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### PATTERNS OF THOUGHT

We have no system from ancient China comparable to Aristotelian logic or any other such system developed in the ancient Mediterranean world, but it cannot be said that the Confucian -era texts do not show that their authors were concerned to make cogent arguments—if not "arguments" in the strictly Western logical sense. We explore a way that might have satisfied the goal of presenting reasoned cases by analyzing a sample from a text known as the Da Xue (the Way of Great Learning), one of the five Confucian Classics. The Confucian Classics, especially the Da Xue, were roughly contemporary with the origins of Greek logical thought. This being so, they offer good examples of sophisticated, well-thought-out philosophical texts which were not subjected to Greek logical processes. The reader should be cautioned that we are not saying that this or any other classical Chinese text is illogical; we describe what we mean when we say that these texts exhibit a non-logical reasoning system. We assume that the Chinese author did not mimic other texts or oral statements without considerable thought. The text, which shows no non-Chinese influence, is heavily patterned. We contend that the patterns in the text are more than literary devices, but demonstrate non-Western reasoning.

KEY WORDS: reasoning, patterns, syllogism, non-Western reasoning, logic, form, systems of thought, Chinese culture.

#### Introduction

When scholars have looked at ancient Chinese texts to determine whether the ancient Chinese developed a system of logic like the ones developed in the West, the scholars looked for structures similar to those found in Western logic, such as the categorical

syllogism<sup>1</sup> or the modus ponens. For example, Graham<sup>2</sup> saw a "quasi-syllogism"

Aristotle described more types of reasoning than the syllogism, but the discussion of the syllogism is the most comprehensive in the surviving texts. The syllogism is also the type of reasoning most often used to compare to ancient Chinese reasoning.

<sup>&</sup>lt;sup>2</sup> Graham 1995: 29.

in certain Chinese texts. The notion of a quasi-syllogism is not satisfying. The categorical syllogism as developed by Aristotle depends on a strict form to demonstrate the validity of an argument (syllogism). For an argument to be called a syllogism<sup>3</sup>, it must be in the strict, syllogistic form. Does a quasi-syllogism, then, have a "quasi-form," which, we suppose, leads to a quasi-reliable demonstration of validity or quasi-validity? If a scholar claims that the ancient Chinese developed a system of logic identical to that developed in contemporary Greece, the Chinese argument must meet the requirements of the Greek system. The ancient Chinese did not develop a version of the categorical syllogism or modus ponens, despite the efforts of the Mohists<sup>4</sup>.

We refer to Chinese "reasoning" rather than Chinese "logic." For us, a hallmark of "logic" is that it is a *system* of thought, not

a collection of loosely related bits. Aristotle's systematization of thought usually goes unappreciated. In the Chinese texts that we have read, we cannot find a *system* of reasoning, certainly not an expressed one. Rather than looking for a system of logic, we wish to look for examples of reasoning<sup>6</sup>.

Let us look at the Western logical notion of form. Form is expressed by a pattern<sup>7</sup> which causes validity by directing the flow of implication and displays validity by being highly artificial and obvious. Form permits a determination of the validity of a deductive argument by inspection, and reduces reliance on the contents of the argument, allowing a logician to emphasize structure as a determinant of acceptability. Reasoning about patterns of thought is the essence of logic.

Scholars who have compared Greek logic and Chinese reasoning have spent less time on answering the question of how the ancient Chinese actually reasoned than on displaying their version of ways to change Chinese texts into Greek logical arguments. If we only go this far with our studies, we beg the question of whether or how the ancient Chinese thought about the world in a rigorous way. We need not insist that members of one culture reason in the same way as members of another culture, or, to put it another way, that reasoning is culture-bound or that logic is universal to all cultures<sup>8</sup>.

<sup>&</sup>lt;sup>3</sup> In this paper, we will primarily discuss the *demonstration* which Aristotle claimed led to "scientific knowledge," i.e., certainty about the world. This is the type of syllogism referred to in modern logic texts and is the major topic of Aristotle's *Prior* and *Posterior Analytics* 

<sup>&</sup>lt;sup>4</sup> This is contrary to what Cikoski claims (1975: 325). He quotes the English translation of a passage from the Lü Shih Chun Chiu and goes so far as to label what he considers to be the *major term* (apparently, he means "major premiss"), the *minor term* (the "minor premiss"), and the conclusion. His claim, for which he quotes this passage, is: "It is generally known that prepositional logic was developed in late Chou China to roughly the same state as it was in ancient Greece." Unless we do significant editing to his three statements, any syllogism that he proposes is flawed because it has more than three terms (here *term* is used in the Aristotelian sense and not in Cikoski's). See the discussion of syllogistic form later in this paper.

