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Bernard Stiegler

John Casey Beal

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‡ ANNOTATION, NAVIGATION, ELECTRONIC EDITIONS

*Toward a Geography of Knowledge**

BERNARD STIEGLER

Translated by John Oliver Beal⁺

SGML (Standardised Generalised Markup Language) is a formalizing metalanguage for structured documents¹ that defines the forms according to which inscription is made in material space. It is interesting to apply to the concept of SGML that of “putting utterances into material form,” a concept elaborated upon by Jacques Virbel² in order to highlight a true performativity within the materiality of writing. Virbel’s work shows that the typodispositional semiotic proper to utterances engenders a meaning that is not present in the oral utterance.

Performativity is a concept invented by the English philosopher J. L. Austin. A performative utterance demonstrates that “to say is to do.” For example, by saying, “court is now in session,” the judge has, in fact, opened the session. Hence the title of Austin’s book: *How to do Things with Words*.

* This article was originally published as “*Annotation, navigation, édition électroniques : vers une géographie de la connaissance*” in: *Linx*, hors-série n°4, 1991. *Texte et ordinateur. Les Mutations du Lire-Ecrire*. pp. 121-131. It is accessible online at http://www.persee.fr/web/revues/home/prescript/article/linx_0246-8743_1991_hos_4_1_1191

+ All footnotes are the translator’s unless otherwise noted.

1 The phrase “*documents structurés*” is used in a technical sense here. A structured document is an electronic document whose parts are given various structural and syntactical meanings based on the particularities of the code structuring it. Any given electronic document will have coding that describes its physical structure (such as block text, italics, font size, etc.) as well as its logical or syntactical structure (such as whether an element on a page is an image or a caption, whether a certain line of text is a title or subtitle, etc.).

2 For more on Virbel’s work as it relates to this paper see *Structured Documents* ed. J. André, R. Furuta and V. Quint, Cambridge University Press, Cambridge, 1989. See especially Virbel’s paper “The Contribution of Linguistic Knowledge to the Interpretation of Text Structure” (161).

Emerging from Virbel’s concept is an inverse performativity: *faire c’est dire* (“to make/do is to say”), a figure of material inscription produces a meaning.

Toward a hyperlinking of text

At the Université de Compiègne, specifically in the research group PHITECO³ from the COSTECH⁴ laboratory and in the DEA *Science de l’homme et technologie*, we are interested in the material culture of writing and, more generally, of knowledge. More generally still, we study the supports of knowledge and memory, the prehistory of available artificial intelligence and systems called “multi-agents,”⁵ the pheromones circulating in anthills, and the virtual realities suggested by the editorial techniques [*manuscriture*] of Flaubert.

There are in fact many lessons to be learned from the study of manuscripts in relation to what concerns us (the text). These lessons might be useful, for example, for the Institute of Texts and Modern Manuscripts (CNRS,⁶ Bibliothèque Nationale).

J. L. Lebrave demonstrated the role played by the advent of publication in the spread of the printing house as it relates to the textual relationship between the writer and the reader; he specifically accentuates the separation of the process of writing and the process of reading—the slow disappearance of the manuscript engendering a regression in the part played by the hand .

Manuscript parchment or printing paper are static supports. Yet with the advent of digitization, the text is coming to know a new epoch: that of *dynamic supports where the reader “naturally” merges with the writing*.

SGML pertains precisely to this advent of digitization. If SGML was understood from the start as a format of exchange, it is now an instru-

3 *Philosophie, Technologie, Cognition*.

4 *Connaissance, Organisation, et Systèmes Techniques*.

5 The phrase is in English. Multi-agents, known also as a Multi-agent system, are computerized systems containing several artificial intelligence agents interacting in a certain environment. Multi-agent systems can employ AI to analyze extremely complicated phenomena related to how elements in the environment interact, cooperate, coordinate, organize, communicate, negotiate, correct, etc.

