Introductory Logic

STUDENT

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Published by Canon Press
P. O. Box 8729, Moscow, Idaho 83843
800-488-2034 | www.canonpress.com

Cover design by David Dalbey. Cover illustration by Forrest Dickison
Interior design by Laura Storm and Jared Miller. Interior layout by Valerie Anne Bost.
Printed in the United States of America.

Library of Congress Cataloging-in-Publication Data available on www.canonpress.com.

ISBN-13: 978-1-59128-165-8
ISBN-10: 1-59128-165-2

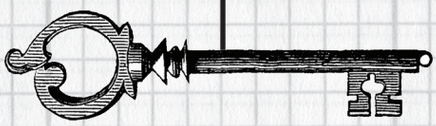
14 15 16 17 18 19 20 21 9 8 7 6 5 4 3 2

INTRODUCTORY LOGIC

The Fundamentals of Thinking Well

STUDENT: FIFTH EDITION

James B. Nance | Douglas Wilson



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A NOTE to the TEACHER for the FIFTH EDITION

Logic is the science and art of reasoning well. We reason as we draw conclusions from other information by means of logical arguments. Arguments are made up of premises and conclusions, which are types of statements. Statements are sentences that are true or false. Categorical statements predicate something of a subject, and thus connect subject and predicate terms. A term is the verbal expression of a concept. Consequently, in order to follow logical arguments as we reason, we must know how to determine the truth of statements, and to understand statements, we need to be able to define the terms that make up those statements.

In this text we begin with terms. Your students will learn how to define terms and how to relate terms to other terms in genus and species charts. They will then study statements, discovering ways to determine the truth of a given statement, and will examine how statements relate to each other. Next, they will learn how to put statements together into arguments, and gather strategies for distinguishing valid arguments from invalid ones. They will do this first in the tightly controlled, artificial environment of categorical syllogisms. You will then lead them into the real world as they take the tools they have mastered and learn how to apply them to arguments in normal English. Once they have gained the skills of analyzing the arguments of others, they will take a brief foray into constructing arguments to establish conclusions of their own. They will then finish this course by learning to detect the fallacies that litter arguments in daily life.

This logic course thus follows the program outlined by Dorothy Sayers in "The Lost Tools of Learning." In that seminal essay, she outlined for us the course of study for the medieval logic student, who learned "how to use language: how to define his terms and make accurate statements; how to construct an argument and how to detect fallacies in argument." Terms, statements, arguments, fallacies—these are concepts that will become familiar to your students in this study of *Introductory Logic: The Fundamentals of Thinking Well*.

James B. Nance
April 2014

INTRODUCTORY LOGIC

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LOGIC: ITS NATURE AND PURPOSE

God created man with the ability to reason: "Come now, and let us reason together, saith the Lord" (Is. 1:18). He did this so that we could communicate with Him and with one another. This enables us to love and obey Him. Reasoning means drawing proper conclusions from other information. A proper use of reason allows us to form rational statements, and to understand the statements that are made by others. It allows us, for example, to take universal statements such as "God has commanded all men everywhere to repent" and to apply them, first to ourselves and then to our neighbor: "We are men, therefore we must repent." Without the ability to reason, we would be unable to discuss, preach, read, hear the gospel, or follow God's commands. In other words, proper reasoning opens the mind so that it can close upon truth.

Some have assumed that this ability to reason is what constitutes man being created in the image of God. But there are several problems with this assumption. First, there are other creatures (like angels and cherubim) who have an ability to reason, but who do not bear the image of God the same way that man does. Another problem is that it implies that humans who are very young (e.g., a fertilized human ovum) or who are severely retarded cannot bear God's image, or that they do so imperfectly. Rather than treating reason as the image of God in man, it would be far better to treat reason as a gift that God gives (out of His own nature and character) to all intelligent creatures. The more He gives, the greater our responsibility to love Him, as Scripture says, "with all our minds."

Formal logic is the science and art of reasoning well. As a science, logic includes discovering and identifying the patterns or rules by which we reason. As an art, logic teaches how to follow those rules, without abusing them in a wooden (and unreasonable) way. About sixteen centuries ago, Augustine said this about the science of logic:

KEY POINT

Reason opens our minds so that they can close upon truth. Reason is a gift from God; it is *not* the single, essential aspect of bearing God's image.

DEFINITION

Logic is the science and art of reasoning well.

> And yet the validity of logical sequences is not a thing devised by men, but is observed and noted by them that they may be able to learn and teach it; for it exists eternally in the reason of things, and has its origin with God. For as the man who narrates the order of events does not himself create that order; and as he who describes the situations of places, or the natures of animals, or roots, or minerals, does not describe arrangements of man; and as he who points out the stars and their movements does not point out anything that he himself or any other man has ordained; in the same way, he who says, "When the consequent is false, the antecedent must also be false," says what is most true; but he does not himself make it so, he only points out that it is so. (*On Christian Doctrine*, book II, chapter 32)

KEY POINT

Logic is not created by God or man; rather, it is an attribute of God. It is not over God or independent of Him.

Logic is not devised by man, but neither is it created by God, like maple trees and dwarf stars are. Rather, it is an "attribute" of God which is reflected in creation. We need to be careful here, because it is not an attribute of God that is stated directly in Scripture, as His holiness, love, and righteousness are. But it is a characteristic of God that we see assumed everywhere in Scripture. We do not believe that logic is independent of God and over Him, which would mean that the triune God is not the sovereign God of the Bible. But neither do we believe that God could have created a nonsensical world where He was both the creator of it and not the creator of it. This leaves us with the assumption that all things are ultimately defined by God Himself, rather than by "rules." Since we want to learn how to reason as faithful Christians, we begin by assuming that all faithful thinking and reasoning is somehow sharing in this characteristic of God. So when we study logic faithfully, we are studying some of the divine reflection in the world around us.

The Laws of Thought

Keeping all of this in mind, we must be careful when dealing with "rules" and "laws" of logic. In order to reason well, we have to assume

certain very basic things that never show up as particular items in our argument. They are simply (and quietly) assumed. For example, if you were putting together an argument about light bulbs or tricycles, it is very important that they not turn into something else (like toaster ovens or catcher's mitts) halfway through the argument. If they did, the argument would just have to lie down in the corner and sob quietly. It could never get anything done.

Traditionally, these assumptions have been called the "laws of thought." There is nothing wrong with the *contents* of these assumptions, but there is a significant problem with *another* deeper assumption lying beneath them. That assumption is that you can have laws without a lawgiver, and that ultimately, you can have reason apart from the triune God of Scripture. All you need to do, it is thought, is postulate some laws of thought and off you go.

Because this is the case, we want to begin by showing how the laws of thought are actually grounded in the nature of the triune God, revealed in Jesus Christ. After we have done that, we will be able to discuss the traditional terminology. The reason for doing this is that many modernists have been guilty of thinking that impersonal "laws" have authority in themselves, which of course they do not.

Let's start with the basic Christian confession that *Jesus is Lord*. When God reveals Himself in Christ, the decision that must be made is whether to believe it or not. These are the only two options: faith or unbelief. This means that the statement *Jesus is Lord* must either be true or false. A faithful person confesses that it is true. An unfaithful person denies it as false. God does not leave open the option of saying something like, "I believe that the higher reality of the lordship of Christ cannot be contained in our paltry categories of true and false, and so I cannot say whether I believe in Him or not." Such a response is simple dishonesty masquerading as humility.

The fact that *any statement is either true or false* is one of the three traditional laws of thought, upon which much of the science of logic is based. This law of thought is called the **Law of Excluded Middle,** because it excludes the possibility of a truth value falling somewhere in the middle between true and false. Statements are either one or the other. If a statement is not true, then it is false, and vice versa.

DEFINITION

The ***Law of Excluded Middle***: Any statement is either true or false.

DEFINITION

The ***Law of Identity***: If a statement is true, then it is true.

DEFINITION

The ***Law of Noncontradiction***: A statement cannot be both true and false.

