

Review

Complexity and simplicity.

Review of David Yeandle (ed.). *Stellenbibliographie zum Parzival Wolframs von Eschenbach für die Jahrgänge 1984–1996. Bearbeitet von Carol Manger. Unter Mitarbeit von Michael Beddow, John Bradley, David Powell, Harold Short und Roy Wisbey.* Tübingen: Max Niemeyer Verlag, 2002. ISBN 3-484-97009-X. CD-ROM, comprising HTML files, images, stylesheets and Javascript, accompanied by an explanatory booklet. €536; €165 to members of the Wolfram von Eschenbach-Gesellschaft <http://www.uni-tuebingen.de/mediaevistik/gesellschaften/wolfram/>

These fragments I have shored against my ruins
T. S. Eliot, *The Wasteland* 431

One runs certain risks eagerly. On this occasion the risk is run by giving high praise, as a reviewer, to the fine work by immediate colleagues.¹ My motive is altruistic, but all of us are the beneficiaries. This *Stellenbibliographie*, or line-by-line bibliographical commentary, brilliantly exemplifies a certain kind of work in humanities computing, and by so doing helps to clear-up a prevalent confusion. It helps us understand what our field is centrally about and gives us a persuasive example with which to demonstrate that understanding.

First a brief sketch of the nontechnical scholarly background.

We know very little of the author, Wolfram von Eschenbach (ca. 1170–1220), thought to have been of a Bavarian family of the lower nobility and to have spent time in the court of a Franconian lord and later at Eisenach at the court of the landgrave Hermann of Thuringia, also the patron of Walther von der Vogelweide. *Parzival*, comprising 24,810 lines of Middle High German, is possibly the greatest and certainly the most complex work of medieval German literature. It is the first complete Grail romance, based on the legend of the magical Christian vessel (which for Wolfram was a stone rather than the now better-known chalice). The story it tells, though highly complex in its details, is a simple one, of the eponymous hero's slow, troubled quest towards assumption of the highest responsibilities of which a human is capable, Grail Kingship.

As David Yeandle explains, the modern study of *Parzival* is complicated both by a vast and steadily accumulating secondary

¹ All persons responsible for the *Stellenbibliographie* currently work or once worked at King's College London: David Yeandle is Professor of German (<http://www.kcl.ac.uk/kis/schools/hums/german/yeandle.html>), with Carol Manger as Research Fellow on the *Stellenbibliographie* project; John Bradley is Senior Analyst in my academic department (<http://www.kcl.ac.uk/humanities/cch/John.html>) and Harold Short its Director; David Powell is Senior Microsystems Analyst in Information Services and Systems; Michael Beddow a former colleague in the Department of German; and Roy Wisbey formerly Professor of German there.

literature as well as by the linguistic complexity of the poem itself.² Hence 'the need has constantly been expressed for an up-to-date detailed line-by-line commentary'. To date fulfilling this need has been defeated by the size of the task, and there seems little chance that a full commentary by a single author or team will ever be realized.³

The originating genius of the *Stellenbibliographie* lies in the realization that the secondary literature on *Parzival* itself comprises a line-by-line commentary *in potentia*, though fragmented and dispersed, and that citations to this literature could, by judicious application of current technology, be assembled into a coherent work of scholarship. Thus, although the result stands at one remove from the actual scholarly discussion, a complete commentary of a new kind is generated from the bibliographic record. This single remove, of course, makes a significant difference: not only does one need to have access to and separately consult a very good library, but the mosaic of texts thus implicitly assembled lacks the coherence of a single author or team. At the same time one gains the richness of many perspectives and voices—a strength to which the design of the *Stellenbibliographie* plays, as I will explain.

The craft of the *Stellenbibliographie* is multi-faceted. It lies in the kind of editorial care one would expect of such a project; an elaborate system of categorization for the bibliographic items; a straightforward but elegant interface design; and several things behind the scenes used to produce the final result: a sophisticated relational database for managing the bibliographic information; a set of perl scripts (with XML and XSLT) to transform the database output into HTML for display in a Web browser; and overall a system design that allows for regular entry of new items, straightforward maintenance, push-button production of updates and delivery in a common format with well-understood interface conventions. Supporting all of that are two complementary kinds of human infrastructure: the conventional academic, assisted by external research funding; and the techno-academic project management and development team.