<sup>&</sup>lt;sup>5</sup> Aristotle's definition of reasoning is: "Reasoning is a discussion in which, certain things having been laid down, something other than these things necessarily results through them" (*Topica* 100 a 25). It should be noted that Aristotle's word for reasoning is  $\sigma \nu \lambda \lambda \rho \gamma \iota \sigma \mu \sigma \zeta$  (syllogismos), from which we derive the word "syllogism." Rather than being a general word, as for Aristotle, for us "syllogism" refers to a specific form of reasoning.

<sup>&</sup>lt;sup>6</sup> For the purposes of this paper, the difference between "reasoning" and a "system of logic" is that "reasoning" can be rigorous, like logical thought, but is unsystematized.

<sup>&</sup>lt;sup>7</sup> Of course, not all patterns represent logical forms.

<sup>&</sup>lt;sup>8</sup> It is also unnecessary that contemporary cultures must reason in the same way *because they are contemporary*, although this seems to be assumed by many

### Form as Pattern

The form of a syllogism is a pattern<sup>9</sup>. Each of the four parts of a standard-form categorical proposition is a "slot" into which certain types of language can be placed. Some slots (the quantifier slot and the copula slot) can only be filled by a very small number of words or phrases. Furthermore, the slots appear in a certain order. A statement that in any way violates that order (quantifier term<sub>x</sub> copula term<sub>y</sub>) invalidates the syllogism. Anyone who knows the form knows how to construct the form. Exactly three statements in the above form must be used:

quantifier  $\operatorname{term}_{x}$  copula  $\operatorname{term}_{y}$  quantifier  $\operatorname{term}_{z}$  copula  $\operatorname{term}_{a}$  quantifier  $\operatorname{term}_{b}$  copula  $\operatorname{term}_{c}$ 

The word *therefore* might appear before the last statement (the conclusion), but this is not strictly necessary<sup>10</sup>. Syllogistic form restricts the semantics of the various terms by requiring that the semantic content in each term be exactly duplicated; exactly three semantically different terms are required. The formal analysis requires that one term be used twice in the premisses (the first two statements), once in each premiss. This is the middle term, the term about which we know the most<sup>11</sup>. Although Aristotelian reasoning uses words much more extensively than modern symbolic

scholars. Of course, it is useful to compare one culture with another contemporary culture to show that something was possible under certain historical conditions. All we are saying is that, given two cultures, C and G, which are contemporaries, if G does x, it is not logically or temporally necessary for C to have done x as well.

- <sup>9</sup> We will not lay out Aristotle's system. The interested reader should consult any textbook in logic, or the References.
- <sup>10</sup> When a proposition is placed last, we already know that it is intended to be the conclusion.
- We know how the middle term relates to the other two terms. The conclusion will tell us how the two non-middle terms relate to each other.

logics, we should not confuse Aristotelian reasoning with "natural language" reasoning. The difference is the requirement that a certain strict pattern be used to express the contents of the argument.

### Patterns in Reasoning

Patterns can be and have been used as stylistic devices in literature. We must try to distinguish this use from a pattern's possible use as an aid to reasoning. First, let us look at a familiar pattern in literature, often erroneously ascribed to Shakespeare but actually from Benjamin Franklin's *Poor Richard's Almanac*:

For the want of a nail the shoe was lost,
For the want of a shoe the horse was lost,
For the want of a horse the rider was lost,
For the want of a rider the battle was lost,
For the want of a battle the kingdom was lost—
And all for the want of a horseshoe nail.
Each line except the last fits into the same pattern:

For the want of a(n) x the y was lost However, there is a larger overall pattern. To make it clearer, we will use letters, starting with A, to represent nouns. A particular variable appears everywhere its noun substitute appears:

For the want of an A the B was lost,
For the want of a B the C was lost,
For the want of a C the D was lost,
For the want of a D the E was lost,
For the want of an E the F was lost—
And all for the want of an A.

B is the consequence of the absence of A; C is the consequence of the absence of B; etc. Franklin shows that small things (the want of a nail) can have significant, unintended, and harmful consequences: the kingdom was lost. The last sentence admonishes the reader to attend to the little things,

like missing horseshoe nails. The last sentence is a reiteration of the "first cause," *for the want of a nail*. This passage, which we shall call "Franklin's nail" for convenience, has no quantifiers and uses verbs other than the standard copulae. Each line, except the last, consists of two phrases:

- 1. For the want of an x
- 2. the y was lost.

It is a close question whether each line, except for the last, contains an immediate inference or a simple yet forceful assertion. There is little doubt that, in Franklin's mind, there is a cause and effect stated in each line, with the first clause stating the cause and the second stating the effect. Franklin shows the build-up of effects so that, by the penultimate line, a large effect has arisen from a small cause<sup>12</sup>.

