittgenstein's writing, its complex genealogy and its numerous recapitulations seem to call for a digital format of presentation which matches its inherent temporality by avoiding ultimate editorial decisions and allowing easy manipulation of the textual material.

Impressions like these, convincing as they may sound - once again - overstress technology. Wittgenstein, it is true, despaired of achieving the linear order demanded by a printed book. But this does not imply that hypertext could have solved his problem. His *desparation* is the important feature: the *fight* against a spell cast upon his writing by the demands of books culture. He *worried* about the correct arrangement of his ideas, so much is obvious from the examples discussed above. One understanding of 'hypertext' is of segments of texts linked together in a more or less haphazard way, often without any single, controling authority. This meaning is certainly not applicable to Wittgenstein. He could have saved himself a lot of trouble had he been prepared to regard his writing as a kind of private web-space. A second understanding might be more appropriate. Hypertext can also refer to autonomous non-linear writing which transcends the obligatory step-by-step sequence of print-products by constructing a topological matrix without hierarchical order. Digitized texts are encoded as numbers and have to be *re-established* in a legible format. Visualization by a monitor is one step removed from the pages of a book and offers flexibility unmatched by their arrangement. Wittgenstein's famous metaphor of wandering through a philosophical landscape comes to mind. The *Nachlass* does, in fact, contain a number of tentative registers that could easily be implemented as a hypertext.[17]

This is one side of Wittgenstein's struggle with conventional means of expressing thoughts. But his need for a different kind of complexity is offset by an equally important desire. In many places he insists on finding *definitive answers*. This motive, manifest in the *Tractatus*, is also present in Wittgenstein's later calls for 'Übersichtlichkeit' (surveyability) and well laid-out description:

Wir wollen nicht das Regelsystem für die Verwendung unserer Worte in unerhörter Weise verfeinern oder vervollständigen. Denn die Klarheit, die wir anstreben, ist allerdings eine *vollkommene*. Aber das heißt nur, daß die philosophischen Probleme *vollkommen* verschwinden sollen. (PhU § 133)

In this context, the 'treatment' of philosophical problems is likened to therapeutical intervention and its ultimate aim is to put vexing thoughts to rest. Such an attitude cannot be easily reconciled with calls for open-ended auctorial multiplicity and the suspension of binding results. Wittgenstein's 'hypertext' *avant la lettre* arises from unsuccessful attempts at closure rather than from intentional design. It does not anticipate a more flexible medium which might alleviate the rigor of philosophical arguments. As the *Nachlass* material on toothaches shows, Wittgenstein did not simply reject the linear progression of thoughts in favor of a compilation of aphorisms. He actually proposes a solution - even though it does not satisfy him in the long run. Look at it this way: *If* he had been able to reach a satisfactory conclusion he would have put it into print. Hypertext, on the other hand, is by design non-conclusive. Had Wittgenstein used hypertext, his characteristic struggle against premature closure would have been lost. Hypertext lacks the kind of physical inertia needed to make a sentence stick to a certain position and while Wittgenstein kept overturning pre-established patterns of thought and inferences he never abandoned his drive to *return* to straightforward, easily

surveyable positions.

Wir sind aufs Glatteis geraten, wo die Reibung fehlt, also die Bedingungen in gewissem Sinn ideal sind, aber wir eben deshalb auch nicht gehen können. Wir wollen gehen; dann brauchen wir *Reibung*. Zurück auf den rauhen Boden. (PhU § 107)

Wittgenstein would, in all likelihood, have extended this complaint against free-floating philosophical speculation to l'art pour l'art hypertext.

To sum up and focus on the case at hand: Electronic texts are not just a kind of print; the graphical rendering of information on a monitor is no 'page' in any ordinary sense. It is tempting - and to some extent plausible - to distinguish Wittgenstein's writing from conventional philosophical authorship by employing jargon from media studies. Actually putting his *Nachlass* on a CD-ROM adds considerable complexity to the story. There is an important difference between a writer's decision to publish his or her work (in whatever format) and someone else administering a heritage.*Nachlass* publications, including electronic editions, are *per definitionem* second order closures. The flexibility of digitized texts is of another order as Wittgenstein's work in progress. How those papers are to be rendered on CD-ROMs is by no means self-evident. It is easy to pretend that the Bergen project is just an extension of well-known editorial strategies. Such an attitude does, however, seriously underestimate the range of problems involved. All the conveniences set forth in the previous pages do not come for free. The change from books to computers is in itself an important theoretical and political issue. Putting Wittgenstein on disk demands a considerable number of decisions beyond the scope of printed editions. This is new territory, hardly even noticed as a philosophical issue amongst Wittgenstein scholars.