The documentation provided with the CD, in German and English, does not go much beyond the confines of a user-manual and so leaves nearly all of this multifaceted craft tacit. Thus, for example, much of the thinking behind the software design remains unpublished; among other things, details of the system design, the choice of interface, and the means of generating it deserve close technical comment as well as description. Some description has been published separately (Yeandle, 1998; 2000; forthcoming), but ideally the CD would be accompanied by a scholarly monograph converging the full range of technical as well as nontechnical issues. One can hope that this obvious need will be addressed in the future.

The transformative powers of computing, by nature, incline us to blur the boundaries of inherited genres.⁴ Thus with the *Stellenbibliographie* we witness the bibliography become something

2 See the project website at <http://www.kcl.ac.uk/kis/schools/hums/german/parzive.html>, with link to *eine deutsche Fassung* (accessed 28 July 2003).

3 For a summary of what is currently available in print and how the existing resources are used in the *Stellenbibliographie*, see Yeandle, 1998.

4 These boundaries are, in any case, not nearly as fixed as one is likely to think. An examination in any sufficiently large research library of all works called by any of the standard terms for any of the usual scholarly genres (e.g. dictionary, lexicon, encyclopedia, commentary, concordance), will demonstrate the truth of this immediately. The computational medium simply makes the blurred boundaries more fluid.

like, but not quite the same as, a traditional commentary while simultaneously also able to preserve bibliographical form. Several varieties of bibliography are in fact on offer from the *Startmenü*: by theme, both alphabetically and hierarchically arranged, the latter under meta-topical categories; by author (including co-authors, editors, translators, dedicatees of *Festschriften* et al.); by lemmatized title-keywords; by type of work (book, article, collected papers, translation, etc.); by language; and by date of publication. As Yeandle notes, the lemmatized index of title-keywords gives access to a lower-level of detail than the themes; it also serves as a check on his and Carol Magner's thematization. Whether the scheme represented by these themes and their assignment to the individual works are true to the state of scholarship are for other reviewers to judge. What concerns me here are the multiplicity of ways in which the same material can be presented, the benefits thus obtained, and the implications.

The Protean character of the *Stellenbibliographie* is made possible in the usual way, by combining a multifaceted scheme of categorization with straightforward, conceptually simple tools for selecting and sorting. The latter serves the former, not only encouraging its use and elaboration but also disciplining the act. The selecting and sorting tools are, as the mathematicians say, trivial—of no intrinsic interest to research in computer science, I expect. Yet the consequences of their deployment, in this case for Wolfram studies, are highly significant. Not only are a multitude of forms produced from one set of data, but (one can securely infer) the researchers involved also begin to think and work along the lines which the categorizations define—and in a way, worth some attention. The effect of categorization on thought and action is, of course, not unique to computational methods, but the ease and immediacy of bringing together identical items enforces consistency, and the means of denoting them as identical enforces explicitness. The two imperatives, absolute consistency and total explicitness, foreground the criteria for categorization, pushing them in the direction of a phenomenology if not formal grammar. Whether phenomenology or grammar ever gets articulated depends on the project, its materials and goals. It would be good to have comment from the makers of the *Stellenbibliographie* (and from other projects involved with categorization) on this question.

A highly intelligent, powerful instance of categorization is demonstrated in the *Stellenbibliographie* by the thematic indexing that comes into play for the user who is exercising the work as primarily intended, to discover the current state of scholarship on any individual line. The user enters through the first menu item, 'Parzival—Text mit bibliographischen Stellenangaben', to choose which 30-line unit of the poetic text to view, then which line. Selecting verse-group 123, for example, then verse 4 ('du nennest ritter: waz ist daz?'), causes a list of thematic categories for that verse to appear on screen; against each category are listed author-and-date hyperlinks for the works

commenting explicitly on it. Here, for example, is the line for the theme of *Erzähltechnik* ('narrative technique'):