6 The *Centre national de la recherche scientifique*.

ment of automated navigation, with the possibility of generating tables of contents by means of tags, etc. But above all, in the instance that interests me, its use can be extended to the languages of annotation.⁷

Electronic annotation, which takes advantage of the dynamic properties of digital resources, enables the reader's actions to be inscribed in what he or she reads. To read and to write become truly inseparable. To read and write simultaneously on the text is typical for a savvy reader. I am not simply thinking here of writers or academics, but also of engineers, archivists, doctors, etc.

Even so, it is not "natural" to write in a book or on a file. The book is, certainly, very often annotated, but the paper is not intended *for annotation*. The emergence of publication established a separation between what is annotated and, for example, the footnotes, even if this separation is constantly transgressed.

All this takes place as if the dynamic supports and what I call the hyperlinking of the text [*l'hypertraitement de texte*, henceforth abbreviated as HTT] brought a return to the pre-Gutenberg situation of *scriptoria*. Onto the foundation of given information produced by an HTT, the anterior actions of the reader (the activity of the reader consists in the use of the mouse and keyboard) are integrated *simultaneously as information and as instruments of navigation*. The concept of hyperlinking allows us to resolve the dilemma of little Poucet⁸: presented with all the digital (and dynamic) databases, how can users determine the identity of their virtual character and solve problems of navigation proposed to them? Little Poucet, according to the tale, is lost in the forest (he has no sense of direction) and has not yet understood that it is necessary for him to mark his wanderings in order to orient himself. If he leaves breadcrumbs behind him as he walks, the birds eat them all and he makes no progress. Only the white stones, visible in the clear night and unable to be eaten by the forest animals, allow him to solve the problem. Textual hyperlinking rests on a comparable principle.

7 Stiegler is using "annotation" in a somewhat precise sense. In addition to the familiar uses of the word, annotate also refers to the means by which a given markup language structures its reading of texts. Since the annotation is, in this case, both applied to the original text and is syntactically distinct from that text, it is classed as metadata. Annotations are the means by which diverse texts, images, tables, etc. can be linked together as a corpus.

8 Stiegler is referring to the fairy tales published by Charles Perrault in 1697 under the title *Histoires ou Contes du temps passé*. Little Poucet is known in English as Hop-o'-My-Thumb.

Navigating is nevertheless already a problem in our traditional reading space: the reader marks his or her pathways in a text by means of diverse traditional techniques and tools—the cross folder, etc. If one wants to come nearer to the *work* of the writer regarding his traditional materials, it is also necessary to be familiar with his tools and his places of study: pen, paper, notebook, folders, files, and also the cabinets where these things accumulate, marked-up works, dog-eared works, annotated works, drawers where the folders are stacked, and so many other forms of memory-aid comprising the networks of “metascriptions,” which serve as the breadcrumbs that he places along his path. These breadcrumbs form a global process of *archi-annotation*, to which today we obviously can add hard disks, photos, audio and video recordings, and the digital “samples” of multi-media extensions for micro-information systems (such as Quicktime for Macintosh) which now take their turn in the field of a generalised electronic annotation in the heart of apparatuses called hypermedia.

I say breadcrumbs because the traditional reader loses her personal markers in the same ratio as she disseminates them due to the *finitude* of her memory (her capacity for *retention*) and because of the static character of these markers, which are used in order to be replaced.

Before the hypertext and its electronic space, all reading space was *retentional* and *virtual*, static but nevertheless operational up to a certain point, physically framing the writer working at his table. The subtle techniques of annotation, correlation, and classification organize writing from the very beginning; today this process can be transposed into the domain of digital resources to the greatest gain of the reader-writer.

Whether it be the writer, professor, student, “intellectual,” engineer, lawyer, journalist or administrator, a “professional” reader utilizes diverse techniques of *tagging* [*balisage*] and of *orientation*, which materialize into “graphic habits” and/or spatial ones, whether he systematizes a usage or not (annotation signs with various meanings; check marks and lines in the margins; underlining in the body of the printed texts; techniques of summarizing and synthesizing, folders, files, etc.). The reader glosses texts, indexes them, puts them in relation to one another through correlation systems (folders), extracts from them passages for citations, and uses research tools (bibliographies, specialized journals, dictionaries, encyclopedias).