THE POLITICS OF DIGITAL TEXTS

The Bergen electronic edition effaces its own novelty. Its structuring principle are the physical volumes of the *Nachlass* which are presented one after the other in linear sequence. The search facilities include easy access to single manuscripts or type-scripts. Facsimiles provide unprecedented opportunities to scrutinize Wittgenstein's actual output.The electronic edition might be argued to beat its print competitors at their own game. One apparent platitude is of utmost importance, though. Digitized texts need computers which need software which needs operating systems. In centuries of print culture we have become accustomed to the fact that once a book is published it is freely accessible to readers without further effort. Historical pictures of lockable books raise amused smiles. Yet, they are not a bad analogy to so-called digital books: in order to read them one needs additional devices, even 'keys'. Book publishing is a business charging once per item, regardless of its further use. But those products are, nowadays, revealed as just one interface to information. In many respects digital documents offer more convenient access to identical content. This surplus value has a price: a set of electronic equipment is inserted between the reader and her text. Once they have been published (and as long as they are in print) books are available without further decoding. As everyone who has to exchange files on the internet knows, this is far from true for electronic documents. Different computer platforms, different word processors and conflicting versions tend to produce confusions unheard of in former times.

The reason for this is that there are several competing standards to implement a mapping between alpha-numerical symbols and digital numbers. Strictly speaking only the basic letters, numerals and diacritical signs of the English alphabet are interchangeable on any platform. Different sets of characters, and in particular the elaborate additional code necessary to simulate printed pages on a monitor, demand special attention. International bodies are in charge of supervising the encoding of the

world's languages. Software simulation of written material, however, obeys different rules. It is to a considerable extent a commercial affair and subject to the laws of economics. The result is, predictably, a considerable variety of proprietary software tools trying to get their share of the market by offering particularly comfortable - and mutually incompatible - features. This is the state of affairs confronting any digitization of texts. Two minimalistic approaches are either to scan existing pages or to stick to 7-bit ASCII code in transcribing them electronically. It is immediately obvious that neither of these options is satisfactory for a textual *corpus* of the degree of complexity of the Wittgenstein *Nachlass*. The editors were faced with a situation unprecedented in ordinary publishing. They had to decide upon a software package capable of producing the desired results, which also meant forcing that package upon the readers. Textual scholarship finds itself on unfamiliar terrain. The tools it needs to even access its subject matter are produced by big companies with only marginal interest in the academy.

The Bergen edition runs on the Windows platform (Windows 3.1, 3.11, Windows 95 and Windows NT4 according to the promotion sheet). For word-processing capacity it uses a program named 'FolioViews' which provides the usual services: cut and paste, printing, searching, window control, electronic bookmarks and back tracing. For scholars who habitually use the Microsoft range of products and do not worry about the ensuing dependency of their basic data on market competition these are excellent choices, even though some of its limitations will affect the ordinary user. The entire collection of normalized and diplomatic transcripts is put into a single binary file respectively. (The facsimiles are offered as single graphic documents, one per physical page.) Consequently, two huge electronic files contain the entire content of the Bergen edition in a completely opaque format. The user is allowed to read and manipulate texts via FolioViews but none of the structural information that has been presented in the first section of this paper is directly accessible to her. She can copy selected texts, paste and print them - but neither can she touch the indexing mechanism nor modify any of the underlying data. There is a strict separation between interface and non-transparent, computational deep structure. Copyright considerations are a prominent reason for this arrangement: the content of a printed book cannot as easily be reproduced, manipulated and distributed as its digital counterpart. Provisions have to be taken to protect the investment put into such long-term projects. Media change unsettles venerable customs.

The traditional understanding was that the result of scholarly work, most often financed by the taxpayer's money, are generally available in their entirety. This feature does, indeed, distinguish scholarship from commercially induced research. As teams of experts have to use proprietary software to reassure the copyright-holders and ensure the profit for the publishing house, this availability is restricted. But, it might be objected, where is the problem? Wittgenstein's writings are at one's disposal, all of them and in an extremely comfortable fashion. True enough, judged by the standards of the printed book. Yet, as was discussed in section two, Wittgenstein's *Nachlass* transcends the limits of such standards and an electronic edition *might* be better suited to capture those peculiarities. It *might* be organized so as to mirror Wittgenstein's editorial techniques, starting with single remarks as elementary building blocks and putting them together in a variety of ways, following Wittgenstein's lead. His working process, not its result, could be taken as the guiding principle. As a matter of fact the encapsulated FolioViews file is the very opposite of hypertext.[18] Yet, the Bergen edition does not offer any tools to actually rearrange its content or redesign its appearance on the primary level. For all its flexibility and ease of use the Bergen edition is still in the conceptual grip of classical printed editions. Does it *have* to mimic the necessities of print culture?