As Christians we confess that God is triune. If asked, we would say, "Yes, that is true. God is triune." Now if it is true that God is triune, *then it must be true that God is triune*. This is an application of **The Law of Identity**, which simply states that *if a statement is true then it is true*. For ordinary people in ordinary conversation, such rules are not thought to be necessary. But when people are fleeing from God, they will often take refuge in any folly, arguing that the truth of a statement can change in the middle of an argument. This law may be employed to answer the unbeliever who says, "Christianity may be true for you, but not for me." No. If the Christian faith is true, then it is true.

The third law says that *a statement cannot be both true and false*. This is called the **Law of Noncontradiction**. Without this law, we could not argue for the exclusive truth of any statement that we hold. We could try to assert, for example, that "Jesus is Lord." But our opponents could respond, "Oh, I agree that what you say is true. But it is also false." We see that if we deny these laws, we lose the possibility of all rational discourse.

Think for a moment what would happen to our faith if we were to allow someone to deny these fundamental assumptions. If we confess "God in three Persons, blessed Trinity," someone who denied the Law of Excluded Middle could say that this wonderful confession is not true, and it is not false. It is just wonderful, and perhaps even a little inspiring. One who denied the law of identity could say, "Yes, it is true that God is a Father for you, but it is *my* truth that She is a Mother." And one who denied the Law of Noncontradiction could say that God is our Father, and also, in the same way and in the same respect, He is not our Father. In other words, denial of these bedrock assumptions would make a hash out of the simplest Christian confession like the Apostles' Creed.

Having said all this, there is an important warning. The Bible does assume that the Father is the Father, and not the Son. The Spirit is the Spirit and not the Father. The Father is not "not the Father." At the same time, the Bible *also* teaches that the Father perfectly indwells the Son, the Son indwells the Father, and both with the Spirit are one God. Statements about the Father are not independent from statements about

the Son. Jesus said, "Anyone who has seen me has seen the Father." These truths do not deny the laws of thought but rather support them.

Through a wooden application of these laws, some logicians have gotten to the point where they cannot understand or appreciate poetry, metaphor, sacraments, or marriage. The world is full of "indwelling" and mutual partaking, because this is *also* what our God is like. In our study of logic, we must always leave room for mystery. We know that the Father is Father, and no one else. We know as well that the Father is not the Son. But we should also know that the Father reveals Himself perfectly in the Son.

KEY POINT

Logic must always give way to mystery. For example, we understand many things in terms of poetry, or sacraments, or the indwelling of the Trinity.

The Scope of This Book

The subject of logic may be divided into two main branches: **formal** and **informal**. Formal logic deals directly with reasoning, by considering the means of distinguishing between proper and improper modes of reasoning. Informal logic deals with operations of thinking that are indirectly related to reasoning, such as defining terms, relating terms to each other, and determining relationships between statements. Because informal fallacies are not formal methods of reasoning, they are also included under the branch of informal logic.

DEFINITIONS

Formal logic deals with the proper modes of reasoning. ***Informal logic*** deals with operations of thinking that are indirectly related to reasoning.

Formal logic itself may be divided into two main branches, **induction** and **deduction**. Induction deals with arguments of likelihood and probability. By induction we draw conclusions from facts or experience, conclusions which go beyond those facts. Inductive conclusions are never certain, but only probable. As such, they can be considered strong or weak, depending on how well experience supports the conclusion. They may also be strengthened by further experience. You can see that induction is the logic of the experimental sciences.

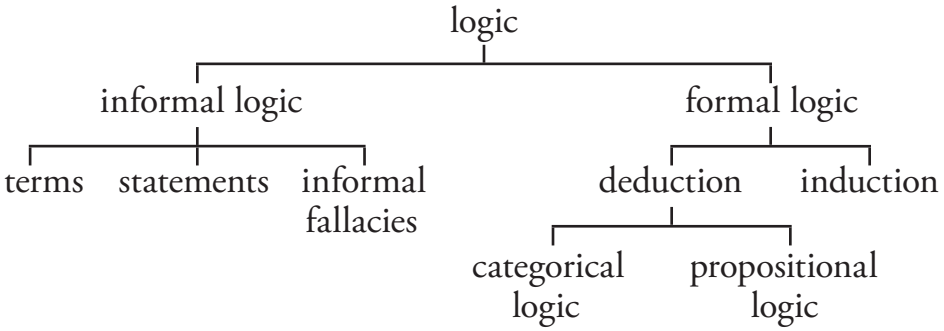
DEFINITIONS

Induction is reasoning with probability from examples or experience to general rules. ***Deduction*** is reasoning with certainty from premises to conclusions.

Whereas induction deals with arguments that are strong or weak, deduction deals with arguments that are valid or invalid. If valid, the conclusion follows from the premises, and it does so with certainty. A valid conclusion is one that is contained within the premises: if the premises of a valid argument are true, then the conclusion must be true. There are many branches of deductive reasoning. Two main branches are **categorical logic** and **propositional logic**. To the best of our knowledge, categorical logic was first developed as a science by

the Greek philosopher Aristotle (384–322 B.C.). Categorical logic deals with the **syllogism**, which is a type of deductive argument in which the conclusion connects one category (or term) with another, hence the name *categorical* logic. Propositional logic connects entire *propositions* together in arguments.

These branches of logic can be arranged as seen in the chart below:



This book is an introduction to the informal and categorical branches of logic. The next book in this series, *Intermediate Logic*, deals with the propositional branch of deduction. The point of all of this is to encourage students to begin the process of carefully "thinking God's thoughts after Him." The point of this book is *not* to teach us how to be quarrelsome with one another, nor to bring students to the false idea that the world is governed by some impersonal deity named Rules of Inference.

UNIT 1

TERMS AND DEFINITIONS

Contents

LESSON 1

THE PURPOSES AND TYPES OF DEFINITIONS

A **term** is a concept with a precise meaning expressed by one or more words. A single term can be expressed by many different words. Words that are exact synonyms represent the same term. The English word *girl* and the Latin word *puella* represent the same term. Similarly, a single word can represent different terms. For example, the word *mad* can mean either "angry" or "insane."

A **definition** is a statement that gives the meaning of a term. The ability to define terms accurately is a valuable skill. Lawyers must continually define their terms, and may use precise, technical language to do so. The same is true for teachers, scientists, philosophers, theologians, and most other professionals. To demonstrate the value of this skill, let us consider some of the purposes that definitions serve.

1. *Definitions show relationships.* When a term is defined properly, the definition often gives some idea of the **relationships** which that term has with other terms. For example, if you were to define man as "a rational animal," your definition implies both that man has some relationship to other rational beings, such as angels and demons, and to other animals—bears, whales, and lizards. Or if bald is defined as "having no hair," its contradictory relationship with the term hairy is immediately apparent.

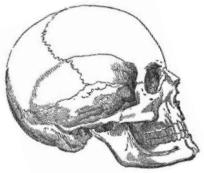
2. *Definitions remove ambiguity.* Words are **ambiguous** when they have more than one possible meaning. Commonly, in a discussion or a debate, ambiguous words are used without the participants being aware of the ambiguity. The result is a verbal disagreement that may be cleared up by defining terms. For instance, some people believe that Jesus' command to love your enemies is an absurd requirement because they are defining *love* to mean "believe the other to be a nice person," when in fact they know

DEFINITIONS

A ***term*** is a concept that is expressed precisely in words. A ***definition*** is a statement that gives the meaning of a term.

KEY POINT

Note the difference between a term and a word: one word can carry the meaning of many terms; the same term can be expressed with different words.



CAUTION

It is extremely important to define your terms at the beginning of any debate. You want to argue about substance, not words.

DEFINITIONS

An ***ambiguous*** word has more than one definition. A ***vague*** word is one whose extent is unclear.

their enemies to be quite wicked and depraved. But biblically, *love* means 'to treat the other person lawfully from the heart,' which is to be our behavior toward all men. If this definition is made clear, the people may still think that the command is impossible, but at least they no longer should see it as absurd.

A definition that shows relationships or reduces ambiguity by providing a single, established meaning of a term is called a **lexical definition**. This is the sort of definition one would find in a dictionary.