Erzähltechnik: Stein, A. 1993 237 Anm. 434, Groos 1995 61 [123,4-123,6], Wolf, A. 1995 34 [123,4-123,5]

The above entry denotes that narrative technique is discussed specifically for 123,4 by 'Stein, A. 1993' on page 237, footnote 434; for the range of verses 123,4 to 123,6 by 'Groos 1995' on page 61; and for the range 123,4 to 123,5 by 'Wolf, A. 1995' on page 34. Clicking on the '**Erzähltechnik**' hyperlink produces a listing of all works classified as commenting on this theme, whether generally or in a specific place; clicking on any of the author-and-date hyperlinks produces a complete bibliographical listing, in a separate window, with the desired reference at the top; and clicking on this reference then produces in the main window a listing of all places in *Parzival* on which the given author comments, organized by theme.

The thematic perspective on the chosen verse can then be considerably broadened by clicking on a link provided at the top of the thematic list. This takes the user from the verse-specific list of themes 'zu den werkspezifischen Angaben', to another list of themes assigned to the works in their entirety. Let me return to the above example to illustrate what this means. (I note that this is not at all well explained in the documentation.) As we have seen, 'Wolf, A. 1995', comments on the narrative technique of 123,4; the work as a whole is, however, also assigned the theme 'Bibelmotivik', 'biblical motifs'. Hence that theme, with reference to 'Wolf, A. 1995' is listed for 123,4 under the work-specific category, and by means of this, the broader importance of Alois Wolf's 1995 article, 'Interpretatio christiana der Schöpfung als Exemplum für Wolframs Erzählweise' ('Christian interpretation of creation as exemplum for Wolfram's narrative method') is brought to bear on the question of narrative technique at 123,4. The same connection might be made through the lemmatized keyword index of titles, from the word 'christianus' (lemma of the Latin 'christiana'), or perhaps, from 'Schöpfung', if one thought to look in those places, but a significant part of the benefit comes from making the interconnections as readily to hand as possible. Like degree of interactivity (measured by the interval between human action and computational response), convenience of use, though much harder to quantify, is highly significant for a scholarly tool.

I referred earlier to the richness of many perspectives and voices that one gains from the collational approach to commentary taken by the *Stellenbibliographie*. No feature of the work, perhaps, illustrates this richness better than such interconnections as, for example, yielded by the single listing for 'Erzähltechnik' given above. But there is a larger point to be made here about the inclination to multivocalism and the tools used in the present case to give it means.

In his study of earliest rabbinic commentary on the Torah, Steven D. Fraade quotes at length Roland Barthes' exhortation in *S/Z*

to respect textual plurality by a nontotalizing view: 'If we want to remain attentive to the plural of a text . . .', Barthes enjoins, 'we must renounce structuring this text in large masses . . .' Rather than consider our text 'an (inductive) access to a Model', we need to view it as 'entrance into a network with a thousand entrances':

to take this entrance is to aim, ultimately, not at a legal structure of norms and departures, a narrative or poetic Law, but at a perspective (of fragments, of voices from other texts, other codes), whose vanishing point is nevertheless ceaselessly pushed back, mysteriously opened. . . . Further, to study this text down to the last detail is to . . . assume the power (the time, the elbow room) of working back along the threads of meanings, of abandoning no site of the signifier without endeavouring to ascertain the code or codes of which this site is perhaps the starting point (or the goal); it is . . . to substitute for the simple representative model another model, whose very gradualness would guarantee what may be productive in the classic text; . . . it is, finally, in the very writing of the commentary, a systematic use of digression (a form ill-accommodated by the discourse of knowledge) and thereby a way of observing the reversibility of the structures from which the text is woven; . . . but the step-by-step commentary is of necessity a renewal of entrances to the text, it avoids structuring the text *excessively*, avoids giving it that additional structure that would come from a dissertation and would close it: it stars the text, instead of assembling it.⁵

5 Barthes, 1990: pp. 11–13, quoted in Fraade, 1991: pp. 22–3.

6 Landow, 1997; note: 'In *S/Z*, Roland Barthes describes an ideal textuality that precisely matches that which has come to be called computer hypertext . . .' (p. 3).