The question turns on the issue of access to the internal, structural information hidden inside the binary files. Under present conditions one can find a particular paragraph and all of its subsequent instances as they appear in the later volumes. It is, however, impossible to break out of the straitjacket of the von Wright classification and deal with paragraphs as basic data units. If this were possible digital equivalences of Wittgenstein's

notes could be freely assembled and re-assembled. As of now one is, for example, presented with manuscripts 105-108 plus typescripts 208-209 plus manuscript 110 and has to extract relevant paragraphs for personal post-processing. A more appropriate way might be to pick out relevant paragraphs (e.g. on toothaches) and re-assemble them at bottom level, echoing the author's own procedure. It would be an attractive way to overcome the *Nachlass* effect of irrevocable closure. The internal dynamics of the Wittgenstein papers would be much more in evidence if a more open digital format had been chosen. Years of labor have been spent on the electronic transcription of the original documents. The records of the Wittgenstein archive do in fact contain all the information necessary for micrological analysis and multiple synthesis. The use of the CD-ROM, however, remains restricted to find, cut and paste with no provisions to address the editorial information from outside FolioViews. In order to visualize the conclusion on toothaches from the first section one might want to write a small program. It could not operate on the existing data structure which would have to be re-inscribed onto copies of segments extracted from the database.

This is the place to touch upon some basic issues in the theory and practice of text encoding. The discussion of the peculiar overlap between the requirements of digitization and commercial interests at the beginning of this section deliberately omitted an alternative possibility. Standard General Markup Language (SGML) is an attempt to avoid dependency on proprietary formats and irreconcilable software development with regard to electronic texts. The idea is, briefly, to supplement the alpha-numeric ciphers with additional (groups of) characters ('mark up') that serve the purpose of encoding meta-information by means of the available, restricted set of ASCII code. HTML, the language of the World Wide Web, in an instance of SGML. An easy example of mark up is the use (in HTML) of '<h1>' to indicate the beginning (and '</h1>' the end) of a top level heading. Such mark up indications do not in themselves cause any formatting to be done. (This distinguishes them from the binary code inserted into text files by common word processors.) Their function is to delineate the logical structure of the document and provide anchors to include additional content (like cross-references, dates or hierarchical dependencies). A marked-up document can be read on any computer platform, the catch being that it needs software to render the mark-up as intended. This is a substantial difficulty given the fact that word processing has been much more popular with the general public. But consider a Web browser to get the general idea. Such browser are software which takes '<h1>Title</h1>' as an input and turns it (e.g.) into

TITLE

SGML (and its recent variant XML) offers a top-down solution to the problem of incompatible standards in text encoding and concurrent information storage.

The Bergen edition is based upon transcriptions of Wittgenstein's original pages into a mark up language using the 'Multi-Element Code System' (MECS). This system provides a meta-grammar that can be implemented in particular instances of transcriptional grammar and is well suited to the task of capturing the complexities of Wittgenstein's autographs in a digital format. For technical reasons MECS is not entirely compatible with SGML. The thing to keep in mind is, however, that the Bergen transcriptions contain the entire set of editorial information in mark up format, i.e. in 'tags' that can be addressed in programming constructions. This information is filtered to produce the diplomatic and normalized versions offered on the CD-ROMs. In customary, printed editions there is no possible gap between the pages on offer and their basic encoding. This does not carry over into the electronic realm where digital code has to be re-implemented in order to be perceptible. The need for secondary processing introduces a discrepancy which can be used to shield off operative background information from its surface rendition. Electronic documents offer spectacular improvements over many of the usual features of printed texts. Ironically, it is just because of their versatility that mechanisms to constrain their scope are feasible - and called for. The Bergen edition is just one example of a more

comprehensive problem that is often overlooked in recent digitization campaigns. It is perfectly possible to combine global, digital distribution of information with highly selective, exclusive standards of its generation and transmission. While most people would be prepared to accept this for cable TV or DVD it should at least be a matter of concern in textual scholarship.

