INTERNATIONAL PLATO SOCIETY

3

DEZ 2003

ISSN 2079-7567
eISSN 2183-4105

Established 1989
http://platosociety.org/

PLATO JOURNAL

Société Platonicienne Internationale

Associazione Internazionale dei Platonisti

Sociedad Internacional de Platonistas

Internationale Platon-Gesellschaft

Report on Archelogos: a Web-based Environment for the Presentation of Ancient Philosophical Arguments.

MASON, Andrew, *in 3. Plato 3 (2003)* ,
[En ligne] , January 2003

The aim of the Archelogos Project is to create, and publish on the World Wide Web, a database of arguments from Ancient Philosophy, and in particular from the works of Plato and Aristotle.

The project is directed from Edinburgh by Professor Theodore Scaltsas, who initiated the project and devised the method for presentation of arguments which is at its heart. A team of postdoctoral and postgraduate researchers in Edinburgh helps to co-ordinate the work of the project, and investigates further developments of the method. Senior researchers throughout the world prepare analyses for inclusion in the database; currently about forty researchers are authoring work for the project. Normally, each author analyses the arguments of a single work by Plato or Aristotle, or a portion of a longer work. The project is funded by Mr George David and the Leventis Foundation.

The project started in 1993, and began to publish analyses in the autumn of 2000. So far, analyses of arguments from eight works have been published:

- Plato, *Charmides*, by Hugh Benson
- Plato, *Gorgias*, by Robin Waterfield
- Plato, *Lysis*, by David Robinson and Fritz-Gregor Herrmann
- Plato, *Theaetetus*, by Timothy Chappell
- Aristotle, *On Generation and Corruption*, by Theodore Scaltsas
- Aristotle, *Metaphysics*, Book VII, by Robert Heinaman
- Aristotle, *Nicomachean Ethics*, Books I-II, by Paula Gottlieb
- Aristotle, *Rhetoric*, Book III, by George Kennedy.

These analyses are accessible at the Project's website, www.archelogos.com, which also includes general information about the Project, and about other projects being developed by the Archelogos team.

The Archelogos database is marked up in XML, and displayed by means of a Java program; both the XML schema and the program were written by Happyworm Ltd. The XML (PhilML) schema has now been adopted as an official XML standard for the representation of arguments.

Each analysis has two major modules. The first is the Arguments and Theses module, which contains the arguments of Plato or Aristotle, as reconstructed by the Archelogos author, displayed according to the Archelogos method. This module normally follows the structure of the original text, being divided into sections which correspond (in Aristotle) to chapters, and (in Plato) to portions of text of similar length to chapters in Aristotle. The second module is the Alternative Interpretations module; in this the author summarises other interpretations of them, which have been given by ancient or modern commentators, criticises those interpretations, where necessary, and explains and defends her own interpretation. Each analysis also includes a bibliography. Ancient texts and translations are not included in the Archelogos database, but links are provided to other sources of texts and translations on the Web.

The Archelogos Method.

The aim of the Archelogos method is to use the power of hypertext to display the structure of arguments in a dynamic and graphic

way.

On entering a section of the Arguments and Theses module, the user first sees a series of headings, showing the overall thematic structure of the chapter or portion of text covered in that section; by clicking on one of these headings she sees one or more propositions which are conclusions of arguments. By clicking on a conclusion, she sees a set of premises supporting that conclusion, displayed beneath it and indented.. 'Premise' is here used in a broad sense, including not only premises of a formal proof, but also informal reasons, explanations, examples used to support a claim, and so on. The general rule is simply that the propositions displayed under a conclusion and indented from it always give it support in some way; the relation represented by indentation is one that could be expressed – intelligibly, even if not always idiomatically – by the word 'because'.

For instance (all examples are taken from Plato's *Timaeus*, for which I am authoring an analysis):
- 1. [The universe has a cause.]
-*1. The universe is generated. (28b7)
-*2. Nothing is generated without a cause. (28a4-6, c2-3)
(Numbering begins anew at each level; the premises supporting a particular claim are numbered consecutively).
Next, by clicking on one of the premises, the user may see further premises which support it; these, once again, are displayed under it and indented.