All these reading techniques aim at creating qualifying lines between documents or passages in documents. Hypertextual techniques, combined with descriptive languages of structured documents, allow the rigorous integration, by automatization, of these operations. Integration results in languages of electronic annotation or the hyperlinking of text. The advantage in hyperlinking is that the memory of the machine does not forget, whereas that of the reader is essentially fallible. Before digitization it was a time of notebooks, books, folders, files closed up in shelves of the library or in a desk—all the interventions on the corporeal material bearing the marks of countless kinds of glosses, marginal comments half-written in notebooks, disseminating themselves throughout the workspace, strewn about and superbly unaware of themselves. The genius of the reader lay in synthesizing all this that I have just described. The genius of the machine allows not only the verification of the readerly genius, still less the replacement of it, but in every case it guarantees the most rigorous conditions of exercise. For the traditional reader, the exact retentional visibility of the text bears only on a few or perhaps a couple dozen of pages before and after the passage being read at any given moment. Beyond this range, the fidelity of the reader to his work is irremediably given over to the unreliability of his subjectivity. The assistance of the machine inaugurates on the contrary a time of *high fidelity of reading*. The reading of the machine is flawless, instant. Its visibility of the text is total and instantaneous. This obviously does not mean that the reader becomes objective, but that the reader gains rigour and lucidity *concerning the operation of reading*.

The static retentional space is virtual and made actual only with great difficulty by a physical orientation that rests on an intuitive perception of space. In dynamic space, *virtuality* is simultaneously more felt and manifest (because I can entrust to the machine the instructions of updating, memory is always open, etc.). But this virtuality presumes a very rigorous organization of orientation and therefore of annotation: one knows the fault of hypertexts, the inflationary overproduction of connections and links where the very one who has created them can no longer retrieve them; from another viewpoint, it is a question of inventing a *geography* (that is to say an art of cartography) of a new type, or to speak like Virbel, of new norms of giving materials form.

One may analyze, model, automate and integrate the manuscriptural interventions that a reader makes on the printed resources into primitive functional forms of digital annotation that correspond to the norm of a work of reading that initiates a writing process (and it can bear upon a text of which the reader is himself the author).

To say that the reader (student or scholar) is an operation of inscription means that reading consists firstly of appropriation of the text by direct intervention onto the *static* material of the paper. The *dynamic* digital support, on the other hand, allows a multiplication of operations and an automated and systematic exploitation of these operations modeled according to the techniques of informatics.

The acts of annotation rapidly produce, beyond solitary markers or graphic codes, *writing*: notes in margins, keywords, commentaries. Keywords create still more links, more correlations. These are on an equal footing with, for example, lists or thesauri, which are just so many systems of navigation in the archival memory of the reader. A system of reading assisted by a computer can thus systematise and integrate traditional techniques. Computer-assisted reading results in new instrumental possibilities of orientation, by means of combinations and extrapolations, aspects of which I will describe later.

At first glance one can distinguish two large classes of intervention in the text:

- 1) operations of *hierarchizing*, which regulate the weight given to textual passages, which correspond to the underlines in the corporeal text and the vertical marginal marks on printed resources.
- 2) operations of *qualification*, which consist of attributing semantic values to these regulations, by diverse means:
 - insertion of keywords
 - insertion of personal notes
 - abbreviated comments
 - connections with other documents (other passage of the same or other texts, for example: primary manuscripts, varying editions, texts referred to, translations, accepted glosses, bibliographic references, etc.)

Hierarchization and qualification have been modeled in an informatics mock-up, LECAO,⁹ produced at the Université de Compiègne, where the hierarchizing operations consist in using *coloured characters*, whereas the operations of qualification are represented either in coloured underlining of the text being commented on, or in the creation of links between visible documents by the opening of windows that associate “related texts” with the document being commented on, or by the apposition of keywords. Naturally, each intervention into the text is registered by the machine, which can then treat them like information. This registration enables searches carried out specifically on a given level of hierarchization. More generally it makes possible the combination of numerous criteria *that apply themselves both to the read text and to the textual specifications added by the reader*.