3. *Definitions reduce vagueness.* A problem similar to ambiguity is vagueness. A term is vague when its extent is unclear. The term itself may have a single, understood meaning, but there are "gray areas" where it is uncertain if the given term applies. This is a common problem in descriptive terms, such as *old, dark, tall, mature*. If a father tells his children it must be warm outside before they can swim in the lake, the children often immediately want vagueness reduced: "*How* warm?" If the father responds, "At least eighty degrees Fahrenheit," the issue is made clear. Or if you are asked to give a small donation for a gift for the secretary, you may want a definition to reduce the vagueness of the term *small*, like, "By small I mean five dollars." This type of definition is a **precising definition**, because it seeks to make more precise what was previously vague or fuzzy. Note that precising definitions would not be found in a dictionary; they apply only to the situation in which they are used.

CAUTION

A precising definition is very dependent on the situation in which it is used.

KEY POINT

Defining terms is a key way of communicating knowledge.

4. *Definitions increase vocabulary.* One of the most important elements of education is learning the meaning of unfamiliar terms. An increase in vocabulary means an increase in knowledge, which is why in English class students are taught "vocabulary words" and their definitions. In this very lesson you may have learned the definitions of terms like ambiguity and vagueness. Knowing these definitions helps us to make subtle distinctions and otherwise use language properly.

When a new word is invented, or an existing word is applied in a new way, it is given a **stipulative definition**. Such definitions, if widely accepted, increase the vocabulary of the language to which they are added. New words are continually adopted into English, such as words resulting from new inventions (*laptop*, added in

1985), from sports (*screwball*, 1928), from other languages (*macho* from Spanish, also 1928), or coined out of someone's imagination (*boondoggle*, from an American scoutmaster, 1957).

5. *Definitions can explain concepts theoretically.* Sometimes definitions are given for terms, not because the word itself is unfamiliar, but because the term is not understood. Such concepts require theoretical definitions, which are often scientific or philosophical in nature. For example, when your chemistry teacher defines water by its chemical formula H_2O, he is not trying to increase your vocabulary (you already knew the term *water*), but to explain its atomic structure.

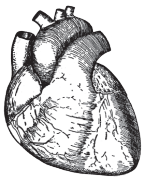
   Accepting a **theoretical definition** is like accepting a theory about the term being defined. If you define spirit as "the life-giving principle of physical organisms," you are inviting others to accept the idea that life is somehow a spiritual product.

6. *Definitions can influence attitudes.* Often terms are defined, not necessarily for the purpose of clarifying their meaning, but in order to influence the attitudes and emotions of an audience. Abortion has been defined as "the slaughter of innocent children" on the one hand, "the right of a woman to control her own body" on the other, or even the non-emotional "termination of a pregnancy." All these definitions aim at persuading the listener one way or another toward the term being defined, and as such are called **persuasive definitions**. Examples abound. Is democracy "mob rule" or "government by the people"? Is marriage "the institutionalized slavery of women by men" or "the blessed union of man and wife"? You can see the capacity of persuasive definitions for good or ill.

KEY POINT

Definitions may seem dry and logical, but they can be used persuasively. Knowing how to define terms well is a great advantage in debate.

SUMMARY



Definitions give meanings for terms. Definitions can show relationships between terms, remove ambiguity, reduce vagueness, increase vocabulary, explain concepts theoretically, and influence attitudes. Along with these purposes are the five types of definitions: lexical, precising, stipulative, theoretical, and persuasive.

EXERCISE 1 (14 points)

1. Write lexical definitions of the words *child* and *adult* that show the relationship between them. (3)

2. The word *grace* is an ambiguous word. Write two lexical definitions for the word *grace,* giving two of its different meanings. (2)

3. Write a precising definition of the word *soon* to clarify the vagueness in the sentence "I will be home soon." (2)

4. Invent a stipulative definition for the word *ploff.* (1)

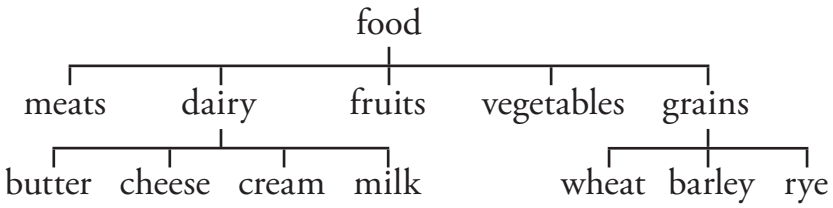
5. Write a persuasive definition of the word *television* from the point of view of a mother who thinks her children watch too much of it. (4)

6. Write a short, imaginary dialogue between two people having a verbal dispute about the word *believe*. Then introduce a third person who settles the dispute by presenting lexical definitions for the word that eliminate the ambiguity. (Continue on the back if needed.) (4)

LESSON 2

GENUS AND SPECIES

Terms are often defined by being placed among a higher category, or **genus**. The genus of a term is more general, broad, or abstract than the term itself. The term under a genus is called the **species**, which is a type, kind, or example of the term. The species is more specific, narrow, or concrete than the genus. Terms can be placed in a **genus and species hierarchy**, thus clearly showing the relationships between them. For example, consider the hierarchy below:



Here we see the genus *food*, and under it some of the species of the term food: meats, dairy products, fruits, vegetables, and grains. Of these, the terms *dairy products* and *grains* are shown to be genera (the plural of genus) for the species under them. The genus *dairy products* is broader than any of its species, such as butter, because dairy products includes not only butter but cheese, cream, milk, and any other species that could be placed under it. The chart also shows that the term *grains* is the genus of wheat, barley, and rye. Of course, many other terms could be included as species of grains. Can you think of any?

The words *genus* and *species* are relative terms. Each term can be both a genus and a species—a genus of the terms below it, and a species of the term above it. Thus *grains* is both a species of food and a genus of wheat. This process can continue (although not indefinitely) both downward and upward. *Cheese* could be the genus for different varieties of cheese, such as Swiss, Parmesan, and Cheddar.

DEFINITIONS

A ***genus*** of a term is a term that is more general, broad, or abstract than the original term and includes it.

A ***species*** of a term is a term that is more specific, narrow, or concrete than the original term and is included by it.

KEY POINT

Genus and ***species*** are relative terms. Each term can be both a genus and a species.

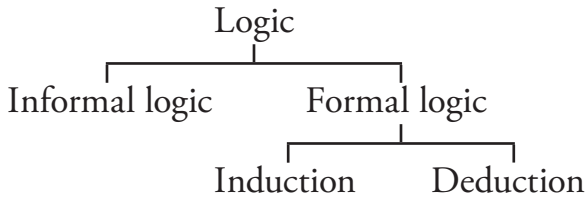
CAUTION

Even though *genus* and *species* are biological terms, logical hierarchies are very different from biological ones.

Food can be considered a species of *material* (if it is defined as "edible material"), and so on.

One caution: do not confuse the genus and species hierarchies of logic with the similar hierarchy you may have learned in biology. In logic, there are no levels other than genus and species—no family, order, class, phylum, or kingdom.

Now look at the genus and species hierarchy for the term *logic.*

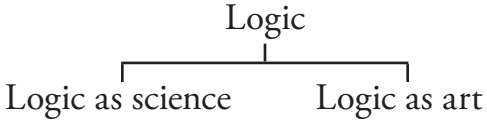


Two types of logic are identified as species: informal and formal. These species are **mutually exclusive**—they do not overlap. No branch of logic is both formal and informal. They are also **exhaustive**—no other types of logic exist. Theoretically, every genus can be divided into species that are both mutually exclusive and exhaustive. And while the species must be mutually exclusive, in practice they are rarely exhaustive. Are induction and deduction an exhaustive list of the types of formal logic?

KEY POINT

Genus and species charts can be drawn very differently depending on the principle used to divide and categorize terms.

In the chart above, logic is divided into *formal* and *informal* logic. The dividing principle there is, "How directly related to reasoning is the term?" Logic that deals directly with reasoning is formal, while logic that is more indirectly related to reasoning is informal. Other dividing principles could have been used which would result in a different chart, such as "What is the product or goal of the term?" In one case, for logic, the goal might be to discover and classify the rules of reasoning. In this case we would be considering the *science* of logic. In another case, the goal might be to produce persuasive arguments, which would mean we are considering the *art* of logic. Thus the chart would be:



There are several types of errors which we need to avoid while constructing genus and species charts. The first error was already mentioned: species which overlap, meaning that they are not mutually exclusive. Such an error exists in this chart:

People
Women Lawyers

This is an error because the species overlap: some women are lawyers. The error was caused by using two different dividing principles for the term *people:* division by gender and division by profession.