Is Franklin's nail a proof in the sense that a valid standard-form syllogism is a proof? That there are more than three lines does not automatically exclude the possibility, since Aristotle admitted that syllogisms could be "chained together" to form longer proofs (the *sorites*). They, too, have strict rules, one of which is that the components must be in syllogistic form. The components of Franklin's nail are not in syllogistic form.

We thus encounter a temptation confronted by many sinologists. Franklin's nail is not in standard syllogistic form, although we might be willing to concede, for the sake of argument<sup>13</sup>, that it is categorically

syllogistic-like. It is generally permissible to restructure a natural language passage so that its argument is clearer, but it is not permissible to change the author's original meaning. If we tortured Franklin's nail enough, we could probably reduce it to a series of categorical syllogisms or even to a sorites—but would it still be Franklin's nail?

One result of reducing Franklin's nail to categorical syllogistic form would be to destroy its rhythm. The rhythm exists independently from the content of the structure. Substitute any single words with the same number of syllables and in the same places as in the original for the variables above, and the rhythm stays the same even though the semantic content of Franklin's nail may disappear into nonsense. Franklin's nail gives us a view into an "informal form," i.e., a pattern as a type of reasoning. Why shouldn't Franklin's nail be said to have a form rather than a pattern? A form not only displays a chain of inference, but actually creates one. A form is a chain of inference. Any true statements properly placed into a valid deductive form produce a valid deductive argument (syllogism). The same cannot be said for a pattern. Inference exists in a valid categorical syllogistic form independent of the contents of the propositions<sup>14</sup>.

Categorical syllogisms are not the only types of syllogisms recognized by modern logicians. The statements in Franklin's nail are evocative of a form known as

<sup>&</sup>lt;sup>12</sup> We will not discuss the possibility of self-similarity in the sense of the new fields of chaos studies and fractal geometry. That we may only see the causes retrospectively and not prospectively is also reminiscent of self-similarity. For a more comprehensive view of self-similarity, the reader should look at the considerable literature on the subject. One useful text is Schroeder (2000).

<sup>&</sup>lt;sup>13</sup> We do not make this concession other than for illustrative purposes.

<sup>&</sup>lt;sup>14</sup> That is, given that the three propositions are true and in standard form, once they are properly placed into a valid syllogistic form (containing a major premiss, a minor premiss, and a conclusion), a valid syllogistic argument occurs. Validity does not depend on the semantics of the propositions, only in their relations to other properly formed propositions.

the *Pure Hypothetical Syllogism*. The traditional form of a Pure Hypothetical Syllogism is:

 $\begin{array}{c} p \supset q \\ \underline{r} \supset \underline{r} \\ r \supset q \end{array}$ 

The structures of the Pure Hypothetical Syllogism and Franklin's nail are similar. On closer examination, we raise some objections to Franklin's nail's being a Pure Hypothetical Syllogism. A hypothetical statement, like  $p \supset q$  (if p then q), says that if p exists now then q also exists now. The statements in Franklin's nail say that, on some occasion, if a (horse)shoe is lost, it is or might be because a (horseshoe) nail is missing. The traditional if/then statement asserts a necessary condition<sup>15</sup>. In Franklin's nail, the condition is not necessary; at best, it is probable. Assuming that a horseshoe is attached to a horse's hoof with five nails, and one nail works lose and drops off the shoe, is it necessary that the shoe will come off? Probably not. If the shoe does come off, will the horse be lost? Horses in their natural state do not have horseshoes and seem to get along perfectly well. We may similarly question the necessity of every other statement in Franklin's nail. On the other hand, is it possible that this chain of events might occur? There is nothing inherently implausible about it. If this chain of events occurred, we could see the importance of a minor act, such as making sure that every horseshoe nail was inserted properly. Franklin does not argue that a lost horseshoe nail inevitably

leads to the loss of a kingdom. We place Franklin's nail into something like modern conditional form, once again using our letters:

~A ⊃ ~B

~B ⊃ ~C

~C ⊃ ~D

~D ⊃ ~E

<u>~E ⊃ ~F</u>

~A ⊃ ~F

This is longer than a Pure Hypothetical Syllogism and approaches a Pure Hypothetical Sorites<sup>16</sup>. The extended argument still incorporates necessity and, furthermore, expresses all terms in the negative. This is potentially troublesome. Restating this with positive terms leaves us no better off, because now we have a series of necessary relationships. Franklin claims that these statements could, at some time, be necessary. His advice—to pay attention to apparently little things—has force, because we do not know when underlying events will make these relations logically necessary. We cannot foresee F from A. This is a major and important difference between Franklin's nail and a Pure Hypothetical Syllogism or Sorites. Necessary relations are necessary beforehand, i.e., if  $p \supset q$  necessarily, then once p exists, it is inevitable, hence foreseeable, that q also exists.