1. [The universe has a cause.]

- 1. The universe is generated. (28b7)
- 1. [The universe is perceptible and grasped by opinion.]
- 2. Whatever is perceptible and grasped by opinion is generated. (28a2-4, b8-c2)
- 2. Nothing is generated without a cause. (28a4-6, c2-3)

If some of the second-level premises are supported by further premises, these may again be accessed by clicking on the claim they support.

1. [The universe has a cause.]
- 1. The universe is generated. (28b7)
- 1. [The universe is perceptible.]
- 1. The universe is visible and tangible and has body. (28b7-8)
- 2. Whatever is visible and tangible and has body is perceptible. (28b8).
- 2. Whatever is perceptible is generated. (28a2-4, b8-c2)
- 2. Nothing is generated without a cause. (28a4-6, c2-3)

In a complex argument this process may be repeated many times before the whole argument is displayed.

This structure has a number of advantages. First, the process by which the propositions making up an argument are gradually revealed represents, in a dynamic way, the unfolding of the argument; beginning with a conclusion, the user asks how it is supported. When the propositions which give it immediate support are revealed, she may ask how they are supported, and so on. Secondly, once the argument as a whole has been revealed, its structure is shown in a graphic way, with the conclusion at the highest level, the immediate premises below it and indented, and so on; in this way the visual form shows clearly the relations between the various propositions which make it up. Finally, it is possible for the user to explore an argument at different levels of complexity. If, for instance, only the conclusion and the first two levels of premises are displayed, these will make up a relatively simple argument. If further levels of premises are displayed, the argument will become more complex. By displaying only the higher levels one can see at a glance the overall structure of an argument without being distracted by the complexities that emerge when it is explored to a greater depth.

Claims for which premises are offered are underlined, and are initially shown in burgundy (changing to black when the premises are displayed). Claims for which there are no further premises are not underlined, and are always shown in black. This enables the user to see at a glance what parts of the argument have already been explored, and which parts need further exploration.

The form of presentation outlined above is appropriate when a conclusion is supported by a single argument made up of a number of premises. When a conclusion is supported by a number of distinct arguments, these are introduced by capital letters (with the individual premises making up these arguments being introduced by numbers, as before).

1. The universe contains the whole quantity of fire, water, air and earth, leaving no portion of them out. (32c6-8).

- A. If it contains the whole quantity of fire, water, air and earth, it will be as complete as possible and composed of complete parts. (32d1-33e1).
- B. If it contains the whole quantity of fire, water, air and earth, it will be unique. (33e1).

1. Because in that case nothing will be left over from which another universe can be made. (333e1-2).

- C. If it contains the whole quantity of fire, water, earth and air, it will be free from old age and disease. (33e2-3).

1. Old age and disease are caused by heat, cold and other strong powers attacking a body from outside. (33e3-6).

When a proposition is divided into parts or includes a list, the parts or items in the list are introduced by lower-case letters. These items are indented, for clarity in reading, but appear with the proposition to which they belong, and are not concealed. In some cases, different parts of a proposition may have different premises supporting them.

The Alternative Interpretations module is accessed through links from the Arguments and Theses module; each link leads to a comment on the specific argument or proposition from which the link originates. Links may also lead to internal references (when a claim in an argument is supported by premises drawn from elsewhere in the work), to footnotes by the Archelogos author (which may be used, for instance, to acknowledge sources for points in the argument analysis, to comment on textual points or questions of translation), and to Platonic/Aristotelian footnotes (which are discussed below).

Advantages of the Archelogos method.

An Archelogos analysis is not intended to replace the original text on which it is based. Clearly, in the course of an analysis much is lost; some of the literary qualities and rhetorical force of the original; in the case of Platonic dialogues, elements of background and characterisation. What, then, does an Archelogos analysis contribute? Its aim is to make the course of arguments perspicuous, which sometimes they are not in the text, and to resolve uncertainties about how arguments are to be interpreted.

