Utilizing Experiences from Knowledgebay for Digital Wittgenstein Scholarship

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Introduction

www.knowledgebay.de is a web portal that provides streaming of lectures from various disciplines and universities. Scholars can actively use the portal in several forms as well. The project *Knowlegdebay,* that runs the portal, combines technological development with a social learning environment. Regarding digital technology a specific softwareframework was developed which supports distributed production and usage of digital academic media (Sporer, Jahnke & Köstlbacher 2005). This Community-Content-Collaboration-Management-System (C3MS, Baumgartner and Kalz, 2004) includes five components that complement each other: an online authoring tool and an online editing tool serve the production of the academic media, whereas the web portal and a player window constitute the base for using the digital media archives. Additional communication tools (e.g. internal messaging, discussion forums, conferencing tool) contribute to online interaction and cooperation. The software is based on a combination of standards (HTML/SMIL/CSS; PHP; SQL; Javascript/ VBscript; RDF/RSS, for a detailed description of the softwareframework see Sporer, Jahnke & Köstlbacher 2005).

As can be seen from this brief description *Knowledgebay* not only presents academic media but allows to participate actively. For Example, scholars can create online portfolios, communicate with each other or organize the media content personally. Moreover, participants can add written or audiovisual content online. For this purpose *Knowledgebay* created a learning community for active participation (Sporer, Köstlbacher & Erbacher 2005; Sporer, Riecks, Walter, Erbacher, Köstlbacher & Jahnke 2006). The core of *Knowledgebay*'s production process is the recording of lectures by students who attend them as part of their study curriculum. University seminars for imparting the know how of Digital Lecture Documentation were established, and audiovisual podcasts that deal with academic topics similar to seminar papers were cooperatively produced and published on the portal.

Employing this concept, between 2002 and 2005 more than 300 lectures were produced and presented without institutional funding and the projects concept was presented at several conferences. *Knowledgebay* might therefore be seen as a good example for possibilities of how to facilitate the availability of high quality academic lectures by means of new Information and Communication Technologies (ICT). Its bottom-up concept was future-directed and is now employed by various other internet and new media projects.

Based on my experiences from co-constructing and running *Knowledgebay* I sketch in this paper some aspects of ICT applications to Wittgenstein scholarship. Section 1 shows the value of Digital Documentation for philosophical *teaching*. Section 2 exemplifies application of ICT to philosophical *research* by mentioning advantages of ontology development. Section 3 summarizes considerations that might be important to both ICT in *teaching and research*. In each section I try to refer briefly to Wittgenstein's philosophy or Wittgenstein research.

1. The Value of Digital Documentation: Learning the Use of Key Terms

Traditionally academic teaching is managed through lectures: a professor presents a subject orally to his or her students. This form of presentation is more than transfer of scientific facts. Due to the voice and personality of the lecturer, students get a subjective reading of and a response to a topic. This includes interpretations, valuations, subtle connections, emphasized connotations of central questions, and discussions of critical parts. Thus, the distinctive value of a lecture is an interpretative arrangement of facts rather than a neutral presentation. Students can adopt this framework to navigate through textbooks and journal articles. That is, to relate to Wittgenstein, by listening to a lecturer and looking at him or her treating a topic students learn the *use* of key terms of their discipline. The lecturer models the language-game of a subject by discussing critical parts and arguing for or against a certain claim. For this aim, lectures have evolved as an effective format, yet one that is not unlimited.

Characteristically a lecture is given to a certain audience in a certain place at a certain time. It is therefore restricted to a unique historical and social situation. Written texts, a second traditional form of academical teaching, overcome the lecture's inherent limits by making thoughts durable. The price for gaining durability in this form, however, is to leave behind a good deal of the author's distinctive voice and personality specific to oral presentation. Digital Documentation introduces yet another method for imparting academic knowledge that might bring the advantages of the two classical forms into a useful proximity. It is a record of the lecturer's personal tone and its subsequent presentation on an integrated internet-portal. This form of knowledge-transfer associates durability with at least a part of the initial interpretative guidance of the lecturer's vivid spoken language.

The development of ICT allows to conserve lecture's in this format on a wide base. Using a web portal more features can semantically enrich the lecture stream, e.g. links to related web pages, content lists that allow immediate access to subtopics of the lecture and slides that accompany the lecturer's voice. This might develop to a powerful intellectual instrument, not as a substitute for either of the two classical forms of teaching (direct communication and intensive work on texts) but as a supplement offer in an effort to enhance academic education.

2. ICT Research Tools: for Example Wittgenstein's *Nachlass*

ICT has transformed research in many ways. Researchers present themselves on homepages and communicate and cooperate via e-mail and internet-conferences; online journals, open access initiatives as well as internet-based encyclopaedias have changed scientific publishing dramatically. Beside these various influences of ICT on research, I want to focus on the use of *Ontologies* (in the sense of information systems) for philosophical research. Wittgen-

stein's *Nachlass* might illustrate benefits as well as limits of such an approach.

The linguistic corpus of Wittgenstein's *Nachlass* is very complex. The unpublished writings as catalogued by G. H. v. Wright amount to at least 82 manuscripts, 45 typescripts and 11 dictations that have become known as the *Nachlass* (v. Wright 1990). These extensive writings are characterized by multifold revisions, variations in wording, transmissions, interrelations and rearrangements. The *Nachlass* therewith reflects Wittgenstein's continuous discourse with himself, leading to gradual development of his thoughts in different shapes. On the one hand, this particular characteristic allows unique and insightful reconstructions of the genesis of texts such as the *PU* (Pichler 1997); on the other hand, however, the structural complexity of the *Nachlass* makes difficult to utilise it entirety: Physical and semantic proximity can indeed greatly differ in the *Nachlass* documents (Pichler 1994).

