



Metacognitive Hypertexts

Author: Livio Rossetti, University of Perugia

0. Some Introductory Remarks

Decades ago, only the best teachers dared to involve their pupils in group research aimed at collecting, assessing and editing pieces of information about a certain topic. Then the era of Google and Wikipedia arrived, and by now most school authorities ask teachers not to encourage pupils to undertake what is still called 'research' since, as you know, too often the output is but a superficial compilation of elements collected in few minutes and, what is worse, the compilation tends to be immediately circulated among fellow pupils, so that most of them limit themselves to copy, or superficially re-edit, what another has superficially pasted half an hour before. It is true that at least a minority of pupils use the comparison among various ways of telling the same story (or of dealing with the same topic) well—pupils who possibly enjoy discovering areas of disagreement between their sources and try to understand how this may occur, what may lay behind discrepancies, and so on. However it is a fact that the web era has deeply affected the very idea of hypertext, by assimilating them to a mere way of processing databases—better, to the most quick way of going through inhumane mountains of files in search of what one presumes is relevant to something. This way, the very idea of an open, ductile hypertext, and to a much greater extent of a metacognitive hypertext, has been almost deleted, removed, much as if the only conceivable hypertext were that of a web, with various modalities of access to the related database (or, at the most, to an off-line equivalent), much as if the only conceivable use of an hypertext were that of selecting some pieces of information from different quarters in order to have a glance and then see whether they cope with our present needs or not. This is, first of all, a way of treating them as merchandise shown in a great supermarket, but not every classroom topic amounts to a mere information; very often there is something to understand, or to grasp, or to perceive, or to suspect, or to compare, or to enjoy; sometimes your primary need is not to spare time but rather to have time enough in order to let a certain experience (be it a film, an opera, a novel, a poem, a theory, a doctrine, a suggestion, an unpaid service given to somebody, etc.) take place and display at the best its secret potentialities—all goods hardly suitable to be treated as merchandise in a supermarket. It happens that you need (or want, or enjoy) to devote time to them, to concentrate, to do several preliminary steps in order to come to understand or sense what is not immediately available but rather hidden, otherwise you would remain dramatically outside them. Now, happily enough, most teachers (and some pupils) still value more highly what demands time, whilst also valuing the lower investment and concentration of what can be made immediately available through Google or Wikipedia.

So, even if most hypertextual products are being conceived as goods immediately ready—as cash, one would say—nevertheless our consumer society does not ignore middle and long term investments, nor that education and learning are not suitable to be purchased with

cash. But it is a pity to see how seldom we are reminded that hypertexts can be of both types, some aimed at immediate use while others are planned in view of a middle or long term investment. Too often one has the impression that the only type of hypertexts acknowledged (existing, sold) are of the first type, suitable only to be taken, consumed and somehow returned a few minutes later. At least, this is what the market offers most often, isn't it?

A step further. If we enter the difference between cognitive and metacognitive knowledge, as in my opinion we should, it is easy to conclude that hypertexts meant to be consumed in a moment are strictly cognitive, while those meant to be 'experienced' for a while and repeatedly are largely metacognitive. True that behind the notion of 'metacognitive hypertext' there is a very short history (I wonder whether the notion has ever been used during the XX century), but the distinction between cognitive and metacognitive seems to me especially enlightening and helpful, at least when we deal with educational texts and hypertexts.

Well, after fifteen years largely devoted to authoring various hypertexts, mostly of philosophical concern (and ruminating related ideas), it occurred to me to realize that my own have been, from the beginning, pretty metacognitive in character. True that I failed to use such a label until very recently, however this label does in fact capture their identity as well as some leading ideas I had in mind since the inception of this experience. Therefore, it is gratifying to have access, at least now, to a category granting the possibility of capturing the deep identity of a whole class of hypertexts including those I have authored or co-authored (and therefore appending to them an appropriate label *ex post*).

Basically, the leading idea (has been and) is that these hypertexts are not meant to *teach* something, but rather to help users to suspect, guess, and discover something probably unexpected. Let me mention just a few of these opportunities with reference to the most demanding of my hypertexts:

- to participate personally in a sustained exchange with Socrates, with only a vague idea of what the outcome could be, or of how Socrates could react to some unexpected moves made by his new digital interlocutor;
- to make the gratifying discovery that sometimes it would be justified to resist the suggestions of Socrates, and that, despite the prestige of the philosopher and the expectations commonly associated to a computer program as well as to purely logical inferences, it may be justified to resist a number of suggestions openly endorsed by the program, i.e. to discover their unreliability;
- to have, after a long way through an individual Platonic dialogue, the opportunity of concentrating upon quite uncommon lines of thought, as the following one: 'is it conceivable that Plato's philosophy consist, as it seems, of discussions so patently left half done?'