In some cases this will involve changing the language in which the argument is expressed. Authors are free either to stay close to the language of the original text, or to reconstruct the arguments of Plato and Aristotle in their own language. Which option they take will in general depend on how clearly and concisely the argument is presented in the original. In general, Archelogos authors have chosen to stay quite close to the language of Plato and Aristotle.

There are, however, two other ways in which an analysis may add clarity to an argument. The first is by reordering the propositions which make it up. In ordinary, informal presentations of arguments the conclusion may sometimes be stated at the beginning, sometimes at the end, sometimes even in the middle (with some of the supporting claims preceding it, others following); the order in which premises are presented may also vary, leaving it unclear just what supports what. In Archelogos there is a canonical structure for the presentation of arguments, in which the conclusion is always given first, and each premise has a determinate position. Hence, it is often necessary, in reconstructing the argument in Archelogos format, to make decisions about precisely how various claims are related.

This is often particularly difficult in the case of Plato, where an argument is sometimes not stated as such but has to be reconstructed from statements made and questions asked in the course of a dialogue. Aristotelian arguments are often stated more directly and are therefore, at first sight, easier to reconstruct. Indeed, Aristotle frequently presents his arguments in a way that recalls the Archelogos method, stating a conclusion at the beginning of a paragraph and then giving his supporting reasons for it. (On this see Netz, 2001) Nevertheless, Aristotle's seeming clarity, and the closeness of the structure of his arguments to the Archelogos method, can be deceptive; it is still sometimes obscure just how the various propositions relate to one another, and care has to be taken in seeing that the right connections are discerned.

The second way in which an analysis may add clarity to an argument is by supplying premises. Plato's and Aristotle's arguments are often elliptical; sometimes the premises that need to be added are clear, but at other times difficult decisions need to be made about what completion an argument needs. Arguments do not, of course, need always to be shown as valid, or as deductive in form, but they should be shown in such a form as to make it clear how the premises are supposed to support the conclusion. To do this it is sometimes necessary to introduce material not explicitly given in the text. Material introduced from another part of the original author's works is shown in curly brackets : material supplied by the Archelogos author is shown in square brackets [].

1. 'Was' and 'will be' are not appropriately applied to the eternal. (37e4-5).

- 1. 'Was' and 'will be' are changes. (38a2).
- 2. [What is eternal is unchanging.]

It is also worth noting that sometimes a conclusion needs to be supplied; Plato or Aristotle gives what is clearly meant to be an argument, but does not spell out what follows from it. (The first argument from the *Timaeus*, shown above, is an example of this.)

Problems for the Archelogos method.

In the course of development of the Archelogos database, a number of problems and limitations of the method have become apparent. Some of these have been overcome, while others remain as challenges for further developments of the method.

a. The Archelogos method focuses on the relation of support; each proposition, in the basic form of the method, functions either as

a conclusion or as support for a conclusion. However, propositions can be relevant to an argument in other ways, for instance as objections, or responses to objections, as qualifications, definitions (clarifying the sense of a term which features in an argument) and so on. While the concept of support is understood quite generously in Archelogos, not every relevant proposition can be seen as an instance of it.
We have decided to represent these kinds of proposition as follows: objections and replies to them are shown below the proposition to which they relate, and indented; that is they are displayed in the same way as supporting propositions, to which they are in a way analogous. Qualifications, definitions and other kinds of proposition are shown at the same level as the proposition to which they relate. They are always introduced by a relevant heading, in bold: Objection, Qualification, etc. In this way such relations can be accommodated within the Archelogos method; nevertheless the method does not represent them in a graphic way, as it does the relation of support. We are now working on ways of doing this more effectively.