Given the complexity of the *Nachlass*, it seems that an electronic edition corresponds to its structure and simultaneously meets requirements for research. If one of Wittgenstein's troubles was to find the right arrangement of passages while seeing them interweaved, arrangements on paper might not provide satisfying solutions. To take a simple example, just three passages (a-b-c) can permuted in 3*!* sequences (a-b-c, b-c-a, c-a-b, a-c-b, b-a-c, c-b-a), none of which visually expresses interconnection of the passages with each other. As every printed text is necessarily subject to linear sequencing, hyperlinking facilitated by ICT might satisfy to a greater extent the structure of single documents as well as of the whole corpus. This point might also be reflected by the course of editing the *Nachlass* electronically.

During the 1980s, the *Wittgenstein Archives at the University of Bergen* (*WAB*) started to create a machine-readable version of the *Nachlass*. This endeveaour lead to publication of the complete *Nachlass* in electronic form (Wittgenstein's Nachlass 2000), known as the *Bergen Electronic Edition* (*BEE*). The *BEE* consists of facsimiles as well as normalised and diplomatic transcripts together with software for their presentation on CD-ROM. In addition, further work in order to unfold the entire potential of a digital publication of Wittgenstein's *Nachlass* is going on. By using XML, the *Nachlass* could be prepared for distributed internet-based examination (Hrachovec 2006). XML allows the presentation of information in different formats according to individual needs as well. Yet another functional improvement can be implemented by creating ontologies to structure the content of machine-readable texts.

Ontology in the information systems context can be described as explicit formal specification of terms in a domain and relations among them (Gruber 1993). By formalizing properties of defined terms and relations among them, ontologies up to a certain degree render semantics of a domain processable to machines. Electronic agents are quasi facilitated to compute the content of information. The formal basis of Ontologies is constituted by formal semantics of description logics. That makes it possible for electronic reasoners to not only test the logical consistency of an ontology, but also to deduce new information. Such powerful ontologies have been developed in several domains (see Ontoselect 2007).

Though very delicate in detail, the general usefulness of an ontology system for the corpus of Wittgenstein's *Nachlass* is evident. By formalizing properties of and relations among numbered texts and sections, the semantic structure of these texts can be described and in fact become readable for machines. This may help to make the complex corpus more manageable. With a suitable conceptual grid, sophisticated queries can be computed (see Hrachovec 2006). An ontology could work like the clarifying tree diagrams in the Analytical Commentary on the Philosophical Investigations (Hacker & Baker 1980), but with the important difference that the descriptive information about the quality of the relationship between the sections is already included and automatically computable. This enrichment of the *Nachlass* transcriptions might be useful for single sections within one document as well as for sections across different documents.

3. Limits of and Conditions for Successful Implementation

In this final section, I want to sum up some aspects that might limit the sketched usage of ICT and, therefore, might be important for successful implementation. All of them converge to stress the differences between computers and humans.

Firstly, in regard of using digital media for teaching purposes it seems crucial to me to point out that humans deal with information differently than computers do. The more we learn from the cognitive sciences, the more it becomes evident that the computer metaphor of the mind / brain has been misleading in some respects; especially concepts like *understanding* have been hard to grasp. However, the human way of dealing with information should be taken into account when applying ICT. It might be advantageous to say that human '*digest*' information (rather than process or compute it). Accordingly, inter-based media might not be optimized in the way computer information processing is optimized. In other words, not the quantity of information per time (e.g. kilobyte per second) might be maximized, but, say, the 'nutritional value of the intellectual meal'. In my view, this is influenced by the selection of fine lectures that are documented digitally as well as their *perspicious* arrangement in the context of a certain web portal, to refer briefly to Wittgenstein again.

Secondly, in regard of using ICT as a research tool it seems important to me to point out that computers calculate, but they do not investigate. As can be seen in several scientifc disciplines ICT might revolutionize the possibilities of collecting and analyzing data (or: texts), but it needs the researcher's wit to find the interesting questions. Computers do calculate anything we want them to; but it is not an academic aim to calculate anything. To relate to the sketched possibility to develop ontologies to semantically structure Wittgensteins *Nachlass* this notion seems especially striking: Ontology development is based on the formal semantics of description logics, and Wittgenstein's writings explicitly struggle with the limitations of formal languages. From this point of view, ontology development presents itself as a kind of 'applied logics' to the understanding of which Wittgenstein's texts contribute significantly. Ontologies might provide appropriate *tools* for carrying out research on Wittgenstein's writings, and Wittgenstein research might help to understand the inherent limits of these tools as well.

Thirdly, in regard of both using ICT for teaching and research I want to mention a factor that has turned out to be crucial in the case of *Knowledgebay*. The core experience after evaluating the project was the importance of a community of practice. The success of the project depended crucially on the persons who actively participated and cooperated to realize their goals. It is not possible, I think, to establish an internet platform successfully without build-

ing a community of creators and users. The circumstances under which such learning and research communities are most likely to grow is an important subject to empirical research. From my experience, for an ICT application to be successful in the academic realm it should be significant to the *forms of life* of the scholars.

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