A similar error would occur when a term appears at the wrong level in the chart, such as in this example:

Logic
Formal logic Induction

Here the species overlap because induction itself is a species of formal logic, and thus should appear beneath it.

Another error can occur if a chart is being produced for an ambiguous word, with two different definitions in mind for the same word. For example, consider the word *ball*. This word could be taken in two senses: as a round toy, or as a kind of formal dance. This ambiguity could result in the following faulty chart:

Ball
Baseball Mid-winter ball

Finally, remember that a species is not a part of the genus, but rather a type or kind of that genus. The species of the genus *bicycle* may include *mountain bike*, but not *handlebars*. So when asked to make a genus and species chart, do not make a "whole to parts" chart like this:

Bicycle
Frame Pedals

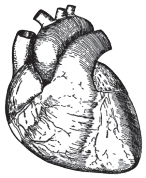
THINKING DEEPER

If the process of finding a further genus for any genus cannot continue indefinitely, it is reasonable to ask, What is the highest possible genus? If the genus of food is material, what is the genus of material? Possibilities include matter, substance, being, and so on. All of these are things created. But anything not created is God, since God alone is uncreated. Thus we are led to what theologians call the "Creator/creature distinction": all things are either Creator, or something created by the Creator. These are the highest genera of things. More could be said about the highest genus of abstractions (like *logic*), verbs (like *to run*), and so on.

CAUTION

Watch out for these basic errors when drawing genus/species charts: overlapping species, ambiguous terms, and confusing genus/species with part/whole.

SUMMARY

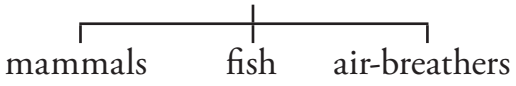


Terms can be organized into genus and species charts. A genus is a category into which a given term fits. A species is a type, kind, or example of a given term. Species should be mutually exclusive, and may be an exhaustive list.

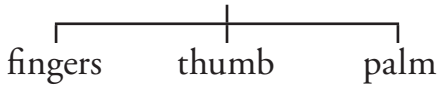
Exercise 2 (20 points)

Explain the error or problem with each genus and species hierarchy shown. (2 each)

1.



2.



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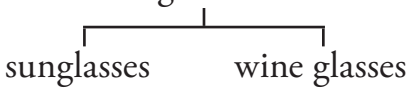
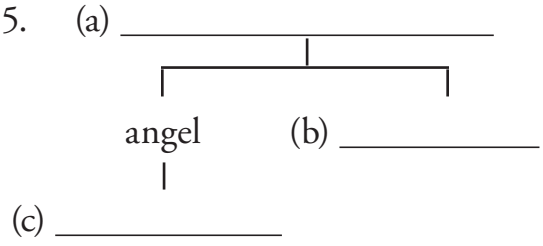


4.

Fill in the genus and species hierarchy for each term given, identifying a) a genus for the term, b) another species under that genus, and c) a species of the term. (3 each)

5.



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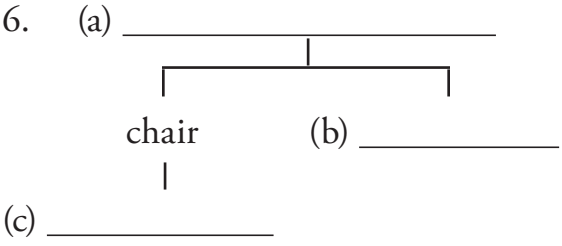
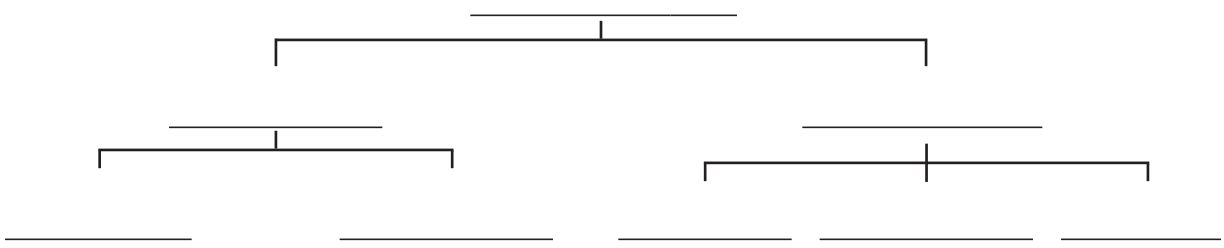


7. Draw a genus and species hierarchy that includes the following terms: ALGEBRA, BIOLOGY, CHEMISTRY, GEOMETRY, MATH, PHYSICS, SCIENCE, SUBJECT (6)



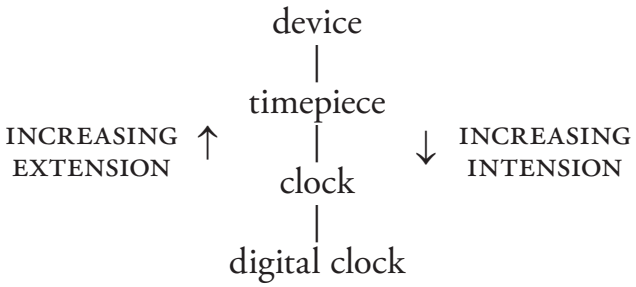
LESSON 3

EXTENSION AND INTENSION

Two concepts closely associated with genus and species charts are extension and intension. The **extension** of a term is the sum of all the individual objects to which the term applies. Thus the extension of the term *book* is the set of all books—all novels, dictionaries, textbooks, manuals, etc. The extension of the term *helmet* would include every football helmet, bicycle helmet, space-suit helmet, and any other helmet imaginable.

All the objects included in the extension of a term have certain attributes in common. If they did not, we could not identify them with one term. The sum of the common attributes of a term is the **intension** of the term. Thus the intension of *book* would include attributes such as: having pages, on which words are written, which are bound together by some means. The intension of *helmet* would include these attributes: fitting on the head, resisting impact, made of protective material, and so on.

Extension and intension are inversely related. Given almost any genus and species chart, as you work your way up the chart, the extension of each term is greater than the previous terms, but the intension is smaller. Consider the hierarchy shown below:



The term *clock* has a greater extension than the term *digital clock*—that is, there are more clocks than there are digital clocks, because

DEFINITIONS

The ***extension*** of a term is the sum of all the individual objects described by it.

The ***intension*** of a term is the sum of all the common attributes denoted by the term.

KEY POINT

Extension and intension are inversely related.

THINKING DEEPER

It is possible to increase intension without simultaneously decreasing extension. For example, if we added the attribute *material* to *digital clock*, we have increased intension, but the extension has remained the same, since all digital clocks are material digital clocks. Similarly, since all digital clocks are *less than one mile in height*, adding this attribute would not change the extension. Is it possible to change extension without changing intension?

KEY POINTS

Greater extension means more abstraction; greater intension means more concreteness.

Understanding extension and intension will help you grasp various relationships among terms.

clock not only includes all digital clocks, but all other types of clocks as well. Similarly, there are more timepieces than there are clocks (can you name some?), so the extension of *timepiece* is greater than the extension of *clock*. As you go up a hierarchy, extension increases. However, intension *decreases* as you go up the chart, and increases as you go down. Timepieces have more attributes in common (i.e., a greater intension) than devices, clocks have more attributes in common than timepieces, and so on.

Increasing extension is parallel to increasing abstraction. The more abstract a term is, the greater its extent. *Device* is more abstract than *timepiece. To think* is more abstract than *to reason*, and thus would be higher on the genus and species chart, having a greater extension (though applying extension and intension to verbs tends to be more difficult than applying them to nouns).

