Identifying Arguments[i]

Introduction

Any kid who has played with tinker toys and Lincoln logs knows that there are many different kinds of pieces that fit together to construct a wind mill or a sky scraper, etc. There are many different sizes and shapes; some pieces look a like but can be used differently.

So, too, in logic, there are many different logical pieces that fit together to form reasons in order to construct, not wind mills or sky scrapers, but arguments.

Here we want to begin by looking at and defining some of the pieces to see what they are and how they all fit together.

The pieces include:

1. Names or words
2. Thought/thinking
3. Sentences
4. Propositions, Premises and terms
5. Arguments
6. Deduction
7. Induction

I. Words and Morphemes

Thomas Hobbes once said:
"Reason is attained by industry, first in apt imposing of names"
or we would say in the apt imposing of "words."

A. Word

A word, defined technically is "verbal sound or written symbol, or series of them, that is used as a unit of language that has meaning and serves as an identifying label of the various entities in the world, material and non-material." Words may consist of a single morpheme or combination of morphemes.

B. Morpheme

Any word or part of a word that conveys meaning, that cannot be further subdivided into smaller elements conveying meaning, and usually occurs

in various contexts with relatively stable meaning. Like dis- (a negative meaning), eu- (good), a- (no, not), etc.

II. Thinking

The exercise of mental faculties about things represented by words. We think about things by fixing them in our minds with words and combining the words into sentences with meanings about things. To understand thinking, we must understand the labels or signs we attach to things (i.e., words) and the manner in which we combine them.

III. Sentences

We combine words in all sorts of ways (like tinker toys) to make sentences of several varieties:

A. Declarative statements: "All men are mortal."
"Hydrogen is combustible."
"WW II began in 1939."
"Some ducks are fish."
"Abe Lincoln was beheaded."
[Note: the **truth value** of the last two statements is false.]

B. Questions: "What day is today?"
[Translated into a Proposition: Today is Tuesday.]

C. Commands: "Leave me alone."
[Translated into a Proposition: I am alone.]

D. Exclamations: "What a beautiful painting!"
[Translated into a Proposition: The painting is beautiful.]

Of the above sentences, only the first one is important to logicians, since only it can be judged to be true or false. Combinations of words (i.e., sentences) that can be judged true or false are called **propositions or statements or assertions** which is the special area of study for logicians. [Note how each of the sentences has been changed into propositional form].

IV. Propositions and/or Statements

A. Definition

First of all, in a technical sense, a **proposition** is the meaning or information content of a statement. Because information or meaning may be expressed in different ways, the same proposition may be expressed by different statements (see below).

The logician is especially concerned with propositions as a kind of sentence or statement that has objective meaning. This is the main concern of a logician, the objective meaning of sentences, not the words (or the statements) that carry such meaning. Words are necessary to convey meaning, but what a sentence or proposition means is independent of particular words. Notice below the same meaning expressed in completely different words (three sentences or statements, but the same proposition).

> 1. "I came, I saw, I conquered."
> 2. "I marched into Gaul, met the enemy, and conquered him."
> 3. "Veni, vidi, vici."

The words are different; the meaning is the same. It is with the meaning that logic is primarily concerned.

A proposition or a statement, therefore, is a sentence that can be said to be true or false. It makes a claim. Propositions are combined together to form arguments.

B. Types of propositions (much more on this later)

1. Categorical propositions

A categorical proposition is simply an ordinary declarative sentence which affirms or denies something when used in a syllogism and it contains two basic components: a subject and a predicate. The <u>subject</u> is the entity about which something is stated; the <u>predicate</u> is that which is stated about the subject. "Roses are red." Subject and predicate means complete subject and predicate and may consist of one or more than one word. For example, a complete subject might be:

> "Our complicated, technological, and multifaceted culture . . . "

Parts of the categorical propositions are called "terms."

2. Hypothetical or conditional propositions

Two categoricals arranged in the form of a condition—an "if . . . then" (antecedent—consequent) type statement:

> "If it rains, then the party will be called off."
> "If it rains, then the valley will flood."
> "If both Smith and Jones are Americans, then Smith is an American."

"If the electricity was shut off earlier today, then the clock in the kitchen is wrong."

"If quartz scratches glass, then quartz is harder than glass."

N.B. Because the antecedent of a conditional statement is not necessarily asserted to be true, it presents no evidence or reason; and because it presents no evidence or reason, a conditional statement is not technically an argument, even though it may express an inference.

3. Disjunctive propositions

Two categoricals placed in the form of alternatives—an "either . . . or . . . " type statement. "Either the man is dead or he is alive."

Propositions, whether categorical, hypothetical or disjunctive, are combined together in various patterns to form arguments.

V. Arguments

A. Definitions

1. In human relations, an argument means an emotional disagreement.

2. In logic, an argument means the providing of reasons or evidence as the basis for a conclusion. Reasons are garnered to support a point of view. ***Logic itself can be defined as the science that evaluates arguments***. Two conditions are required for the occurrence of an argument:

   a. At least one of the statements or propositions in the passage must present evidence or reasons for something.
   b. There must be a claim that something follows from the evidence or the reasons given, namely the conclusion.

<u>**ARGUMENT**</u>:

Premises: _____ {Evidence or Reasons}
_____
_____

Conclusion: _____ {What is claimed
to follow from the
reasons or evidence}

c. There are many types of passages that do not contain arguments and should not be confused with arguments (such as warnings, advice, beliefs and opinions, descriptions, reports, expository passages, illustrations, conditional statements, explanations, etc.). Expositions may contain tacit arguments.