The inscriptions in the margins or in the body of the read texts, the notebooks full of notes, the folders, the files, and their physical orientation in the shelves of the private library or the desk constitute so many personal systems of orientation and of navigation in the at-once material and spiritual (temporal and virtual) space of work. Materializing textuality and reading is carried out not only in the two dimensional space of the paper material, but in the *three dimensional volume* of the desk and the library.

What results from this transfer of the material form of the reading-writing to the dynamic supports of the hyperlinking of text is a major *transformation* of access not only to the text, but to the reading passing over this text, such that it materializes itself textually, *à la lettre*, across the entire gamut of the interventions summarily described here.

Levels of adaptation for a computer-assisted reading tool

The PLAO,¹⁰ whose specifications are much richer according to the general point of view expressed here, has been prototyped by the AIS (Ad-

9 Computer-Assisted Critical Reading and Writing (“*lecture et écriture critiques assistées par ordinateur*”). This was a program that Stielger launched in the early 90s with the support of the Ministry of Research.

10 Station for Computer-Assisted Reading (*Poste de Lecture Assistée par l’Ordinateur*). For more on the history and function of the PLAO, see Alain Giffard, “La lecture numérique à la Bibliothèque de France,” http://alaingiffard.blogspot.com/culture/2006/08/la_lecture_numr.html.

vanced Information Systems) society of the Berger-Levrault group,¹¹ under the direction of François Chahuneau.¹²

In the AIS system, there is not an *a priori* categorization of possible annotations: the categorization tools are largely able to be adjusted (it is the same logic as SGML), with the obvious exception of preference windows, forms allowed by the thesaurus, etc. Adjustment gives a great generality to the instrument.

But this generality presents certain inconveniences and above all poses a very interesting editorial problem—proper dynamic supports: the reader unfamiliar with the program feels first a certain difficulty in understanding the logic or methodology of using it and what precisely manages his work. AIS has adopted the principle that the user ought to have the power to define for himself the characteristic of his type of annotation, goals, etc. All this F. Chahuneau calls the unified logic of *découpage* (ULD).

Such freedom is a very great advantage, which is practically never offered in the domain of micro-informatics (or only in a very limited manner, for example with Microsoft Word, which allows the naming and defining of different styles, such as citations, ends notes, etc.). But self-determination is also a grave inconvenience if the user is not clearly aware of the liberty of intervention that such a conception makes possible and of the large classes of possibilities offered to him.

Thus, the reader must understand the option of attaching a keyword as a possible attribute for all ULD, or the user will not understand the considerable advantage presented. He will define for example a ULD “keyword,” based on which he will make several ensuing searches, and then

11 Berger-Levrault is the name of the oldest publishing house in France, whose origins date back to 1474. Today, the company specializes in editing software, producing regulatory documents and forms, and developing databases for various clients. According to their website, the company provides the necessary means of intervention into the public sector—from health to civil society.

12 In his 2014 book, *The Re-Enchantment of the World: The Value of Spirit Against Industrial Populism*, trans. Trevor Arthur, (New York: Bloomsbury, 2014), 48, Stiegler mentions Chahuneau and the work being done at the time by the AIS-Berger Levrault Society. Stiegler notes that this work was interrupted in 1993 when Édouard Balladur took over as the head of French government. Concerning the AIS prototype, Stiegler says, “this prototype, which still exists, asks only to be reactualized: the concepts that were developed are absolutely reinforced by the development of what the W3C group, which piloted the evolution of the internet network, called Web 2.0” (48).

follow a string of results that is hardly economic (it is much more reasonable to attach keywords to a common meaning already in accordance with ULD than to define a specific ULD in order to know the keywords).¹³

Said otherwise, these operating modeling chains ought to be proposed as standardised to the user. They ought not incite him to remain closed within perceived limits, which would be contrary to the opening of the system and to all the analyses that have subsequently been done by the work group of the Bibliothèque de France.¹⁴ The mock-up ought to be adjustable according to the needs expressed by the users, but these models must give him efficient illustrations of the way to construct personal operative chains to best utilize the founding concepts of the system (ULD, aims, annotations, links).