As it may be easy to guess, the envisaged output is not a cognitive one: users do not have to learn something about Plato or Socrates, nor is the hypertext meant to serve as the expansion, or the mere substitute, of a certain paragraph of a chapter or book on Plato. It is much more ambitious: to experience the tenability of normally discarded ideas, to begin to philosophize as you can, and perhaps to help reinforcing your own self-esteem. For this reason it has been deemed advisable to ensure that users experience the practical (not the theoretical) impossibility of repeating exactly the same journey through the hypertext.

That said, let me briefly outline the story of these fifteen years.

2. The very first steps: 1992-1995

As it happens, the leading idea that hypertexts can open the avenue to creative challenges for the mind, and not only supply some structured pieces of information, grew out of a couple of creative hypertexts, both centred on the same Platonic dialogue, the *Euthyphro*, and both going back to the late Eighties. *Labyrinth*, by D. Lachenman (1987), was meant to support an unorthodox exploration of this dialogue, with questions almost impossible to be answered correctly and with a permanent threat: to fall victim of the mythical Minotaur. As you may guess, the aim was to provoke a number of tentative options, and so encourage users undertaking the formation of more or less reasoned conjectures with the possible joy of getting the approval of the Minotaur itself or, much worse, the danger of getting definitely caught by it. So the user, while being apparently asked to prove his/her skill in detecting at every step the expected choice, was provoked by almost unanswerable questions. Just one example:

Consider: Who is the true Daedalus here? Euthyphro who shows his father no respect and seems not to mind that he cannot find his way about in a labyrinth of discussion about how we mortals should act toward the gods and all the sires in between? Or Socrates whose very life is at stake in this discussion? Socrates is Daedalus he is also the Minotaur who at home in the labyrinth is a blasphemous, spirit-devouring consequence of devising Daedalus? Choose an answer:

- Euthyphro is the Daedalus.
- Socrates is the Daedalus.
- Socrates is Daedalus and Minotaur both.

Clearly the compiler did not expect a single answer to emerge clearly as the right one. He rather wanted to make users perplexed, thus reflexive, and much less interested in the right answers than in a better understanding of the complexities lying behind the individual questions at stake. In other words, this has been devised not as a cognitive hypertext, but as a strictly meta-cognitive one. As a matter of fact, its value does not lie in what it is said, but in the unexpected situation into which users are likely to perceive themselves even involuntarily, thus with a sense of surprise. Its value stems from the host of mental journeys users are somehow compelled to undertake. So, one wonders whether anything comparable was already available at the time.

A moment later (1990), another hypertextual *Euthyphro* was authored in the USA: *Dialog1*, by Don Baker, Steve Scott and Padric Daugherty. This time another great idea was at work: users were invited many times to replace Euthyphro, and dare to answer Socrates' questions personally, but not as actors reciting a play, rather as persons free to give their own advice. The basic tools were admirably simple:

1. users were offered a choice between alignment to the answer expected by Socrates and the simple denial of the expected answer, with a Socrates obliged to insist, add further explanations and examples in case of unexpected answers;
2. from time to time, users were offered a challenge, with sentences to be completed, room for a reasonable perplexity and increasing difficulty of the individual task.

This way an important change came to affect the Platonic dialogue itself for this way—and for the very first time—it comes to lose the features of a play and resumes the features of a living event where neither Socrates nor the individual user can properly foresee whether the answer will be 'No' instead of 'Yes' and what would possibly happen. This was dramatically new, I dare to insist. Moreover, it was such as to open wholly new avenues to interactivity

since, the choice of a 'No' option spared the need to foresee an infinitely wide range of options, the idea being that it is, rather, up to the user to attach a definite meaning, or ground, to such a denial of assent. Just note that, sometimes, the denial of assent has the form of a provocative 'Yes' answer, suitable to misplace Socrates himself.

Though seemingly aimed at giving some instruction in formal logic, *Dialog1* had the incredibly creative privilege of literally defrosting a Platonic dialogue and letting users experience the emotion of discussing a topic with Socrates himself while preserving a substantial freedom of thought, i.e. a much greater freedom of thought than that granted by Plato's Socrates to his fictional interlocutors. No precedent at all. I repeat: nothing comparable was known to exist at the time.