7 Yes, the cultural assimilation of a new device takes time and may be especially impeded or promoted by historically contingent factors. Yet I share and recommend Jacob Bronowski's view of a totally connected world, whose complexity we grasp at by isolating a bit here or there, considering the rest to be irrelevant. But, as he says, knowledge grows when we push back the boundaries of relevance (Bronowski, 1978: pp. 58–60).

8 See my extensive discussion of this question in terms of the classical commentary, in McCarty, 2002.

Fraade's characterization of commentary tradition, though he makes no reference whatsoever to computing, fits its capabilities like a glove. George Landow (who also refers to Barthes' idea of textuality) has posited 'the convergence of contemporary critical theory and technology'.⁶ I prefer to avoid the implication of a deterministic and uniquely modern unanimity of tools and theories. It seems to me more productive to think that we have the ones we need and can make what we want out of them, and that this has more or less always been the case. We bring these things together; the fact that tools fit theories, now and in the past, is because they self-evidently belong to the same world.⁷

These are the questions to be asked: How do we now think about text and the fundamental scholarly job of commenting on it? What tools do we now have to hand to *realize* these thoughts?⁸

In evaluating the *Stellenbibliographie* and things like it, then, we need to go beyond the mechanics of the object. We need, for example, to pry apart (a) Yeandle's and Magner's evidently fine preference for plurality of meaning balanced by the judicious restraint of a conceptual scheme, from (b) the relational database scheme, invented precisely to accommodate this preference, but applied with evidently great skill by Powell and Short. We need to know the thinking expressed with like skill as a process of translation from database to interface by Beddow

and Bradley. In other words, we need to know how the approach to the commentary literature and the design of the scholarly work *co-evolved*. This is more than the story of what happened among a particular group of researchers, although that kind of story has proven to be of considerable interest to historians and sociologists of science. It also bears on the development of a new scholarly genre and the evolution of the tool, both adumbrated by the (untold) struggle to match the one to the other. As Michael S. Mahoney has noted for the history of computing generally, quoting the title of an essay by Richard W. Hamming, 'we would know what they thought when they did it' (Mahoney, 1996).

As an information-management system, the *Stellenbibliographie* has been well designed to serve its long-term goal of incorporating bibliographical references from 1994 'back to the earliest beginnings in the 19th century, and periodically updating, both for newly appearing works (after 1994) and also for newly discovered older works' (Yeandle, 1998). The project has funding for a further 5 years, but this and projects of similar kind offer us a much greater promise than 'deliverables', viz. to become one of the principle ways in which scholarship is done. Perhaps, with luck, administrative imagination and considerable hard work, the best of them will. Long-term academic projects are well known in the humanities, especially in Germany. Electronic publication means, however, that updates and new editions are easy to produce. There is a very strong argument for incremental publication, dating back to the issuing of fascicles, and in the electronic age even (as with the Stoa project, Suda On Line)⁹ for publication of material in progress.

As a publication, the *Stellenbibliographie* intelligently uses its CD merely as a transport mechanism, so that it may easily be copied (within the strictures of the license) to the user's hard disk. Its link from the menu of 30-line segments to the site at Trier for 'Mittelhochdeutsche Wörterbücher', providing access to four Middle High German lexicons, is one of the first fruits of a world-wide digital library. Fortunately (unlike the Latin and Greek lexicons on Perseus site, for example), access to these is quite straightforward—but is not via a 'persistent URL'.¹⁰ Interoperability is still a very distant goal.

The relatively high price of the *Stellenbibliographie* has provoked strong complaint as may seem justified, but the issues, implications and related matters give the reasonable complainant pause. The offer to members of the Wolfram von Eschenbach Society softens the blow on individuals in the field. More importantly, however, the price reflects the need for continued funding. If we are to have such tools as features of our disciplines, thought needs to be given to their future. Diane M. Zorich, in her recent 'Survey of Digital Cultural Heritage Initiatives and their Sustainability Concerns', has made the case persuasive for the urgency of addressing the short-sighted practice of funding as short-term 'initiatives', those projects that are by nature 'long-term programs [requiring] an ongoing commitment of funding,

9 See <http://www.stoa.org/sol/> (accessed 30 July 2003).

10 See the Persistent URL site, <http://www.purl.org/> (accessed 30 July 2003).

staffing, and time' (Zorich, 2003). Thus the *Stellenbibliographie*. Another aspect of the work hidden from sight is the long-term infrastructural investment required to bring it so successfully into being. Few, who have not directly participated in a collaborative academic project in which humanities computing plays a role, have any idea of what is required and how many years it takes to put an adequate infrastructure into place. In a sense, all of the School of Humanities at King's College London stands behind this *Stellenbibliographie*.