It is therefore indispensable to formalise the primary classes of procedural approaches to texts, whose number would equal that of the combinable elements offered by the interface, in accordance with the larger tasks that characterize the modalities of scrutinizing texts by reading and writing proper to different methods of reading.

Such categorizations would be so many models both scientific and editorial: languages of annotation and navigation. Inscription of the act of reading in the material implies an open and generic normalization of modalities of annotation, as well as a formalization of the rigour of the original texts along with chains of operations (erasing the ambiguity of manuscript annotations, the excessively empirical aspects of their use). All of formalisation is done in order to allow one to move between different stations and different systems, and also to normalize the modalities of navigation—one cannot in fact distinguish the work of annotation affected by the reader from the system by which the reader is given access to the corpus.¹⁵ In other

13 To give a contemporary example for the sake of clarity and comparison, what Stiegler is describing here is in some senses similar to how Twitter manages content versus the algorithms used by Google. Hyperspecific hashtag searches yield little to no results because no content is bound to these searches. More general searches or “trending” searches, on the other hand, provide access to far more related content.

14 Reunified by the initiative of Alain Giffard and composed of Philippe Aigrin, Patrick Bazin, Rolland Bertrand, Patrice Bouf, Alain Lelu, Dominique Maillet, Philippe Roquinarch, Bernard Stiegler and Jacques Virbel [Stiegler’s note].

15 I believe Stiegler uses the term “corpus” here in the sense of “corpus linguistics,” a branch of linguistics that uses samples of common or everyday speech/text as its object of

words, it is the cumulativity of knowledge conserved and elaborated upon by the dynamic supports that are in play.

These various formalizations can be listed according to separate levels:

- a reserve of operative chains common to all reading practices,
- a reserve of operative chains for each practice,
- within each practice, specific modalities of operative chains,
- the operative chains that elevate the idiosyncracies of each reading to the level of a text—this level of formalization is therefore completely dependent upon the reader.

Each reader has different ways of beginning a text, which holds for several elements, in particular:

- the corpus under consideration (the nature of this corpus, of its accessibility, etc.),
- the reader’s training, from primary school up to university or research lab,
- the discipline in which he exercises his knowledge,
- the unique concepts at which the reader arrives, largely dependent on the methods of reading, and the inverse as well (truly most often the reader has only an extremely vague awareness of this *material* dimension of his spiritual, conceptual, or *ideal* work).

The difficulty is therefore to make distinctions within these levels.

In the framework of the AIS mock-up, the tool itself is limited in distinguishing between levels by certain factors. The process of *reasoning in terms of markups and links*,¹⁶ in terms of synthetic representations of a specific content, and in terms of reading-writing that introduces the personal semantic of the reader into the semantic of the read text, already determines certain constraints.

study. The corpus in this case is the collection of samples that are linked, for example, by keywords and which, when taken together, form an ever-changing “body” of references. See note 7 above.

16 Markup language refers specifically to a way of digitally annotating documents by means of tags. These tags serve as signals to the software being used to present the text in a specific way. The tags are syntactically distinct from the primary text and do not appear in the version read by the user.

These remarks require us to give a more general explication of considerations regarding the framework of the AIS mockup.

We must distinguish between what concerns the structuration of the text and what concerns the structuration of the grid of reading that itself becomes a text.

Generally, many possibilities are open when it comes to approaching a text, and they correspond 1) to the *different tasks* in one case, 2) to the *alternatives for the same task* in another case.

Here are two simple examples.