While becoming more and more aware of the merits worth being acknowledged to these two diskettes, I quickly decided to set up a small research group, to test them and undertake the preparation of something comparable in Italian. The output in 1995 was, apart from some technical differences, an hypertext ostensibly near to *Dialog1*, a diskette produced with the crucial help of David Lanari, supported by a booklet and combined with (a) a professional book on the same dialogue (with a sustained introduction, translation, 364 footnotes and additional material), (b) another small book meant to serve as a guide for teachers.¹

The basic change I resolved to make into my Italian remake—entitled *Dialoga con Socrate*—was aimed at reinforcing the meta-cognitive potentialities of the original hypertext, and this explains why I found it advisable to support a small 5 ¼ inches diskette with two booklets and a whole book. At the time it was already clear to me that some of the claims made by Socrates in *Dialog1* (and, unfortunately, here and there in the *Euthyphro* itself²) are not really tenable, and therefore remain open to rather solid (and even obvious) objections. Starting from that point, it occurred me to consider that users could possibly appreciate being faced with some disputable passages, and could be gratified in discovering that, sometimes, it would be justified to resist the suggestion of Socrates, and that, despite the prestige of the philosopher and the expectations commonly associated to a computer program as well as to logical inferences, it may be equally justified (or even advisable) to resist certain suggestions of the program. So my remake of *Dialog1* was meant to be much more provocative ('it would be a mistake to adhere to every Socratic claim'), though in an encoded form, and with the support of a read-me type text, especially designed for teachers, where details possibly worth being discarded as unreliable despite their outer appearance, or at least discussed, were conveniently commented upon.

Whatever the value of the output, my aim was to set up an intellectual provocation by means of a mix of reliable and unreliable steps, so that users could seriously consider some 'No' options as more advisable than the corresponding 'Yes' ones (or the reverse) despite—I repeat—the authority of Plato, Socrates, a whole learned tradition, the modern compilers and the seeming force of certain strict deductive moves. In other words, special care was put in preparing situations where the choice between available options could be far from obvious. So, the goal aimed at was not a cognitive one but, as I would say now, a pretty meta-cognitive one³.

3. 1996-2005: In the Meanwhile...

Immediately after this, a *Dialoga con Cartesio* was drafted by other members of the original team, Giovanni Stelli and the same David Lanari, and a demo was produced in 1996. This promising hypertext was marked by a greater degree of cognitive assumptions, and users had something to come to understand, rather than learn. Approximately the same logic inspired another, more demanding, hypertext, *Dialoga con Husserl*, authored in 2000 by a

former student of mine, Enrica Natalini. In both cases there was a lot to understand, an uncommon way of reasoning with which to become familiar, while in our previous *Euthyphro* the issue was rather to take a stance in front of what discussants were prepared to claim. In the meanwhile, some interesting ideas happened to be launched among American specialists in computer sciences and the humanities. George P. Landow distinguished himself as an author able to concentrate upon the novelty represented by non-linear hypertexts. In one of his books, *Hyper/Text/Theory* (Baltimore & London, 1994), he hosted a valuable paper by David Kolb, 'Socrates in the Labyrinth', and Kolb himself authored a hypertext, *Socrates in the Labrinth*, whose aim was to give an idea of the potentialities of a multi-faceted treatment of the same topic. However, both the *Labyrinth* by Daniel Lachenman and *Dialog1* escaped their attention, and the new *Socrates in the Labrinth* proved able to offer some theory without the least hint at such seminal hypertexts, or to Plato and Socrates. Therefore, when I had access to them, the discovery of these features looked rather disappointing.

That said, I will resume my brief narrative by coming back to what was being done in Perugia at that time.

In 1998 a completely different project was being undertaken—an hypertext aimed at the primary school. This new product, jointly authored by Caterina Capuano and myself in 2001, is entitled *Il trenino della fantasia è in partenza per... Perugia*, an imaginary train going to leave for Perugia, a pretext for drawing children's attention to the local services, institutions, authorities and so begin to explore certain aspects of the town where they are supposed to live. This hypertext too is largely metacognitive in character since emphasis is less on what pupils can learn (and perhaps forget a moment later) than on what they can come to understand or connect with the everyday experience (e.g. working experience) of some adults known to them. This way, the interaction was meant to occur not within the artefact but rather between what users could read or see by navigating in our hypertext and a number of real, physical persons as well the real, physical town around them. Moreover, users were encouraged to re-edit individual pages, either by literally erasing some details, or by colouring them, or by modifying texts and other details of the whole, for our hypertext was left open, with easy access to the editing strategies.

In 2005 two further versions of our *Trenino* were authored, one devoted to Rome and another devoted to the villages situated around the lake of Bracciano, some 60 km north of Rome, both with some additional opportunities including the possibility of paying heed to a few pages affected by unmistakeable misprints and in need of a correction, an encouragement to translate at least some words (if not some sentences) into a second language, an encouragement to children of immigrants to enter the equivalent of some names in their parents' language, and so on. As you may come to guess, we do our best in order to avoid suggesting that our *Trenino* is a world: what we wanted to suggest was rather that that young users were invited to look at the real world with the help of an hypertext and make new experiences, including some crucial linguistic ones.