b. A problem arises with the relation between argument and explanation. 'Because' can express either an argumentative relation (introducing reasons for thinking that something is the case) or an explanatory relation (introducing reasons why something is in fact the case). Often the same considerations serve at once as an argument and an explanation, but this is not always so; in fact, sometimes argument and explanation move in opposite directions. For instance one might claim that we believe that each body moves towards its like because (argumentative) earth falls and fire rises; but earth falls and fire rises because (explanatory) each body moves towards its like.
The Archelogos method can be used to represent explanations as well as arguments; indeed, many passages in the *Timaeus* in which reasons for some fact are given are explanatory rather than argumentative in force (though it is sometimes hard to tell the two apart), and in my analysis these are displayed in Archelogos format. However, the question arises whether a distinction should be drawn between argument and explanation, and how it might be represented graphically.

c. The order of presentation sometimes gives rise to problems. In Archelogos, the conclusion is always stated first and followed by the premises which support it; this is often a natural way of presenting an argument, even when it is not followed in the original text, and it helps to make the logical structure of the argument clear. However, in some cases it causes difficulty.
First, an argument may sometimes cover a very large block of text – indeed, arguably, in some cases a whole work may be seen as arguing for a particular conclusion. In such cases, strictly following the format would involve massive rearrangement, with the result that the order of the analysis could not even roughly follow the order of the text. Such an argument might also be hard to follow; Netz (2001) argues that it is hard to focus at once on a lengthy and complex argument and on the conclusion (and for this reason the arguments which Aristotle presents in this style are normally quite short). The graphic form in which the argument is presented and the unfolding levels may help to overcome this problem to some degree; nevertheless there remains a difficulty in following steps of an argument which are very far removed form the conclusion.
Secondly, there may be cases where a conclusion could not be fully understood with out information supplied in the premises that lead up to it; these therefore have to be stated first.
Finally, there are cases where a very important claim serves as a premise in arguments for further claims; this includes cases where an important conclusion is drawn, and corollaries are then drawn from it. If the method were followed strictly, the major conclusion would be represented as a premise for the claims which followed from it, with the result that it would not be shown at the top level, and its importance would be concealed.
In all these cases, the solution adopted is to show the premise first, as a top-level proposition, and then give the conclusion, and support it by a backward reference to the premise.

A similar problem arises when some remark is made in the course of an argument which does not actually contribute to the structure of that argument, but is nevertheless important for understanding Plato's or Aristotle's thought about the subject in question (and may itself contain further arguments). There is no way of fitting this into the main structure of the analysis, since it is neither a conclusion nor a premise. Since this is the kind of information which a modern author might give in a footnote, we have introduced the idea of a Platonic/Aristotelian footnote, by which this information is taken out of the main argument analysis and displayed in a separate frame.

These problems arise because of a tension between two aspects of the Archelogos method; on the one hand it is a method of representing the abstract structure of arguments; on the other it is also a method of exposition, which presents information to the user in a specific order so as to enhance her understanding. For this purpose it needs to be psychologically effective. The original authors, not being subject to abstract structural constraints, could always present material in the most psychologically effective way; we are able to vary their order of presentation to some extent, sometimes increasing clarity by doing so, but if it is done without limit clarity may be lost. (Tensions between the logical aspects of the method, and psychological considerations regarding the flow of the argument, have been recognised from an early stage in the development of the project; they are discussed in Scaltsas 1998.)

d. The Archelogos method presents an argument as a static structure of propositions; a conclusion, and reasons for accepting that conclusion. This is a legitimate conception of argument; many arguments found in Plato and Aristotle can be represented in this way, and even in arguments (particularly in Plato) which have a more dynamic aspect, structures of this kind can be extracted from them.

Successful analyses of Platonic dialogues have been written, including highly dramatic works such as the *Charmides*, *Lysis* and *Gorgias.* Nevertheless, in such analyses some aspects of the work are liable to be lost; not only stylistic features and matters of background and characterisation, but also features relevant to the work as argument; for instance the way in which it may exploit the particular attitudes and reactions of participants, or the way in which views may change in the course of a debate.

