

Unit 11 - Classwork 2: Leucippus

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In order to answer the following questions, read pages 25—32 in Unit 11.

1. In any statement with the form “if P then Q ”, one of the two variables stands for the *antecedent*, and the other one of the two stands for the *consequent*. On the one hand, the antecedent comes in *between* the “if” and the “then”. On the other hand, the consequent comes *after* the “then”.
 - (i) In the conditional statement “if P then Q ”, which variable stands for the *consequent*? (“ P ” or “ Q ”?)
 - (ii) In the conditional statement “if P then Q ”, which variable stands for the *antecedent*? (“ P ” or “ Q ”?)
 - (iii) In the conditional statement “if Q then R ”, which variable stands for the *antecedent*? (“ Q ” or “ R ”?)
 - (iv) In the conditional statement “if Q then R ”, which variable stands for the *consequent*? (“ Q ” or “ R ”?)
 - (v) In the conditional statement “if A then B ”, which variable stands for the *consequent*? (“ A ” or “ B ”?)
 - (vi) In the conditional statement “if A then B ”, which variable stands for the *antecedent*? (“ A ” or “ B ”?)
 - (vii) In the conditional statement “if X then Y ”, which variable stands for the *antecedent*? (“ X ” or “ Y ”?)
 - (viii) In the conditional statement “if X then Y ”, which variable stands for the *consequent*? (“ X ” or “ Y ”?)
 - (ix) In the conditional statement “if B then C ”, which variable stands for the *consequent*? (“ B ” or “ C ”?)
 - (x) In the conditional statement “if B then C ”, which variable stands for the *antecedent*? (“ B ” or “ C ”?)

2. Consider the following conditional statement.

«If she is a cat, then she is an animal.»

Accordingly, answer the following subquestions.

- (i) In the conditional statement, which statement is the *antecedent*?
(Hint: The statement has the form “if P then Q ”, so what statement is “ P ”?)
- (ii) In the conditional statement, which statement is the *consequent*?
(Hint: The statement has the form “if P then Q ”, so what statement is “ Q ”?)

3. Consider the following conditional statement.

«If the person is alive, then the person is not dead.»

Accordingly, answer the following subquestions.

- (i) In the conditional statement, which statement is the *antecedent*?
(Hint: The statement has the form “if P then not- Q ”, so what is “ P ”?)
- (ii) In the conditional statement, which statement is the *consequent*?
(Hint: The statement has the form “if P then not- Q ”, so what is “not- Q ”?)

4. Leucippus and Melissus both believed that the following conditional statement is a true statement. —

«If something moves from one place to another, then something moves through a void.»

Accordingly, answer the following subquestions.

- (i) In the conditional statement, which statement is the *antecedent*?
(Hint: The statement has the form “if P then Q ”, so what statement is “ P ”?)
- (ii) In the conditional statement, which statement is the *consequent*?
(Hint: The statement has the form “if P then Q ”, so what statement is “ Q ”?)

5. Out of all of the syllogisms that have an 'if-then' statement as a premise, the two most well-known syllogisms are *modus ponens* and *modus tollens*.

<u><i>modus ponens</i></u> (affirming the antecedent)	<u><i>modus tollens</i></u> (denying the consequent)	valid
<div><div>Premise 1: If P then Q.</div><div>Premise 2: P.</div><div>Conclusion: Therefore, Q.</div></div>	<div><div>Premise 1: If P then Q.</div><div>Premise 2: <i>not-Q</i>.</div><div>Conclusion: Therefore, <i>not-P</i>.</div></div>	

Accordingly, answer the following questions.

- (i) With the information provided, construct a *modus ponens* argument.

Premise 1: If something changes place, then something moves through a void.

Premise 2: _____.

Conclusion: Therefore, _____.

- (ii) With the information provided, construct a *modus tollens* argument.

Premise 1: If something changes place, then something moves through a void.

Premise 2: _____.

Conclusion: Therefore, _____.

6. In defense of Parmenidean philosophy (*i.e.* Eleatic philosophy), Melissus made either a *modus ponens* argument or a *modus tollens* argument. Thence as a counterargument, Leucippus made either a *modus ponens* argument or a *modus tollens* argument.
- (i) Melissus and Leucippus *disagreed* about whether or not something can change place (or move from one place to another).
 - (a) Which of those two philosophers believed that *something* can change place (or move from one place to another)?
 - (b) Which of those two philosophers believed that *nothing* at all can change place (or move from one place to another)?
 - (ii) Melissus and Leucippus *disagreed* about whether or not a void exists.
 - (a) Which of those two philosophers believed that *some* void exists?
 - (b) Which of those two philosophers thought that *no* void exists?
 - (iii) According to Melissus, the void doesn't exist, and so nothing ever moves at all. Yet according to Leucippus, bodies are constantly in motion, and so the void exists.
 - (a) In defense of Eleatic philosophy, what argument did Melissus make? Was it a *modus ponens* or a *modus tollens*? In order to receive credit, explain your answer by providing his argument.
 - (b) As a counterargument to the one that Melissus made, what argument did Leucippus make? Was it a *modus ponens* or a *modus tollens*? In order to receive credit, explain your answer by providing his argument.

7. According to Melissus, if whatever exists is something unlimited [or *apeiron* (ἄπειρον)], then only *one* thing exists. Yet even though Leucippus believed that whatever exists is something unlimited, he also believed that more than one thing exists. Keeping all of that in mind, answer the following two subquestions.
 - (i) According to Melissus, if whatever exists is unlimited [or *apeiron* (ἄπειρον)], then why does only *one* thing exist?
 - (ii) On the basis of the ambiguity of the word “ἄπειρον” (or “unlimited”), how did Leucippus counter the argument that Melissus had put forth?
8. According to Zeno, why is there no such thing as a smallest thing?
(Hint: Think of Zeno’s dichotomy paradox.)
9. According to Leucippus, why are *atoms* are the smallest things? State his definition of an atom, and then explain why he thought that nothing at all can be smaller than atoms.

10. According to Leucippus, what are the only two kinds of things that exist?

(i) _____

(ii) _____