Genus and Species

Rules for Defining by Genus and Difference.

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Introduction:

- In the past lessons we have looked at the Purpose and definition of Logic, the 3 Major laws of logic or "first Principles", and Definitions, defining terms, and methods for defining terms.
- In this Lesson we want to continue with the Idea of defining and doing so by Genus and Species. We will look at the relation of Genus and species, as well as look at some rules for defining by Genus and difference. We have several exercises we can do together to help practice these.
- What I have provided are the major terms and definitions from the lesson notes to help you follow along and aid you in the exercises.

Genus and Species: Lesson 2 Introductory Logic

- Genus and species are relative terms[1]. Each term can be both a genus and a species. These terms can be illustrated in a ''genus and species hierarchy[2]'' with the genus above the term and the species is below it.

- Genus: The Genus of a term is more general, broad, or abstract than the original term and includes it.

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  _____

  _____

[1] A term is a concept that is expressed precisely in words. A definition is a statement that gives the meaning of a term.
[2] Caution: Even though genus and species are biological terms, logical hierarchies are very different from biological ones.

- Species: The Species of a term is a term that is more specific, narrow, or concrete than the original term and is included by it.

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- Example: Mutually exclusive and exhaustive.

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- Errors to avoid:

1. Species that overlap: this means that the species are not mutually exclusive.

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2. Terms at the wrong level:

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3. Using ambiguous words[3]

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4. Parts of the genus rather than a type or kind of the genus.

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Extension and Intension: Lesson 3 Introductory Logic

- Two concepts closely associated with genus and species charts are extension and intension. These two concepts are inversely related, meaning that if you increase one you decrease the other and vice versa.

- Extension: The Extension of a term refers to the sum of all **the individual objects** described by it.

    - Ex. Book. How many kinds of books can we include in the extension?

[3] Using words having more than one meaning.

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- Intension: The intension of a term is the sum of all the **common attributes** denoted by the term.
    - Ex. Do the KJB and the TR have more or less in common than the TR and the Koran?

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Rules for Defining By Genus and Difference: Lesson 5 Introductory Logic.

- Last week Bryan gave a lesson on the importance of defining our terms as well as some different kinds of definitions. Based on what we just learned about Genus and Species we want to look at some rules for defining words using genus and difference. Let's consider 6 rules for defining words.

- Rule 1. A definition should state the essential attributes of the term.

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- Rule 2. A Definition should not be circular

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- Rule 3. A definition should not be too broad nor too narrow.

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- Rule 4. A definition should not be unclear or figurative.

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- Rule 5. A definition should be stated positively, if possible.

_____

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- Rule 6. A definition should be of the same part of speech as the term.

_____

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- Let's compare some definitions of a dictionary and an individual on what does sovereignty mean.

- Evangelical Dictionary of Theology
  - Sovereignty of God:
    - The biblical teaching that God is king, supreme ruler, and lawgiver of the entire universe.
- Now consider this transcript from R.C. Sproul
  - And I started the class by reading the opening lines of chapter three of the Westminster Confession.

I don't have them down verbatim, but I can give you basically what it says there. It starts off by saying something like this that God has or does from all eternity, immutably and **sovereignly** ordain whatsoever comes to pass, comma. I'll say that again. God does **sovereignly**, immutably ordain whatsoever comes to pass, comma. I stopped right there at the comma and I said "Now here's this statement, it says that from all eternity, God does freely and **sovereignly**, and immutably ordain every single thing that comes to pass. How many of you believe that?"…
"What are you talking about? Just because we don't believe that God freely and immutably ordains whatsoever comes to pass, you're calling us atheist." I said "That's exactly what I'm calling you."

I said "If you don't believe that God ordains everything that comes to pass, bottom line, you don't believe in God. You don't believe in God." I said, "You have to understand that this passage here in the confession that God ordains everything that comes to pass, there's not anything in that statement that is uniquely Presbyterian. There's not even anything in there that's uniquely Christian. That statement doesn't divide Presbyterians from Methodists or Lutherans or Anglicans. And it doesn't distinguish between Presbyterians and Islamic religion or Judaism religions. It's a distinction between theism and atheism. It's a statement, simply a declaration of the absolute **sovereignty** of God." What I tried to get these young people to see was this, very simply that if God is not **sovereign**, God is not God. If there is one maverick molecule in the universe, one molecule running loose outside the scope of God's **sovereign** ordination, then ladies and gentlemen, there is not the slightest confidence that you can have that any promise that God has ever made about the future will come to pass. – R.C. Sproul[4]

[4] https://learn.ligonier.org/podcasts/ultimately-with-rc-sproul/no-maverick-molecule

UNIT ONE: TERMS AND DEFINITIONS

Exercise 2 (20 points)

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

1. animals
   - mammals
   - fish
   - air-breathers

2. hand
   - fingers
   - thumb
   - palm

3. glasses
   - sunglasses
   - wine glasses

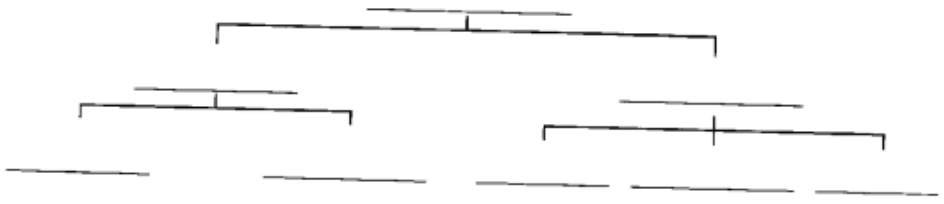
4. airplane
   - jet
   - biplane
   - Boeing airplane

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.

5. (a) _____
   - angel
   - (b) _____
   - (c) _____

6. (a) _____
   - chair
   - (b) _____
   - (c) _____

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



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Exercise 3 (15 points)

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

   _____

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

   _____

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

   _____

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

   _____

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

   TIMEPIECE (DEVICE) _____

   CLOCK (TIMEPIECE) _____

   DIGITAL CLOCK (CLOCK) _____

UNIT ONE: TERMS AND DEFINITIONS

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.*

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.

13. (a) _____

dinner (b)_____

(c)_____

14. (a) _____

moon (b)_____

(c)_____

15. (a) _____

wristwatch (b)_____

(c)_____

16. (a) _____

bed (b)_____

(c)_____

17. (a) _____

to teach (b)_____

(c)_____

18. (a) _____

to pray (b)_____

(c)_____

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!

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