Franklin's nail confronts us with an unusual and, we contend, "extra-logical" problem. When we construct a relation in  $p \supset q$  form, we claim to know, beforehand, that the relation is necessary<sup>17</sup>. To claim that

<sup>&</sup>lt;sup>15</sup> Western logic uses statements that can be verified. To be verifiable, the statements must assert something that exists in the present or in the past. Deductive logic cannot adequately deal with future statements. Aristotle recognized this.

<sup>&</sup>lt;sup>16</sup> We have not actually found any reference to there being such a thing as a Pure Hypothetical Sorites, but the length of Franklin's nail suggests something longer than the traditional Pure Hypothetical Syllogism which involves only three terms.

<sup>&</sup>lt;sup>17</sup> An otherwise-acceptable argument may collapse because the relation expressed in a necessary statement is, in fact, not necessary.

Franklin's nail is a proof in Pure Hypothetical Syllogistic (or Sorites) form, we would have to construct necessary statements—yet we cannot do so. The best we can say is that we can prove F from A if all of the relations are necessary. As an example, let us use the first statement and say that  $A = lost\ nail$  and  $B = lost\ shoe$ . We will not use standard notation but write the argument out in words.

If A and if A is a necessary and sufficient condition for B then B

Α

A is a necessary and sufficient condition for B

В

So, in order for Franklin's nail to be a proof, it must have this structure:

If A and if A is a necessary and sufficient condition for B then B

If B and if B is a necessary and sufficient condition for C then C

If C and if C is a necessary and sufficient condition for D then D

If D and if D is a necessary and sufficient condition for E then E

If E and if E is a necessary and sufficient condition for F then F

Once we think of assessing the embedded *if* clause in each statement, we realize that Franklin's nail can only be assessed historically, i.e., after the fact. Any such assessment must be done outside a system of logic, through an appeal to historical facts. If we must make a historical analysis to see whether an argument is, in fact, an argument at all, we have moved beyond logic. If, historically, an event prevents the embedded "if" clause of a statement from becoming true, we do not have an invalid argument; we do not have an argument *at all*. Franklin's nail cannot be assessed either before the chain of events described in the

five statements or while they are occurring. We must wait until the chain of events has concluded. A Western logical argument exists outside of time. Franklin's nail must consider time, i.e., it exists within time. A Western logical argument can produce certainty; Franklin's nail can only produce advice beforehand because we *cannot* foresee whether the statements describe necessary relations before they occur. Yet, we know that, if the conditions are just right (necessary), then the loss of a horseshoe nail can begin a chain of events leading to the downfall of a kingdom.

Is Franklin's nail a logical argument? It comes close to the standard but does not quite meet it, in part because of its temporal requirements. The other issues about structure may be resolved, but the matter of temporality cannot, until it resolves itself outside of the thought pattern. There is one remaining issue on which we have only briefly touched: the purpose of Franklin's nail. The first five lines are argument-like; the last line brings us to Franklin's admonition<sup>18</sup> to attend to small affairs. The purpose of Franklin's nail is to mold the behavior of another; in a loose sense, the purpose is ethical. The first five lines provide support for the admonition. The admonition can be accepted or ignored, as the reader wishes. Ignoring the admonition may lead to consequences; in a sense, the first five lines are a pre-emptive "I told you so." A logical argument, on the other hand, is not ethical<sup>19</sup>. Certainly, logical arguments

<sup>&</sup>lt;sup>18</sup> The admonition is unstated in the text that we have reproduced. If you wish, it is enthemematically expressed.

<sup>&</sup>lt;sup>19</sup> Aristotle recognized this difference, going so far as to say that what made a "sophist" (for Aristotle, a dishonorable title) was his use of logic or dialectic for a "moral" purpose, rather than simply to investigate the world. That rhetoricians had moral purposes did not give him problems; see *Rhetoric* I. i. 14.

can be used to support ethical positions. A logical argument does not provide advice; it is philosophically neutral. Any ethical claim must be made *outside* logic. Modern logicians have demonstrated that words, the foundations of every other philosophical and scientific endeavor, are not necessary to prove the validity of an argument. Franklin's nail could not exist and be as compelling if it were reduced to mere form.

Franklin's nail, then, is something "extra-logical." It does not prove a point; it provides support for an ethical position in a structured way. By saying that Franklin's nail is not a logical argument, we should not dismiss it as a form of reasoning. By saying that Franklin's nail is non-logical, we are not saying that it is illogical. Its structure is no accident. The six sentences of Franklin's nail are not just random utterances. They cannot be shuffled around nor can the terms, represented by the letters, be arranged in any other order. Any rearrangement leads to confusion and reduces the force of the text. This is an example of reasoning that exists alongside the strict limits of Western logic. We have become so enamored of the power of logic that we unconsciously think that logic is the only way to think properly.