This is an area of conflict between claims of copyright holders and the scientific community. Broaching this issue is not intended to deflect attention from the impressive achievements of the Bergen electronic edition. Its presentation of the material is an epochal advance in Wittgenstein scholarship. It is, at the same time, a precursor of many electronic editions yet to be published and is apt to trigger a more general discussion on how similar scholarly editions might be designed. Disregarding, for the purpose of this conclusion, external constraints an optimum solution for (future) computer-savvy scholars would enable them to address their texts at any of the three levels that have to constitute a serious editorial project: the mark-up, diplomatic and normalized versions should all be manipulable to ensure optimum results. It is impossible for any single endeavor to adequately charter the wealth of variants and cross-relations in Wittgenstein's *Nachlass*. But if scholars were able to freely access the underlying mark up resources based on the canonical transcription could easily be enriched by resources taken from literal computing. As several commentators have pointed out, the recent 'Open Source' movement in software management echoes the concepts of free peer access and peer review well established within science. In the best case scenario source code, e.g. the mark-up version of Wittgenstein's texts, would be freely available. Book culture charges relatively little for relatively static texts. Expensive electronic editions offer advanced research tools, blocking collaboration based on their data structure. There will be an 'open source' Wittgenstein sometime this century.

Currently, a confusing variety of formats is used to tentatively provide comprehensive access in selected collections, mainly for *corpora* from earlier centuries. Projects like CELT, the 'Celtic Corpus of Electronic Texts'[19] and the 'Victorian Women Writer's Project'[20] offer browsable HTML-front-ends, ftp download of marked-up documents and printable Postscript copies. TMI ('Thesaurus Musicarum Italicarum')[21] or 'The William Blake Archive'[22] employ DynaWeb to translate SGML-coded files for use with common browsers. At the Wittgenstein archive's web-site[23] TS 201a 'Notes on Logic' and MS 115, 'Philosophische Bemerkungen' are available in different versions: HTML frames for concurrent inspection of the diplomatic and normalized text and for download in Postscript and Word Perfect format respectively. It remains unclear whether electronic publishing will develop standards as transparent as those of traditional literary culture. The technological advances we have been discussing are in fact instrumental in de-familiarizing earlier standards that have acquired second nature status. New opportunities arise, but there is still little institutional background and almost none of the hard questions have been answered. Meanwhile, from a philosophical point of view, the Wittgenstein papers raise an issue that cuts across old and new forms of writing. Wittgenstein's struggle against the linear progression of arguments should neither be remodeled as a peaceful exercise in hypertext, nor put to rest in an series of (printed or virtual) volumes. The driving force behind the *Nachlass* is a continuous effort to put together the pieces of a number of puzzles that seem to change as this activity unfolds. *Nachlass* means: this process has definitely ended. Digitization of the *Nachlass* offers an opportunity to breath life back into an accumulation of notes.

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1 Wittgenstein 1994

2 For a judicious account see Stern 1996: 442-476

3 Wittgenstein 1998

4 Nedo 1998: XXV

5 The Bergen edition is available for institutional networks, in particular for CD-ROM servers, at universities. Digital libraries offer the Wittgenstein papers to students and faculty. The following report is based on teaching a semester course on Wittgenstein's *Nachlass* directly employing the CD-ROM series in the classroom.

6 Wittgenstein is quoted from the manuscripts and type-scripts according to the standard von Wright's listings. Cf. von Wright 1983. The second entry refers to volume and page number of the *Wiener Ausgabe*.

7 On the state of TS 208 see Pichler 1994.

8 loc. cit. p. 43

9 For a discussion of the probable date see Pichler 1994: pp. 53 ff.

10 This selection would, by the way, completely miss Wittgenstein's intentions. His emphasis is on 'ich' and 'habe', whereas 'Sinn' and 'Grund' are - in this case - used idiomatically.

11 A description of my endeavor I owe to Erich Neuwirth.

12 Nyíri 1997

13 Stern 1996: 453

14 Stern 1996: 449

15 Stern 1996: 462

16 Nedo 1998: XXV

17 Cf. Nedo 1998: XXI ff.

18 David Stern has a point in remarking that 'The solid physical boundaries of a printed volume that separate one text from another in the traditional library become just one

way of organizing information within the fluid world of hypertext.' Stern 1996: 467

19 http://www.ucc.ie/celt/

20 http://www.indiana.edu/ letrs/vwwp/

21 http://www.euromusicology.org

22 http://jefferson.village.Virginia.EDU/blake/

23 http://www.hd.uib.no/wab/