The method also cannot represent the distinctive way in which items other than propositions – in particular, questions – can contribute to an argument. Questions have to be recast as propositions. Normally this is quite easy to do; ordinary questions can be introduced by 'We must ask whether….'; rhetorical questions like 'How can you suppose….' can be changed to 'One cannot suppose….'. Yet something may be lost in these transformations.

Further developments.

In addition to Archelogos itself, the team is engaged in a number of other projects which aim to develop the presentation of arguments in new directions.

The first project developed by the team was LogAnalysis, an educational application of the Archelogos method; the centrepiece of this was an analysis of the arguments of Plato's *Protagoras* by Antony Hatzistavrou, who was also co-ordinator of the project. This used a method for the presentation of arguments similar to that of Archelogos, but its educational effectiveness was enhanced by placing it in a multimedia environment, which also included texts and translations, a presentation of some major themes in dialogical form, exercises testing the user's comprehension of the material, and a 'Cultural Archive' presenting, in text, images, and sounds, the cultural background to Plato's work. This material is presented on a compact disc, which has now been published in Greece.

More recent projects involve new methods for presenting arguments. Project Elenchos focuses, not on a text, but on an abstract theme, the justification of democracy, presenting arguments in support of democracy from various sources. The central module, also written by Antony Hatzistavrou, displays these arguments in a tree structure; this makes the structure of the argument clear in a particularly graphic way, and allows for graphic forms of representation for objections and clarifications. This mode of presentation seems especially suited to abstract arguments, where the amount of material being presented is smaller than in an Archelogos analysis, and where exposition does not need to follow the order of a text.

We are now working on the representation of arguments at a level between those of Archelogos and Elenchos; the aim is to present the arguments of a particular thinker, but in a way that allows the whole of his thought (perhaps on a specific topic) to be presented, rather than closely following a text. We hope, in doing this, to integrate the Archelogos and Elenchos methods of presentation so as to combine their advantages. This aim is currently being pursued in Project Technosophia, on the philosophy of art in Plato and Aristotle, under my direction. A project on the philosophy of Socrates is also being planned.

A different line of development is the production of an interactive dialogue, enabling the user to enter into a debate with the computer, thus introducing a dynamic form of argument not present in Archelogos. Such a dialogue, devised by Antony Hatzistavrou and Burkhard Schaefer, was included in the Elenchos project.

Finally, Project Gnosiogenesis is a new development for the Archelogos team; it uses Artificial Intelligence techniques to generate new arguments from a knowledge base of propositions; in the first instance this will be concerned with Plato's theory of Forms. The project is being conducted by Theodore Scaltsas and Anna Marmodoro, from the Archelogos team, along with a group of researchers at King's College London, led by Dov Gabbay.

It is hoped that this project will enable users to discover new and interesting implications of a philosophical theory. It differs from earlier projects in that, in order to derive new implications from a theory, it is necessary to consider the logical relations between propositions. In Archelogos, our aim was to present an argument as understood by the original author; if he offers P as a justification for Q, it is represented as such, whether or not it actually entails Q (as it may not, either because the argument is not cogent or because it is not deductive in form). By contrast, in Gnosiogenesis P can only act as a justification for Q if it entails Q according to recognised logical rules; for this reason, philosophical propositions are encoded in the computer language ProLog, while in all earlier projects they have been presented in natural language, only the relations between them being encoded (in ProLog or XML).

In this way the Archelogos team is exploring many aspects of argument in the context of Ancient Philosophy. Our long-term aim is to integrate these methods into a unified environment for the presentation of ancient philosophical ideas and reasoning.

ANDREW MASON
University of Edinburgh
UK

bibiographie

NETZ, R., 'On the Aristotelian Paragraph', *Proceedings of the Cambridge Philological Society* 47, 2001, 211-31.

SCALTSAS, T., 'Representation of Philosophical Argumentation', in T. BYNUM and J. MOOR, eds., *The Digital Phoenix: How Computers are Changing Philosophy*, Oxford, 1998, 79-92.