Similarly, an increase in intension is accompanied by an increase in concreteness. The more attributes a term has, the more concrete it is. *Digital clock* is more concrete than *clock,* which is more concrete than *timepiece.*

The ability to list terms in order of increasing (or decreasing) extension (or intension) is a great help in understanding the relationships among them. Here we have in alphabetical order a number of terms from a genus and species hierarchy:

ANIMAL, APE, GORILLA, LIVING BEING, MAMMAL

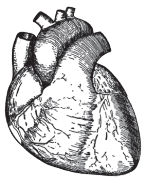
Arranged in order of increasing extension (and decreasing intension), this list would look like this:

GORILLA, APE, MAMMAL, ANIMAL, LIVING BEING

Rearranged in order of increasing intension (that is, decreasing extension), the list would simply be placed in reverse order:

LIVING BEING, ANIMAL, MAMMAL, APE, GORILLA

SUMMARY



The extension of a term is the sum of all the individual things to which a term applies. The intension of a term is the sum of the common attributes of the term. Extension and intension are inversely related; as extension increases, intension decreases, and vice versa.

Exercise 3 (15 points)

1. Arrange in order of increasing extension:
   FIGURE, PLANE FIGURE, POLYGON, RECTANGLE, SQUARE (3)

   _____

2. Arrange in order of decreasing extension:
   INSTRUMENT, SCIMITAR, CURVED SWORD, SWORD, WEAPON (3)

   _____

3. Arrange in order of increasing intension:
   ANCIENT LANGUAGE, CLASSICAL LATIN, COMMUNICATION, LANGUAGE, LATIN (3)

   _____

4. Arrange in order of decreasing intension:
   BAPTIST, CHRISTIAN, PROTESTANT, RELIGIOUS PERSON, SOUTHERN BAPTIST (3)

   _____

5. Determine the attribute or characteristic that distinguishes the term from the genus given in parentheses after the term. (3)

   TIMEPIECE (DEVICE) _____

   CLOCK (TIMEPIECE) _____

   DIGITAL CLOCK (CLOCK) _____

LESSON 4

METHODS OF DEFINING

There are many methods of defining (giving a meaning of) a term. One of these methods, defining by genus and difference, directly relates to the genus and species hierarchies of the last two sections. Before we examine that method, however, we will consider two others that are commonly used.

1. Defining by synonym. When you look in the dictionary for the definition of a word, you often find a synonym (a word with the same meaning) of the word listed. This can be helpful, but only if you already understand the meaning of the synonym. For example, look up *progeny* and you will probably find that it is a synonym of *descendants* or *children.* This is helpful, since you know what these words mean. However, it may not help you to find out that *vicissitude* means *mutability.* We all learned the meanings of words by this method when we were young. "Daddy, what's *essential* mean?" "Son, *essential* means *necessary* or *important*."

One limitation of defining by synonym is that many words do not have exact synonyms (indeed, some would argue that no two words mean *exactly* the same thing). For example, the word *oxygen* has no real synonym, and is best defined by some other method. The same could be said for the terms *bone, breakfast,* and *triangle.*

2. Defining by example. Another way children (and adults) are taught the meanings of words is by being given examples of them. A child, upon asking her mother what money is, may be given a penny or shown a dollar bill. My children all learned the meaning of the word *cow* by having cows pointed out to them as we were driving by a field. "Jamie, look at all the cows!"

KEY POINT

There are several methods you can use to define a term. The best method to use may depend on the term and the circumstances.

HISTORY

Though we consider only three, the great Cassiodorus Senator (c. 480–575), in his book *An Introduction to Divine and Human Readings*, identifies no less than fifteen methods of defining terms. In addition to the three this text considers, Cassiodorus lists and explains the following methods: notional, qualitative, descriptive, distinguishing, metaphorical, negation of the opposite, use of image, statement of what is lacking, by way of praise or blame, proportional, relational, and causational.

CAUTION

When defining by example, include several differing terms to ensure your definition is complete enough.

Similarly, one can define words by example by using species of the term. We may define *noble gas* by listing helium, neon, argon, krypton, xenon, and radon. This would be a complete definition. Often, representative samples can give partial (though adequate) definitions. Defining *sickness* by giving chicken pox and the flu as examples will probably meet the need. In general, when defining by example, be sure to include several differing terms.

This method also has some limitations. When a child is shown a typewriter and calls it a computer, he demonstrates the ambiguity of this method. When shown a computer, the child is uncertain as to what part is the meaning of the word *computer*—the keyboard, the screen, or something else. Despite this and similar problems, giving examples is a common means of defining.

3. Defining by genus and difference. This is often the clearest method (though perhaps the most difficult) for defining terms, not being subject to the limitations of defining by synonym or example. In this method, a term is defined by naming its **genus**, and then adding descriptive words that distinguish that term from every other species under that genus—that is, by providing the **difference**. For example, the term *backpack* may be defined as "a bag carried on the back." The genus is *bag,* the difference is *carried on the back.* The term *logic* has been defined as "the science of reasoning." The genus is *science,* the difference is *of reasoning.* This difference distinguishes logic from other sciences, such as biology, chemistry, and physics.

KEY POINT

Using genus and difference is usually the best way to define a term.

To choose a genus, try to determine what kind of thing the term is. What kind of thing is a computer? Is it a tool? A machine? A box? Also, remember that you are not defining words *per se*, which are often ambiguous, but you are defining *terms,* the concepts behind words. When defining *church,* for example, you need to determine if you are considering the body of believers or the building where they meet before you develop a definition. When asked to define a term, only one definition is necessary.

When choosing the difference, remember that you are trying to distinguish the term from every other species under the genus. The difference should *exclude* species that the term does not *include*, and

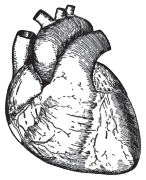
vice versa. Consider this definition of *battle:* "a hostile encounter between two armies." The difference "between two armies" excludes battles between ships at sea, among other things, and is thus too narrow. Also note that the difference should be an essential one. A painting is not "a picture drawn on canvas," but "a picture drawn by means of paint."

The difference need not come after the genus. "Three-sided polygon" is a good definition of *triangle* by method of genus and difference, even though the difference *(three-sided)* is given first.

You can see that this method of defining is particularly appropriate when the purpose is to show relationships between terms. The examples given in that section were examples of defining by genus and difference.

SUMMARY

Terms may be defined by synonym, by example, or by genus and difference. Terms are defined by genus and difference by stating the genus of the term along with words distinguishing that term from every other species under the genus.



Exercise 4 (24 points)

Define the following terms by listing three examples of each. (3 each)

1. nation
   _____
   _____
   _____
2. board game
   _____
   _____
   _____
3. candy
   _____
   _____
   _____

Define these terms by identifying a synonym of each. (1 each)

4. happy _____
5. job _____
6. dinner _____

Define the following words by genus and difference. (2 each)

7. brother _____
8. doe _____
9. whisker _____
10. queen _____
11. quiz _____
12. idol _____

LESSON 5

RULES FOR DEFINING BY GENUS AND DIFFERENCE

Up to this point, we have considered several methods of defining, and you have had some practice defining words by genus and difference. In order to use this method well, we need to keep a few rules in mind.

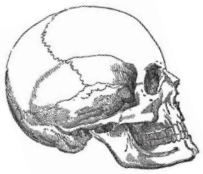
1. A definition should state the essential attributes of the term. For any given term, some attributes are essential, while others can be considered merely accidental or superficial. Essential means necessary; i.e., without that attribute, the term would cease to be what it otherwise is. For example, an essential attribute of the term oven is its ability to heat. If a device could not heat, it would not be an oven. But the fact that ovens are usually shaped like a box is merely accidental (it is possible to have a round oven), and thus this attribute should not be part of the definition of the term.

How can you tell the difference between essential and accidental attributes? First ask, "Would this term cease to be what it is if this attribute were somehow changed or removed?" If changing the attribute would destroy the meaning of the term, that attribute is essential. Secondly, essential attributes tend to be the cause of accidental attributes. Consider the term *shin*. Which attribute is essential: "located on the front of the leg below the knee," or "often injured in soccer games"? The former is the essential attribute, since it is one cause of the latter.

Also, note that this rule implies that a definition should avoid redundancy. For example, consider this definition of a triangle: "A polygon with three straight sides and three angles." This definition is redundant in two places: all polygons have straight sides, and any polygon with three sides necessarily has three angles. A better definition for triangle is simply "A polygon with three sides."

KEY POINT

Using only essential attributes in a definition conveys the most relevant information about the term and avoids redundancy.



CAUTION

Avoid using synonyms in definitions that use genus and difference.