### **Patterns in Chinese Texts**

By *pattern*, we mean a series of at least two and usually more characters which repeat at least once in close proximity to each other in such a way that some characters stay the same and some change from repetition to repetition<sup>20</sup>. Franklin's nail displays patterns

that fit this working definition. We looked for patterns in the classical Chinese without reference to any translation, whether into modern Chinese simplified characters or into English. Most texts to which we have access are printed in one of two forms: either traditional vertical arrangements of characters, or in continuous left-to-right sentences and paragraphs. These styles of printing make pattern identification difficult. In our preliminary examination of a number of texts, it appears that whatever patterns may exist in Chinese texts exist on the clause rather than the sentence level, except where the clause and the sentence are one<sup>21</sup>. Many classical Chinese texts do not contain patterned passages. We argue that patterns, as we have tentatively described them, are significant features of some classical Chinese texts and, for reasons already stated and others yet to come, that patterned passages deserve further examination by sinologists as significant components of ancient Chinese thought and expression.

### A Text from the Da Xue 大学

We next consider the English translation of the excerpt from the *Da Xue* 大学 (the *Way of Great Learning*). In order to make the pattern *in the English* more obvious, we have broken the continuous text into a series of shorter lines. For further convenience, we have numbered the segments<sup>22</sup>.

1. The way of the great learning is to rid

<sup>&</sup>lt;sup>20</sup> At our current state of research, we have not examined possible patterns based on sound rather than orthography. We have not yet analyzed the grammar of the patterns that we have observed. We have observed texts with patterns that are different than the pattern in the *Da Xue* excerpt that we examine in this paper.

<sup>21</sup> We will not discuss whether "clause" or "sentence" existed in the same way during the time when the texts were authored. When we refer to "clause" or "sentence," we mean what modern punctuated texts make into clauses and sentences.

<sup>&</sup>lt;sup>22</sup> The Chinese text, broken down in a similar fashion, appears in the Appendix.

- oneself of selfish desires and develop further one's inherent virtues.
- One should not only develop his own inherent virtues further, but should encourage all persons to do so also.
- 3. Only then is it possible to reach the acme of perfection.
- 4. Once the acme of perfection is attained, is a man able to set the orientation of his ambitions.
- 5. After setting his orientation, he will not waver in his ambition and will be satisfied with his position.
- 6. Satisfied with his position, he can ponder well.
- 7. Being able to ponder well, he will be able to achieve all he wants.
- 8. All things have their important and unimportant aspects;
- 9. all events have their start and finish
- 10. If one knows the order of priority, he is not far from the way of the great learning.
- 11. In ancient times, one who intended to carry forward all the inherent virtues in the world and rid them of material desires had to first rule his state well.
- 12. To rule his state well, he had first to educate his family.
- 13. To educate his family, he had first to cultivate himself.
- 14. To cultivate himself, he had first to set his heart right.
- 15. To set his heart right, he had first to be sincere and honest.
- 16. To be sincere and honest, he had first to perfect his knowledge
- 17. and the perfection of his knowledge depended on his investigation of things.

- 18. It is only when one is able to investigate things that knowledge can be perfected.
- It is only when one's knowledge is perfect that one can be sincere and honest.
- 20. It is only when one can be honest and sincere that he can set his heart right.
- 21. It is only when the heart is set right that a man can educate his family.
- 22. It is only when his family is educated that he can rule the state.
- 23. It is only when the state is ruled that the world can be governed well.
- 24. From emperor to the common people, self-cultivation is the base.
- 25. If the base is in disorder, is it possible to rule well the state which is at the end of the order of priority?
- 26. No, it is impossible.
- 27. It is not right to take what is unimportant as important and vice versa<sup>23</sup>.

This extended excerpt follows Zhu Xi's introduction in which he claims that the Da Xue is a book for novices who aspire to be virtuous. Only through this book were we able to know our forefathers' order of learning. A reading of segments 1–27 shows clearly that the author of the Da Xue was very concerned to describe the order of learning in detail, and wanted to convince the reader why this was the correct order. Let us call this passage "the Way of Great Learning" for convenience. Unlike Franklin's nail, the Way of Great Learning contains several patterns which, together, form a larger "argument." We divide up the

<sup>&</sup>lt;sup>23</sup> The Great Learning – The Doctrine of the Mean, 1996: 5–7.

<sup>24</sup> Ibid.: 2.

patterns for ease of discussion. The segment numbers refer to the segments in the Chinese text reproduced in the Appendix.

## The First Pattern: Segments 4–8

The first two segments state the author's claim that great learning (or, rather, the Way of Great Learning 大学之道) demands a special internal state and that, besides developing one's own "inherent virtues" 在明明德 zai ming ming de, one should encourage others to do so as well 在新民 zai xin min. These two segments are a translation of the 16 characters<sup>25</sup> of the first sentence<sup>26</sup>. This Chinese text does not contain any obvious pattern.