Example #1: performing different readings tasks for one text:

- performing a detailed reading of a work in order to give a *global interpretation*. This can be done by a *systematic appropriation* and *reduction* of content. This approach obtains primarily and in the first place when it comes to *sequential reading*.
- performing a reading of a work *in the service of another reading* from another work, or *in the service of an idea that does not constitute itself in the first place within the read work*, and, by doing so, mobilizing the elements of the work without pretending to make a global reading. *It is thus not necessarily a question of a reductive operation.*

Example #2: examining alternatives between several approaches to the same task:

- one can imagine a work that *has already been read in its entirety*, traditionally, linearly, could then be the object of a work of LAO¹⁷ that will not consist in sequentially recommending upon the *entire* work, all the while preserving a certain sequentiality using the methods of the electronic annotation (eventually in transferring the annotations already made onto paper).
- on the other hand, one can begin, as in the first case

17 “*Lecture Assistée par Ordinateur*,” in English: “computer-assisted reading.”

when a work has *already been read in its entirety* (for example a dictionary constituted from the start by a digitized corpus), then go search the isolated elements there, relying more on the vision of the whole that one has acquired in the traditional sequential reading than on an informatics-based reformalization of the same operation.

- Etc.: there are still more possibilities.

It is evident, though, that these different possibilities are to be reconsidered according to whether the corpus is in image-mode or text-mode.¹⁸ I restrict myself here to the text-mode.

It is a question of determining the standards and the markup, and also a question of the tools of annotation that characterize the methods for approaching the works and giving structure to them. J. Virbel proposes to draw up these standards by the expression *formalised description of structures*.¹⁹ The question is how to bring the systems of DFS to the level of the user, knowing that this concerns three levels.

1) There are, first of all, the DFSs on which the reader depends—that have been produced by the resources that he uses. Example: the BdF tags, whether in image-mode or text-mode.

If these formalizations have not been produced by these resources, it is necessary then to propose to the reader standard methods or norms of producing such tags by him or herself, knowing that he or she can always modify these norms himself, having understood the mechanics of the interface.

This first level is the physical description of the material formation²⁰ of the body of work, of the same sort as a textual geography.

2) The second level is the syntactical *découpage* that will allow to the user to construct a grid of reading, and to for-

18 The difference, for example, between a .pdf or .jpg file and an editable .doc file.

19 “*description formalisée de structures*,” henceforth abbreviated as DFS. 20 “*mise en forme matérielle*,” henceforth abbreviated as MFM.

malise it for himself, making the texts objects of dynamic interrogation, it being given that this grid rapidly becomes itself a complex hypertextual object.

This syntax is what commands the conception of ULD by the user in their relationships between keywords, annotations, tags and links.

In the case of an exhaustive reading of a work for the purpose of a global interpretation—the case to which we restrict ourselves here—an essential moment, and one that conditions all the others, is the découpage of the text in ULD constituting the unities of meaning.²¹

One can imagine that this découpage could be automated, depending on the elements given by the DFS and the MFM, and putting the DAZ²² function to work. But this is not always evident. This can constitute a first phase, that of demagnification, which ought to be then refined by a sequential reading. A US can bring together many elements of DFS/MFM, but it can also be the most granular of any unity at this level.

The syntax that must be explained here is the MFM of pertinences—that is to say of differences, if one calls pertinent a difference in the sense of Troubetskoï, and I indicate this less as a structuralist theoretical argument than as an example—by the user. Syntax is already marked out by the user, it concretizes when the user puts his or her reading grid into material form. However, the user is still free to roam about the *geography* of the text, or the *histology*, simultaneously *horizontal* and *vertical*. It is necessary to consider both the *horizontal extension* of a pertinent unity of meaning (for example the indentation of a given paragraph in some chapter of some part of some such book by some author in a given discipline) and its “height,” of its “pitch,” that is to say of its specific weight which allows it to be raised to a certain *verticality*. What I have named hierarchization demonstrates this dimension. This syntax, it is important to emphasize, already allows a synthetic reduction of the text as regards its verticality: if the user has delimited certain passages of ULD as “very important” their sole selection makes it possible to give a summary, in the manner of the SUP collection of texts published by the Presses Universitaires de France.