2. A definition should not be circular. The word being defined should not be used as part of the definition. The difficulty this rule seeks to prevent is that circular definitions go nowhere. If a student defines *logic* as "the study of logic," he hasn't really given the meaning at all.

This rule is not necessarily broken when part of a word is used in its definition. The definition of *polar bear* as "a white bear that inhabits the arctic regions" is not circular, even though the word "bear" appears in both parts.

This rule generally excludes the use of synonyms. If synonyms are allowed, then define the word by synonym, not by genus and difference.

THINKING DEEPER

We must be careful not to think that once we have produced a proper genus and difference definition we have somehow gotten to the *essence* of the thing defined. This analytic method has value in making our thoughts clear and distinct, but a more synthetic or poetic approach should be considered when we are seeking to fully learn what something is. For example, an analytic definition of *the Word of God* might be "God's powerful, meaningful self-expression." But how does the Bible describe the Word of God? Consider Psalm 19: "The law of the Lord is perfect, converting the soul: the testimony of the Lord is sure, making wise the simple....More to be desired are they than gold, yea, than much fine gold: sweeter also than honey and the honeycomb."

3. A definition should not be too broad nor too narrow. This rule is violated when a definition includes what it should exclude, or excludes what it should include. Consider this definition for the term *table*: "a piece of furniture consisting of a flat slab of wood fixed on legs." The problem is that this definition excludes tables made of metal or other material. Its extension is too small. A definition for table that *includes* too much is "a piece of furniture with legs." This would include chairs, couches, and other things which are not tables.

To check if the extensions of a term and its definition are equivalent, look for counterexamples. Is a *baby* a newborn person? What about a six-month-old baby? Is logic the science of thinking, or are some types of thinking outside the scope of logic?

4. A definition should not be unclear or figurative. Definitions can be unclear for a variety of reasons. A definition may be unclear because it uses words that are ambiguous, vague, or obscure. If you define *ray* as "a light beam," your definition is ambiguous. Light has several meanings, and so does beam. However, simply rearranging the words in the definition to be "a beam of light" helps to clarify these ambiguities. Defining *year* as "a long period of time" breaks this rule, because the definition is vague. Defining *man* as "a ratiocinative hominid" breaks this rule because both "ratiocinative" and "hominid" are too obscure for most people.

Definitions also may be unclear when the language of the definition is figurative or metaphorical. *"Ray:* a drop of golden sun" is a

figurative definition. Such definitions may be poetic, but they often do not provide a clear meaning for the term.

5. A definition should be stated positively, if possible. Sometimes when trying to define a term we are tempted to say what it *is not*, when we should say what it is. Such definitions by process of elimination break this rule. The term *magazine* should not be defined as "a periodical that is not a newspaper." To define an *isosceles triangle* as "a triangle that is neither equilateral nor scalene" breaks this rule, even though the term and its definition have exactly the same extension.

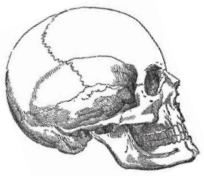
Some terms are necessarily negative, such as *bald, empty,* and *penniless.* The definitions of these would be awkward if written positively, and thus they may be negative without really breaking the rule.

KEY POINT

Try to avoid negative definitions, but recognize that they are sometimes necessary.

6. A definition should be of the same part of speech as the term. If the term being defined is a noun, then the definition should be a noun. Similarly for the other main parts of speech: verbs, adjectives, and so on. This rule is broken, for example, when *to run* is defined as "faster than walking." The term is a verb, the given definition is not. Defining *to sew* as "a needle pulling thread" breaks this rule as well—*to sew* is a verb, "a needle pulling thread" is a noun.

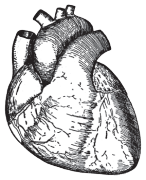
A similar error occurs in this definition of *to run:* "when you go faster than walking." Is *to run* a time? Of course not, so don't use the word *when.* Similar problems often crop up when the words *who, what, where, why* and *how* appear in definitions. These are best avoided, if possible.



CAUTION

The use of words like *where* and *when* in a definition usually signals a problem with the definition.

SUMMARY



When terms are defined by genus and difference, certain rules should be followed. A definition should 1) state the essential attributes of the term, 2) not be circular, 3) not be too broad or too narrow, 4) not be unclear or figurative, 5) be stated positively if possible, and 6) be of the same part of speech as the term.

Exercise 5 (54 points)

Identify the rule(s) broken by circling the correct number(s). Use the numbers in the following list: **A definition should** *(1) State the essential attributes of the term, (2) Not be circular, (3) Not be too broad or too narrow, (4) Not be unclear or figurative, (5) Be stated positively if possible,* and *(6) Be of the same part of speech as the term.* (2 each)

DEFINITION	RULE #S BROKEN
1. *Mountain:* A natural object bigger than a hill.	1 2 3 4 5 6
2. *Wife:* Adam's rib.	1 2 3 4 5 6
3. *Brick:* Dried clay shaped into a brick.	1 2 3 4 5 6
4. *Rectangle:* The shape of a typical textbook.	1 2 3 4 5 6
5. *Headache:* When your head hurts.	1 2 3 4 5 6
6. *Capitalist:* A person who is not a socialist.	1 2 3 4 5 6
7. *To hate:* How you feel when you don't like something.	1 2 3 4 5 6
8. *Carpet:* Floor covering.	1 2 3 4 5 6
9. *To float:* To hover.	1 2 3 4 5 6
10. *Bag:* A pliant repository.	1 2 3 4 5 6
11. *Large:* Something that is not small.	1 2 3 4 5 6
12. *Life:* A roller coaster that we all ride.	1 2 3 4 5 6

Fill in the genus and species hierarchy for each term given, identifying a) a genus for the term, b) another species under that genus, and c) a species of the term. (3 each)

13. (a) _____

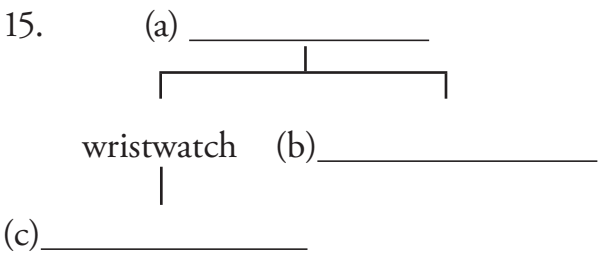
dinner (b)_____

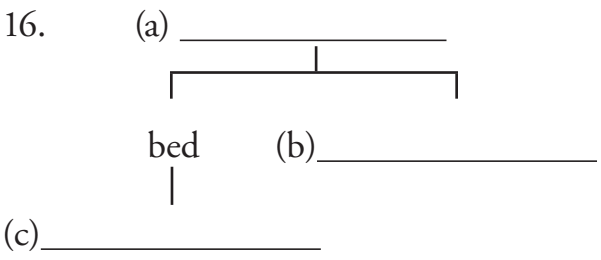
(c)_____

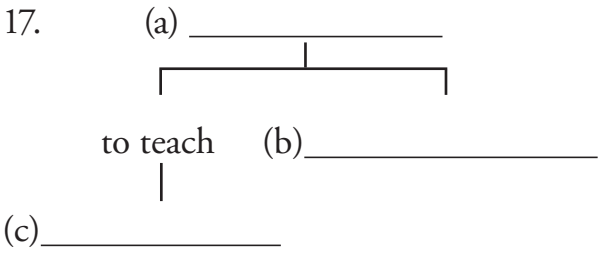
14. (a) _____

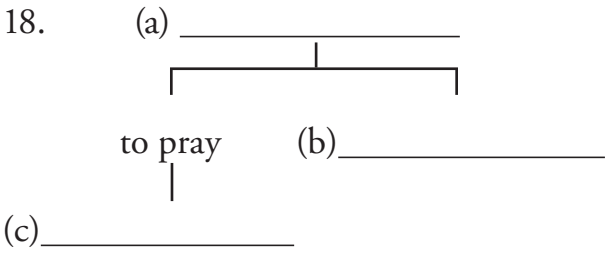
moon (b)_____

(c)_____

15. 

16. 

17. 

18. 