Next, the Chinese text has five short sentences. According to segment 3, it is only when these two goals are accomplished that one can expect to reach the "acme of perfection" 知止而后<sup>27</sup>有定 zhi zhi er hou you ding. In the Chinese, this sentence sets up the pattern that follows. Look at characters three to six: 而后有定 ér hòu vòu ding. 而 and 后 form the first two-thirds of the central portion of the pattern that appears in the next four sentences. 有 is replaced by 能 néng; the central portion of the pattern becomes 而后能 ér hòu néng. The last character in this sentence, 定 ding, is also the first character of the next sentence. The last character in the next sentence, 静 jing, repeats as the first character of the subsequent sentence, and so on until the last sentence in this group. Let us designate the first character of a sentence which repeats from the last character of the previous sentence as *yx* and the last character of a sentence which repeats in the first character of the subsequent sentence as *zy*. We have the pattern:

yx而后能zy

This pattern repeats for four sentences and then ends. We see this in segments 4 through 7. Note that in segment 8, *zy*得*de* from segment 7 does not repeat as the first character.

## The Second Pattern: Segments 9–13

The Chinese text next has two lengthy sentences, translated in segments 8 through 11. The final clause in the second sentence, segment 11<sup>28</sup>, contains four characters, the final three of which—治其国 zhi qi guo set up the patterns that follow. The pattern continues over the next five sentences, segments 12 through 16; the translation is not exactly literal. This pattern is complex, using two clauses. The first clause of a two-clause group has four characters, and the second has five. The first character of a four-character group is 先 *xian*; the first character of a five-character group is 欲 yu. The third character of both groups is otin qi. The fifth character of a five-character group is 者 zhe. The other two characters of both groups are the same, so the two-clause pattern becomes:

> 先char1其char2 欲char1其char2者

<sup>25</sup> 大学之道, 在明明德, 在新艮, 在止於至善

<sup>&</sup>lt;sup>26</sup> The Great Learning, 1996: 3. References to "sentences" or "clauses" should be understood as references to the modern printed version and not to any reconstruction of the original text.

<sup>27</sup> This character for *hou* appears in Legge but not in the version of the大学 we mention in the bibliography. This character is more accessible to our word processor than other versions. The use of different characters does not, in any way, affect our line of reasoning.

 $<sup>^{28}</sup>$  In many Chinese texts, and we believe in this one, the phrase 天下 $tian\ xia$  (all under heaven, the empire) is often opposed to 国guo, kingdom. We believe that the author means to make this opposition here.

The five-sentence group that uses this pattern ends with the clause 先致其知 xian zhi qi zhi.

## The Third Pattern: Segments 24–26

A curious little three-clause group follows, in which the first and last clauses have only two characters. The first clause consists of the two "non-fixed" characters of the previous clause. Using the last clause of the second pattern, we have:

先致其知 致知

A three-character clause followed by a two-character clause comes next. This pattern is different from what we have seen before. The third pattern may be a transitional pattern of sorts; the last clause may actually belong to the previous pattern. Our description of this three-clause group should, therefore, be seen as provisional. The first character of the three-character clause, 在格物 zai ge wu, is missing from the second clause. The remaining two characters of the three-character clause are identical with those in the two-character clause, they have exchanged their positions:

在格物 物格

## The Fourth Pattern: Segments 27–33

According to the printed text, the first clause is the final clause in a sentence that begins with the first two-character clause. A similar reversal of characters occurs in the next two clauses. The first clause is a four-character clause; the second is a six-character clause:

### 而后知至 知至而后意诚

Instead of two characters exchanging places, two two-character groups change places: 而后 *er hou* trades places with 知至 *zhi zhi*. The text is followed by four six-character and one seven-character clauses. In all of these clauses, the two-character group 而后 *er hou* forms the center of the clause, and occurs in the seven-character clause as characters number three and four. In a pattern reminiscent of the first pattern, the last two characters of one clause become the first two characters of the subsequent clause. As an example, we may take the final clause followed by its immediate next clause:

## 知至而后意诚意诚而后心正

In the seven-character clause that ends this group, 国治而后天下平 guo zhi er hou tian xia ping, we see the phrase 天下 tian xia opposed to the character **B** guo. If we consider 天下 to be one word, then this is a six-character clause like the ones immediately before it. The opposition of 国 and 天下 mirrors the opposition established by the same characters earlier in the passage<sup>29</sup>. These oppositions bracket patterns two, three, and four, further directing our attention to the arguments contained in those sections. Finally, the last character in the seven-character clause, 平 ping, puts an emphatic end to these groups, appearing nowhere else in our passage.

## The Fifth Pattern: Segments 39–40

The fifth pattern is brief, containing but two clauses, and embedded in some non-

<sup>&</sup>lt;sup>29</sup> Appendix, segments 12 and 13.