B. Premises and conclusions

1. A person's reasons or justifications are found in the premises of the argument. Premise indicators:

since	in that	seeing that
as indicated by	may be inferred from	for the reason that
because	as	inasmuch as
for	given that	owing to

"This locket is worth a lot of money, _____ it is made of platinum."

Sometimes an argument contains no indicators. Identify the premises, the conclusions and the premise indicators, if any.

"The space program deserves increased expenditures in the years ahead. Not only does the national defense depend on it, but the program will more than pay for itself in terms of technological spinoffs. Furthermore, at current funding levels the program cannot fulfill its anticipated potential."

"The water in Spirit Lake is not as pure as it looks. Biologists recently took water samples from the lake, and subsequent analysis of the samples disclosed high levels of contamination by insecticides."

Arguments that contain passing comments unrelated to the argument itself. Identify the premises, the conclusions, and the passing comment or observation.

"Socialized medicine is not recommended because it would result in a reduction in the overall quality of medical care available to the average citizen. In addition, it might very well bankrupt the federal treasury. This is the whole case against socialized medicine."

2. The point of view that the person would like to persuade us of is found in the conclusion. Conclusion indicators:

therefore	hence	whence

wherefore	thus	so
accordingly	consequently	it follows that
we may conclude	we may infer	implies that
entails that	it must be that	as a result

"This pen is out of ink. _____ it will not write."

"Neither a borrower or a lender be,
 For loan oft loses both itself and friend,
 And borrowing dulls the edge of husbandry." —Shakespeare,
Hamlet I. 3

"Katie's car has a dead battery, and she has no other means of transportation; consequently, she will not be going to the concert tonight."

Propositions can be combined together to form two basic kinds of arguments, namely deductive (or syllogistic) and inductive arguments.

VI. Deduction and Induction

A. Deduction

1. Defined: a deductive argument is one in which (if valid) the conclusion necessarily follows from the premises; arguing from a general concept to a particular conclusion. If the premises are true, then the conclusion must be true also, because the claim asserted by the conclusion has already been stated in the premises, usually only implicitly. Deductions cannot move from true premises to a false conclusion; this is their chief value. Deduction is limited since it cannot yield conclusions that are not implicit in the premises from which they are derived. Induction is necessary to perform this task. Deductive indicator words: absolutely, definitely, etc.

2. Examples:

Premise #1: All A is inside of B
Premise #2: All B is inside of C
Conclusion: All A is inside of C

Premise #1: All cats are animals.
Premise #2: Felix is a cat.
Conclusion: Therefore, Felix is an animal.

Premise #1: Everything made of copper conducts electricity
Premise #2: This wire is made of copper.

Conclusion: This copper wire will conduct electricity.

Premise #1: All salesmen are extroverts.
Premise #2: Joe Harris is a salesmen.
Conclusion: Therefore, Joe Harris is an extrovert.

B. Induction

1. Defined

An argument where the conclusion follows with some degree of probability from the premises, moving from the particular to the general. Inductions have conclusions that go beyond what is contained in the premises. Induction is learning based on experience. Patterns, resemblances and regularities in experience provide the basis for asserting things that are yet to occur. Some inductions are stronger than others. More varied evidence provides a basis for a stronger induction. Induction, like speaking prose, is used so frequently on a daily basis that it often times goes unnoticed.

The greatest value of induction is that provides a way of reasoning to genuinely new beliefs. This benefit is obtained, however, at the cost of increasing possibility of error. Deduction will guarantee the truth of its conclusion, whereas even the best induction requires an "inductive leap" that could lead us astray because of possible exceptions to our observations and patterns that form the basis of the induction. Induction indicator words:

Probable	Improbable
Plausable	Implausable
Likely	Unlikely
Reasonable	Unreasonable

Induction is not a fool-proof way to expand our knowledge, but it is surely better than other alternative (guessing, wishful thinking, astrology, etc.).

2. Types of inductions

a. Prediction: something in past or present gives reason to believe something in the future.

b. Analogy: an argument that depends on similarity between two things or states of affairs.

c. Inductive generalization: from a selected sample to a whole group.
d. Authority: the conclusion rests on a statement by a presumed authority or witness.
e. Signs: from a sign to the thing symbolized by the sign.
f. Causal inference: reasoning from cause to effect (water left if freezer will freeze); effect to cause (crispy chicken means it was burned).

3. Examples:

Tom, Dick, Harry, Paul, George, John, Ringo are salesmen and are extroverts. Joe Harris is a salesman. Therefore, Joe Harris is an extrovert.

Premise # 1: I loaned my friend $50.00 right before Thanksgiving and he failed to pay me back.
Premise # 2: I loaned my friend $50.00 right before Christmas and he failed to pay me back.
Premise # 3: I loaned my friend $50.00 right before Valentine's Day and he failed to pay me back.
Conclusion: I suppose it is time to face the facts (these regularities): he is never going to pay me back!

Observing the rain outside his window, Dennis the Menace says: It'll stop Joey; it always has before."

Abundant historical evidence, Jewish, Roman, and Greek, points to the fact that Jesus lived and died in the first century A. D. and his own followers confirm the same events.

C. Deduction and induction compared

DEDUCTION	INDUCTION
General to particular	Particular to general
Cause to effect	Effect to cause
A priori	A posteriori
Philosophical reasoning	Scientific reasoning
Necessary conclusion	Probable conclusion
Within the premises (immanent)	Beyond the premises (transcendent)

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[i] NB: This material is taken from several logic texts authored by N. Geisler, H. Kahane, and others. I make not claim to originality in this material.