To make the transition from lone scholar (where this is warranted) to the much-vaunted collaborative team, as here, has far-reaching implications as well for academic credit and all that follows from it. David Yeandle is to be commended for recognizing prominently and generously the collaborative efforts involved. But credit is something given by a society for work it understands. For the society, in question to bestow credit appropriately, an understanding of *what this work actually is* needs considerably to be improved. That, once again, means publication of each aspect, not in widely scattered notes and articles but as a principle component of the scholarly output.

At the beginning of this review it was said that the *Stellenbibliographie* helps to clear up a prevalent confusion about our kind of work. This confusion is, perhaps, the result of an inherited attitude about simplicity and complexity. Let us, in conclusion, put the matter first in its culturally dominant form, for the sciences, then as we encounter it, e.g. in the *Stellenbibliographie*.

For the sciences (as seen from without, by the layman) serious work is both reductively simple and impossibly complex. On the one hand, the reductive 'covering law' approach e.g. in physics, according to which we seek out law-like empirical generalizations that explain the phenomena they cover, leads the outsider to think that some one, elegantly simple formulation, such as a powerful equation or algorithm, defines serious work.¹¹ On the other hand, even when formulated in the most elegantly simple mathematical language, scientific work is opaque to the layman, and so 'complex'. Furthermore, it is frequently quite complicated, involving many overlapping but contradictory theories—physicists search in vain for the 'Theory of Everything'—and sometimes, as with quantum dynamics, counter-intuitive in the extreme, and so once again 'complex'.

For humanities computing, however, the tables are turned. On the one hand, for reasons given above in literary critical language, our objects of study have no theoretical reduction to a covering law. (Indeed, many prominent philosophers of science now argue that neither do the objects of the natural world, but that is another matter.¹²) In the beginning, God may have done it all with *ὁ λόγος*, and mystics may follow in devotional simplicity, but most of us approach totality in language, paint, ink, stone and so forth by continual accretion and revision—fragments, as Eliot put it in the *Wasteland*, 'shored against my ruins'. Thus the multivocalism of the computational

11 See Robert K. Burch's discussion of simplicity and complexity in physics and the social sciences, in Burch, 2002: p. 253 and *passim*; see also my discussion of this paper and others in McCarty (forthcoming).

12 See, for example, Cartwright, 1999, reviewed by Giere, 2000.

Stellenbibliographie, reflecting the inherent, irreducible and, as the commentary by generations of scholars accumulates, increasing the complexity of *Parzival*. On the other hand, the transformations of data we mostly require are easily explained and understood, at least in principle. Although our tools are quite complex microscopically, at the level of scholarly attention their complexity is mostly irrelevant to the transformative operation in which the major interest lies. John Unsworth's formulation remains appealing: our very complex data need only relatively simple tools to begin yielding their secrets, whereas the relatively simple data of the natural sciences require very complex tools.¹³

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- 13 'If your data comes in relatively small amounts and is highly idiosyncratic and complex, then the amount of effort that would be required to produce software smart enough to infer meaning in dealing with that data is probably significantly greater than the effort that would be required to simply make explicit what is known or perceived by a human being looking at that data, and then let stupider software do the simpler but still useful tasks that humans can't do as quickly, or can't do as well. If your data comes in impossibly huge amounts and has data points or patterns that can only be perceived across very large data sets, then you better have smart software. If I want to use remote sensing to count the individual chestnut trees surviving in the Appalachian forest canopy, then I need smart software; if I want to compare patterns of arboreal imagery in metaphor in 19th-century vs. 20th-century American poetry, I need smart (marked-up) data' (private e-mail 15/8/01).

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