Define the following terms by genus and difference, using the same genus from any corresponding terms in the charts above. Be careful not break any of the rules! (2 each)

19. dinner _____
20. moon _____
21. wristwatch _____
22. bed _____
23. to teach _____
24. to pray _____

REVIEW QUESTIONS

Answers can be found in the lesson under which the questions are listed.

Introduction

1. What is reasoning?
2. Why has God given men the ability to reason?
3. What is formal logic? In what way is logic an "attribute" of God?
4. What is the Law of Excluded Middle?
5. What is the Law of Identity?
6. What is the Law of Non-contradiction?
7. How does formal logic differ from informal logic?
8. What are some of the topics dealt with under informal logic?
9. What are the two branches of formal logic?
10. What are some differences between *induction* and *deduction*?
11. What are two branches of deduction?
12. Who first developed categorical logic, and when did he live?
13. What is one difference between *categorical logic* and *propositional logic*?
14. What are the branches of logic dealt with in this book?

Lesson 1: The Purposes and Types of Definitions,

1. What is a term?
2. What is the connection between a *term* and a *word*?
3. What does it mean to define a term?
4. What are six purposes for defining terms?
5. What are the five types of definitions?
6. Which types would you likely find in a dictionary?
7. What is an ambiguous word?
8. What is a vague word?
9. What is a lexical definition?
10. What is a precising definition?
11. What is a stipulative definition?

12. What is a theoretical definition?
13. What is a persuasive definition?

Lesson 2: Genus and Species

1. What is a genus?
2. What is a species?
3. Can a term be both the *genus* of one term and the *species* of another?
4. What are some of the common errors made in constructing genus and species charts?

Lesson 3: Extension and Intension

1. What is the extension of a term?
2. What is the intension of a term?
3. How are *extension* and *intension* related in any given genus and species chart?

Lesson 4: Methods of Defining

1. What are three methods of defining terms?
2. Do other methods exist?
3. What are some limitations of defining by synonym?
4. What are some rules for defining by example?
5. How is a term defined by genus and difference?

Lesson 5: Rules for Defining by Genus and Difference

1. What are the six rules for defining by genus and difference?
2. Can you restate these rules in your own words?
3. What is the difference between an *essential* and an *accidental* attribute?
4. What are three ways that a definition can be unclear?

REVIEW EXERCISES

Students may do these exercises for further review of this unit.

Lesson 1: Additional Exercises

1. Write (or find) lexical definitions for the following pairs of words that will show the relationship between them. Explain the relationship: How are the words similar? How are they different?

   a) brother: _____

   sister: _____

   relationship: _____

   _____

   _____

   b) circle: _____

   sphere: _____

   relationship: _____

   _____

   _____

   c) newspaper: _____

   magazine _____

   relationship: _____

   _____

   _____

d) breakfast: _____
dinner: _____
relationship: _____
_____
_____

e) blind: _____
deaf: _____
relationship: _____
_____
_____

f) huge: _____
tiny: _____
relationship: _____
_____
_____

g) to punch: _____
to slap: _____
relationship: _____
_____
_____

h) to walk: _____
to run: _____
relationship: _____
_____
_____

Questions 2–5: Identify the type of definition used for the underlined word in the paragraph.

2. Consider the following description of Noah's ark: "Noah's ark was big. What do I mean by big, you ask? Well, the ark had a volume of about one and a half million cubic feet!"

   _____

3. Rabbits were introduced to a small, populated island where they had no natural predators, and they rapidly overran the town there. In a letter to the editor, one citizen argued for their elimination, saying that "a rabbit is just a fuzzy rat!"

   _____

4. In the book *The Structure of Scientific Revolutions*, the author Thomas Kuhn writes, "In this essay, 'normal science' means research firmly based upon one or more past scientific achievements, achievements that some particular scientific community acknowledges for a time as supplying the foundation for its further practice."

   _____

5. In an editorial to the *London Times* titled "What is Relativity?" (November 28, 1919), Albert Einstein wrote, "The most important upshot of the special theory of relativity concerned the inert mass of corporeal systems. It turned out that the inertia of a system necessarily depends upon its energy-content, and this led straight to the notion that inert mass is simply latent energy."

   _____

6. Read the short story "The Most Dangerous Game" by Richard Connell (if you do not have a copy, you may be able to find it on the Internet). In the title, the word *game* is purposely ambiguous. Write your own lexical definitions for both meanings.

   _____

   _____

   _____

7. Consider the following ambiguous words. Think of at least three different meanings or definitions (including different parts of speech) for each.