21 “*unités de sens*,” henceforth abbreviated as US.

22 “*découpage automatique de zones*,” in English: the automatic découpage of zones.

The third level is that which allows:

- 3) a semantic elaboration that is responsible for sensing the “syntax” of the DFS of the first two levels, and which makes possible a linear reduction, for example by an automatic publication of commentary in the sequentiality of the text commented on;
- a navigation in the elements that does not have to be linear since it makes correlations between them, facilitating a jump from salient point to salient point. navigation makes it possible to reassemble the entire ULD pertaining to a concept belonging to the reader or to the commented text (and eventually of formalizing these routes in order to make leaps among entire ways of reading). In the first case it is a question of searching the ULD specified by a keyword²³ supplied by the user (including the case where the keyword is present in the text: the sole fact that it has been selected as keyword implies that it is no longer the word of the author, but also of the reader, or a common link—in the Aristotelian sense—between them);
 - a synthetic representation, divided according to different levels; a cartography. Said otherwise, synthetic representation is also a radiography of sorts of the textual semantic itself, whether it be by clouds of points, graphs, or more simply lists of thesauri, different dictionaries, etc.;
 - all this amounts to the textual production of the reader, who can now manage his or her own notes as he or she builds or generates the annotated text.

The third level is the same as the generation of a new type of tables of contents,²⁴ the one associated with the author, the other with the reader—the two able to be confused with one another, but still able to remain distinct. This third level corresponds to the historic understanding of effec-

23 “*mot-clé*,” henceforth abbreviated as MC

24 “*tables de matières*,” henceforth abbreviated as TDM

tive reading, constituted by a hypertextual object that serves as the scaffolding of dynamic reading.

Consequently, one must distinguish *four large categories of operations*, which are the functional bases of electronic annotation and which allow, by their combination, the effective realization of the previous three levels:

- hierarchization: simultaneously by the creation of US and by the implantation of the ULD having been put in place (horizontality and verticality);
- qualification: keywords, annotations, commentaries, etc.;
- navigation and searching: creation of links and of protocols of necessary correlation: the defining, for example, of categories of links that specify the nature of the attached documents: canonical commentaries, translations, manuscripts, references made accessible by the commented text, search windows, etc.;
- representation (assistance with navigation and with searching): diverse grids, including the table of contents, ‘perspectives’ on the work corpus (including the development of a finder²⁵—a function missing or still poor in the AIS mock-up), but such that these means of representation articulate syntaxes and semantics.

These formalizations are so many hypotheses for the formalised description of documents structured specifically as electronic documents. Said otherwise, our project concerns a standardization of electronic formats. Standardisation is absolutely necessary: it would be beyond belief that the works of annotation produced by the great readers could largely be inaccessible and unpublishable, annotation becoming here an integrated part of the critical work and even of the work *tout court*, since it makes accessible the unique work of preparation. It is a new era that could then open itself up to the elaboration and the transmission of knowledge.

One can go very far with the hypothesis that an idiosyncratic system of annotation reflects a theoretical gesture that is applied to the corpus under consideration: to each type of reader will correspond a technicity of annotation and of unique navigation. The question will then be the possi-

²⁵ In English in original.

bility of a normalization that would be generic, that is to say one that would allow at the same time the sharing and the exchange of knowledge, as well as the emergence of originality.

In fact, it is a question comparable to that of the thesaurus: some make reference to it, others do not. Methodologies establish themselves, with variations, etc. It is necessary to have room for both the norm and for variability. Conceptualizing the question of standards in the case of dynamic supports cannot be the same as the case of static supports: the adaptability of the reader engendered by the digital dynamic entirely renews the editorial question. In consequence, it is a question of defining the formats of exchange that are at once technical and intellectual, of determining what will be the strict norm in terms of markups and what ought to remain open to variability, all in proposing dominant models for all types of annotations and all types of structurings.