其所厚者薄而其所薄者厚

We may see the final section as a conclusion. The pattern emphasizes the theme of order/disorder by a reversal of terms. The final clause reminds us of the first clause of the sentence that acts as a transition between the first and second patterns, thus bringing the reader back to the author's earlier assertions<sup>30</sup>.

### **Discussion and Conclusion**

The patterns in the *Way of Great Learning* are no accident. The author went to some pains to construct them in the way that he did. Matching the patterns with the meaning of the text shows that the author tried to use different patterns for different parts of his argument. That there are patterns is obvious even from the English translation, though the exact form of the patterns can only be determined by an examination of the Chinese text<sup>31</sup>. The first pattern, in which the

last character of clause A becomes the first character of clause B, shows a connected series of events much like the pattern in Franklin's nail. The temporal sequence in the first pattern is similar to that of Franklin's nail as well. Franklin's nail shows the unintended consequences in the future of a failure to act now. The first pattern of the Way of Great Learning shows that, once "the acme of perfection" has been achieved, many things are possible for the person who achieves the Way of Great Learning. In other words, the message of the first patterned text is to consider what the person who achieves the Way of Great Learning will be capable of *in the future*. The second pattern moves backward though time. The essence of the second pattern is the alternate use of 先 xian and 欲 yu as first characters, and ending the second clause in the group with 者 zhe (segments 11–17). The third pattern marks a reversal in time. The fourth pattern, while returning us back to the author's original point about self-cultivation being the key, does not merely cover the same ground as the other patterns. Pattern four tells us what some of the attributes of the cultivated man must be (segments 19-21). The length of a typical clause in pattern 4 is six characters, while the length of a typical clause in pattern 2, which "got us here," is either four or five characters. The longer clause length befits the fact that new material is contained in pattern 4 clauses. The last section, segments 24-27, is unpatterned except for the brief pattern 5. This section is a summary of the argument contained in the passage.

The five patterns in the *Way of Great Learning* exhibit a type of argument structure but not a strict form like that required by Aristotle's syllogistic theory. Unpatterned statements are used to assert a point and to claim that a point has been proven;

<sup>&</sup>lt;sup>30</sup> We intentionally do not call this a "hypothesis" since the use of this word might accidentally bring in unwarranted parallels with Western logical theory.

<sup>31</sup> The reader should note that the text of the 大学 that we use also contains a translation into modern Chinese. We have not analyzed the modern Chinese translation to see how the patterns fared. We do note that the text of the modern Chinese translation is substantially longer than the original Chinese text.

they are used to support the initial claim. At least in the *Way of Great Learning*, the temporal or sequential nature of the patterns is important<sup>32</sup>; whether this is the case in all patterned texts is a matter for future research. Could these patterns be merely a matter of style? The patterns in the *Way of Great Learning* deliberately match the content—unlike poetic texts, in which the entire

text may be in a certain style regardless of its content. Further research may show that patterns are used when arguments need support. Chinese reasoning has a different basis than Aristotle's syllogistic reasoning. We need to concentrate on the Chinese texts themselves, rather than on a comparison between Chinese texts and Western logical texts. The Chinese can stand on their own.

### **Appendix**

1. 大学之道, 在明明德, Da xue zhi dao, zai ming ming de,

2. 在新民, zai xin min,

3. 在止於至善. zai zhi yu zhi shan.

4. 知止而后有定。 Zhi zhi er hou you ding.

7. 安而后能 应。 an er hou neng ying.

8. 应而后能得。 Ying er hou neng de.

9. 物有本未,事有终始, Wu you ben wei, shi you zhong shi,

10. 知所先后,zhi suo xian hou,11. 则近道矣。ze jin dao yi.

12. 古之欲明明德\* 于天下者, Gu zhi yu ming ming de yutian xia zhe,

13. 先治其国。xian zhi qi guo.14. 欲治其国者,Yu zhi qi guo zhe,15. 先齐 其家。xian qi qi jia.

16. 欲齐 其家者, Yu xiu qi jia zhe,

17. 先修 其身。 xian xiu qi shen.
18. 欲 修其身者, Yu xiu qi shen zhe,

19. 先正其心。 xian zheng qi xin.
20. 欲正其心者, Yu zheng qi xin zhe,

20. 钦正兵心有, Tu zheng qi xin zheng qi xin zheng qi xin zheng qi yi.

22. 欲诚其意者, Yu cheng qi yi zhe,

23. 先致其知。 xian zhi qi zhi.

 24. 致知,
 Zhi zhi,

 25. 在格物。
 zai ge wu.

 26. 物格,
 Wu ge,

<sup>&</sup>lt;sup>32</sup> The question of why the Chinese attempted to place arguments in historical context (see, e.g., segment 11) is a subject for another paper.