4. A refection of *Dialoga con Socrate* ten years later

While preparing a second and a third *Trenino*, I resolved to prepare, with the assistance of a gifted former student of mine, Alessandro Treggiari, a completely new refection of *Dialoga con Socrate* ten years after its first edition. The output was new not only from the point of view of the software, of course. Let me just mention two of the new features:

- Towards the end of the dialogue, a situation was created in order to suggest that it is

the user who, by now, would like to put some questions instead of being involved only in giving a set of answers. The new situation outlined was designed to open the avenue to a debate where a number of unusual questions could draw users' attention, for example 'one has the impression that this way of philosophizing is rather inconclusive', 'should we seriously assume that Plato's philosophy was so inconclusive?', or 'sure that this Socrates is right, always right?' Once more, the task was not to learn something, but rather (a) to open one's own mind to the idea that the end of a Platonic dialogue is a good opportunity for going on with new lines of exploration of the topic, (b) to enter further reasonable perplexities as to what has been explored.

- A subtitle— *Tentazioni ermeneutiche dissociate*—stresses not only that the hypertext is meant to be interactive, but also describes the whole in rather unfamiliar terms.

As a matter of fact, I have the impression that these last words, dissociated hermeneutical temptations, capture some crucial features of a metacognitive hypertext. Therefore, to comment upon these words is a way of putting to an end my brief retrospective and looking ahead.

Dissociated

You know that links offer the opportunity of establishing a more or less fluid connection with entities (e.g. textual units) each of whom has its own identity, structure, variables, layout etc. To pass from a screen to another via a link may well amount to passing from a world to quite another world. As a consequence, the connection may well be far from univocal, and it may well depend on the user to decide which sense append to it, which associations of ideas to follow, where precisely turn one's own attention.

Hermeneutical

You may well feel yourself involved in the effort at understanding, giving a sense, establishing what something means or may mean.

Temptations

The situation is such as to offer you a number of options, much as if you were walking through a market, with show of a host of well-decorated goods. Each good is tempting. Which ones to buy, even apart of real needs already emerged from a number of potential wishes.

The whole was meant to open the avenue to a rather creative approach to Plato.

5. Looking Ahead

Well, what I have just outlined seems to me the story of a game lost, or almost lost, in favour of pretty cognitive products, but it is a pleasure to see that, for instance, the *Project Archelogos* led by Professor Dory Scaltsas in Edinburgh, as well as the new hypertexts authored by my colleague Nicoletta Natalucci and meant to support progress in Latin and Greek, have in view a prolonged use and an extended rumination on the part of users, much more than immediate consumption. My hope is that teachers will become more and more aware of how important it is to offer metacognitive inputs to their pupils, and not only ascertain that they have access to some cognitions.

Besides, behind teachers there are more general attitudes and ideas, ideas largely shared among scholars as well as in the media industry. Basically, it is the merely cognitive idea of 'informatics for the humanities' which is potentially misleading. For it is the most great potentialities of the hypertextual revolution that, this way, risk to be dispersed if one is contented to supply only immediately consumable goods. In a sense it is a scandal to see how often the logic of supermarkets happens to affirm itself even among students of humanities, even among philosophers.

Bibliography

Lachenman, D. M., *Labyrinth* (Hypertext on floppy, Seton Hill College, Greensburg PA 1987)

Scott, S., Barker, D. & Dougherty, P., *Dialog 1* (Hypertext on floppy, Gonzaga Univ., Spokane WA 1990)

Rossetti, L., "L'Eutifrone di Platone in due recenti rielaborazioni al computer", *Atene e Roma* [Firenze], n.s. 19 (1994), 53-70 [a paper esp. devoted to *Labyrinth* and *Dialog 1*]

Landow, G. P., (ed.), *Hyper/Text/Theory*, (Baltimore MD & London: Johns Hopkins UP, 1994).

Kolb, D., 'Socrates in the Labyrinth', in Landow, G. P., (ed.) *Hyper/Text/Theory*, (Baltimore MD & London: Johns Hopkins UP, 1994), pp. 323-344.

Kolb, D., *Socrates in the Labyrinth: Hypertext, Argument, Philosophy* (Hypertext with booklet), (Eastgate Systems: Watertown MA, 1994).

A list of further titles (hypertexts and writings devoted to hypertexts which I have authored since 1993) are listed at <http://www.rossettiweb.it/livio/>