age

check

class

date

face

fair

fine

head

light

mean _____

_____

_____

point _____

_____

_____

race _____

_____

_____

round _____

_____

_____

scale _____

_____

_____

top _____

_____

_____

8. Can you think of some words that have only *one* meaning?

_____

_____

_____

_____

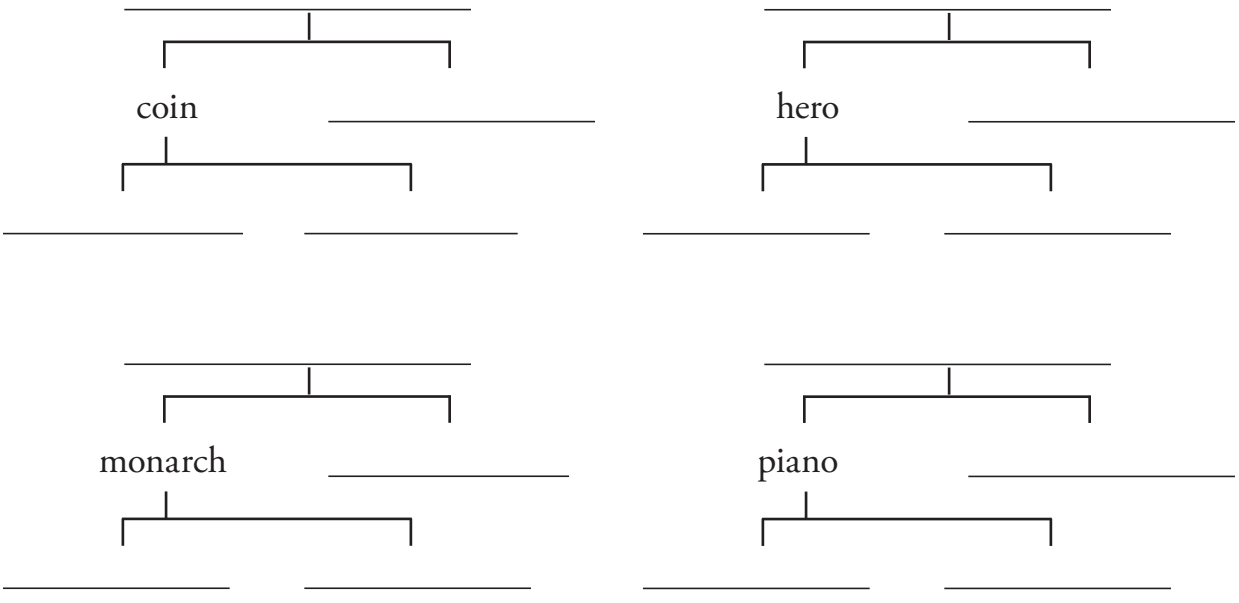
_____

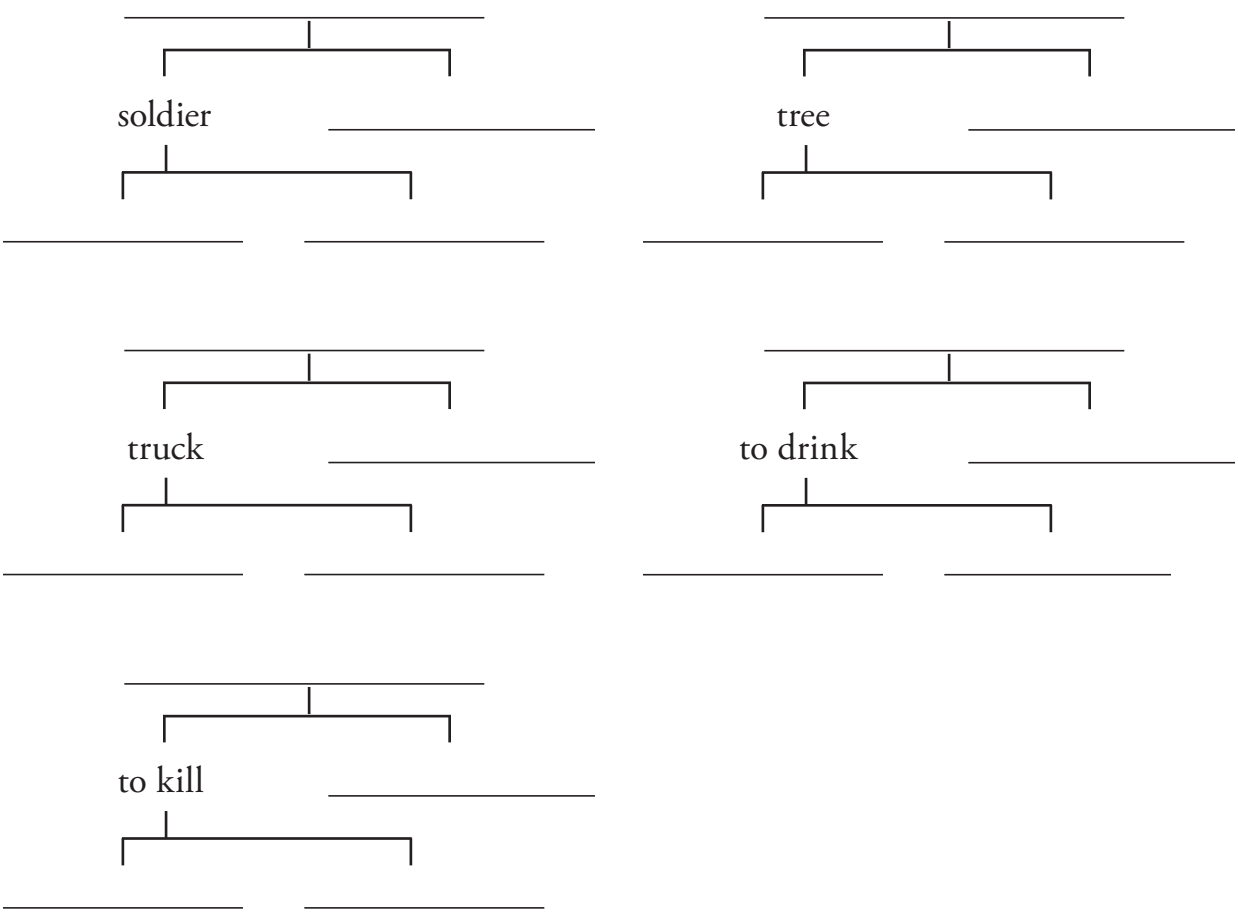
9. Do some research, either in a new dictionary or on the Internet, and discover some words that have recently been adopted into standard English. Where did the words originate?

Lesson 2: Additional Exercises

1. Explain how the words *genus* and *species* are related to the words *general* and *specific*.

2. Create genus and species charts for the following terms. Include a genus for the given term, another species under that genus, and two species for the given term.





3. Consider the examples of proper genus and species charts in Lesson 2 and Exercise 2. In the space below, expand one of these charts by 1) introducing a new, higher genus, 2) introducing new, lower species, and 3) including more species to broaden the chart. For more practice, create additional charts on blank paper.

4. In a genus and species chart, different species may be produced for a given term depending on the dividing principle being used (as the species of logic could be *formal* and *informal*, or *art* and *science*). For each of the given terms, produce two sets of species, and identify what dividing principle you are using.

a)

dividing principle: _____ _____

b)

dividing principle: _____ _____

b)

dividing principle: _____ _____

5. Create a genus and species chart that includes the following terms (and additional terms as needed): *book of the Bible, epistle, Genesis, Gospel, Hebrews, Jonah, Luke, Matthew, New Testament book, Romans.*

What term or terms did you need to introduce to complete this chart? Do the terms at a given level "line up" properly?

Lesson 3: Additional Exercises

1. Arrange these terms in order of increasing extension: *banquet, dinner, formal dinner, meal, wedding banquet.*

2. Arrange these terms in order of increasing intension: *brother, child, human, sibling, twin brother.*

3. Arrange these terms in order of decreasing extension: *airplane, fighter, jet, F-14, vehicle.*

4. Arrange these terms in order of decreasing intension: *body, celestial body, gas giant, Jupiter, planet.*

5. Consider the term *gas giant* from the above list. Would adding the adjective *ringed* (i.e., *ringed gas giant*) change the extension? Would it change the intension?

6. For each of the following, determine the attribute or characteristic that distinguishes the term from the genus of the term given in parentheses: *term (word), idol (god), whisker (hair), fang (tooth), nightmare (dream), to accelerate (to move).*

term (word) _____

idol (god) _____

whisker (hair) _____

fang (tooth) _____

nightmare (dream) _____

to accelerate (to move) _____

7. Consider the second chapter of the epistle of James. What distinguishes *saving faith* from mere *belief?*

_____

8. Develop a list of four verbs arranged in order of increasing intension.

_____

Lesson 4: Additional Exercises

1. Define each of the following terms by synonym, example, and genus and difference. Limit your synonyms to only one word, and include a variety when defining by example.

a) father synonym: _____

examples: _____

_____

_____

genus & difference: _____

b) ghost synonym: _____

examples: _____

_____

_____

genus & difference: _____

c) house synonym: _____
examples: _____
_____
_____
genus & difference: _____

d) human synonym: _____
examples: _____
_____
_____
genus & difference: _____

e) monarchy synonym: _____
examples: _____
_____
_____
genus & difference: _____

f) hoop synonym: _____
examples: _____
_____
_____
genus & difference: _____

2. Another common method of defining terms is by etymology, in which the original language root of the word is used to clarify the meaning. For example, *monarchy* comes from the Greek *mon* + *arche*, meaning "one ruler."

architect _____

manuscript _____

peninsula _____

submarine _____

telegram _____

translucent _____

3. Be attentive to words being defined by your teachers or parents, in the books that you read, or in sermons that you listen to. What other methods of defining terms, if any, do they use?

_____

_____

Lesson 5: Additional Exercises

1. What is the primary rule broken by each of the following definitions?

   Chair: a four-legged piece of furniture. _____

   Chess: a game played on a checkered board. _____

   Chick: juvenile poultry. _____

   Salad: not a main dish and not a dessert. _____

   To shake: a rapid back and forth motion. _____

   To think: to think about something. _____

   Variety: the spice of life. _____

   Wood: hard material burned in fireplaces. _____

2. Write proper genus and difference definitions for the following terms:

   chair _____

   coin _____

   to drink _____

   pebble _____

   salad _____

   to snore _____

   to throw _____

   wood _____

   year _____

3. The following terms are rather "negative." Write genus and difference definitions for each of them. Can you define them positively?

   absence _____

   death _____

   empty _____

   ignorance _____

   infinite _____

   sin _____

4. Consider the song "Do, Re, Mi" from the movie *The Sound of Music.* If the definitions given in the song were considered serious, which would be good definitions by genus and difference? Of those which would be improper definitions, which rules are broken?

   do (doe), "a female deer": _____

   re (ray), "a drop of golden sun": _____

   mi (me), "a name I call myself": _____

   fa (far), "a long, long way to run": _____

   so (sew), "a needle pulling thread": _____

   la, "a note to follow 'so'": _____

   ti (tea), "a drink with jam and bread": _____

5. Read the children's book *A Hole is to Dig*. What primary rule is broken by most of the definitions in that book?

   _____

6. In Galatians 5:22–23, Paul lists the fruit of the Spirit. Do the terms have a common genus? Write a genus and difference definition of each term that clarifies the distinctions between them.

   genus: _____

   love: _____

joy: _____

peace: _____

patience: _____

kindness: _____

goodness: _____

faithfulness: _____

gentleness: _____

self-control: _____

7. Can *God* be defined by a genus and difference definition? Consider the answer to question 4 in the Westminster Shorter Catechism, "What is God?": "God is a Spirit, infinite, eternal, and unchangeable, in his being, wisdom, power, holiness, justice, goodness, and truth." Compare this to how the Bible defines or describes God.

UNIT 2

STATEMENTS AND THEIR RELATIONSHIPS

Contents