27. 而后知至,

28. 知至而后意诚,

29. 意诚而后心正,

30. 心正而后身 修,

31. 身修 而后家 齐,

32. 家齐 而后国治,

33. 国治而后天下平。

34. 自天子以至 于 庶人,

35. 壹是皆 以后身 为 本。

36. 其本乱,

37. 而未治者,

38. 否矣。

39. 其所厚者薄,

40. 而其所薄者厚,

41. 未之有也。

er hou zhi zhi,

zhi zhi er hou yi cheng,

yi cheng er hou xin zheng,

xin zheng er hou shen xiu,

shen xiu er hou jia qi,

jia qi er hou guo zhi,

guo zhi er hou tian xia ping.

Zi tian zi yi zhi yu shu ren,

yi shi jie yi hou shen wei ben.

Qi ben luan,

er ben zhi zhe,

fou yi.

Qi suo hou zhe bao,

er qi suo bao zhe hou,

wei zhi you ye.

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#### MINTIES MODELIAI

#### Santrauka

Nuo senovės Kinijos laikų nebuvo sukurta sistemos, prilyginamos Aristotelio logikai, ar kokios kitos sistemos, sukurtos senajame Viduržemio jūros pasaulyje. Tačiau mąstant pagal vakarietišką logiką, sunku neteigti, kad Konfucijaus laikų tekstai nedemonstruoja jų autorių pastangų pateikti nenuginčijamus argumentus ar net "irodymus".

Straipsnyje analizuojamas pavyzdys iš Da Xue teksto *Didžiojo mokymosi būdas*. Tai vienas iš penkių klasikinių Konfucijaus laikų kūrinių. Analizuojant tekstą, ieškoma būdo, kuris galėtų atitikti motyvuotų faktų pristatymo tikslą. Konfucijaus laikų klasikiniai tekstai, ypač Da Xue, vystėsi kone tuo pačiu laiku su graikų logine mintimi. Straipsnyje siūlomi geri sudėtingų, gerai apgalvotų filosofinių tekstų pavyzdžiai, nepaveikti graikų loginės minties proceso.

Skaitytojui būtina žinoti, jog autoriai nemano, kad šis ar kiti klasikiniai kinų tekstai yra nelogiški. Jie atskleidžia neloginio argumentavimo sistemą. Manytina, kad kinų autorius be rimto pagrindimo neimituoja kitų tekstų ar žodinių pasakymų.

Tekstas, kuriame nejaučiama Kinijos įtaka, sunkiai modeliuojamas. Straipsnyje tvirtinama, kad modeliai tekste, demonstruojantys nevakarietišką argumentaciją, yra daugiau nei literatūrinė priemonė.

*REIKŠMINIAI ŽODŽIAI:* argumentacija, modeliai, silogizmas, nevakarietiška argumentacija, logika, forma, minties sistemos, Kinijos kultūra.

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### WZORCE MYŚLOWE

#### Streszczenie

Od czasów starożytnych Chin nie został stworzony system porównywalny z arystotelesowską logiką ani jakiś inny system opracowany w starożytnym świecie śródziemnomorskim. Mimo to nie da się twierdzić, że autorzy tekstów z czasów Konfucjusza nie podejmują starań, by użyć przekonujących argumentów, jeśli nie "argumentacji" w ścisłym znaczeniu tego pojęcia w logice zachodniej.

Na przykładzie analizy fragmentu tekstu znanego jako Da Xue (*Wielkie Nauczanie*), będącego jednym z pięciu klasycznych tekstów konfucjańskich, badamy sposób, w jaki osiągnięto cel podania uzasadnionej argumentacji. Klasyczne teksty konfucjańskie, zwłaszcza Da Xue, powstały niemal w tym samym czasie, co początki greckiej myśli logicznej. Dlatego zawierają one dobre przykłady złożonych, dokładnie przemyślanych tekstów filozoficznych, które nie podlegały wpływom myśli greckiej.

Chcemy uprzedzić czytelnika, iż nie twierdzimy, że ten czy inne klasyczne teksty chińskie są nielogiczne; wyjaśniamy, co mamy na myśli, twierdząc, że teksty te ukazują system nielogicznego rozumowania. Wychodzimy z założenia, że chiński autor bez poważnego uzasadnienia nie naśladuje innych tekstów czy wypowiedzi słownych. Tekst, który nie wskazuje na obecność wpływów chińskich, jest mocno nasycony wzorcami.

Twierdzimy, że wzorce dowodzące niezachodniego rozumowania są w tekście czymś więcej niż tylko środkami literackimi.

*SŁOWA KLUCZOWE:* rozumowanie, wzorce, sylogizm, rozumowanie niezachodnie, logika, forma, systemy myślowe, kultura chińska.