

*Philosophy 100*

*Supplementary notes and exercises in Logic and Critical  
Thinking*

*collected and edited by William Sweet*



## ***Basic Philosophical Terms***

metaphysics/ontology	Metaphysics is that aspect of philosophy which deals particularly with the basic problems of the nature of reality and its elements (e.g., must all events have causes? Is the mind both different and distinct from the brain?). Ontology, while usually a synonym for 'metaphysics', is sometimes used to focus on problems concerning 'existence' or 'being'.
normative ethics	Normative ethics is concerned with establishing certain norms or rules of conduct <i>and</i> with their application to specific problems (e.g., ought one who holds that life is an absolute value also support capital punishment?).
meta-ethics:	Meta-ethics deals with fundamental questions concerning the nature and meaning of ethical concepts and judgements. (e.g., Is there an absolute standard in ethics? When I make a moral pronouncement, am I expressing a fact, an opinion, a feeling, society's view, or what?)
epistemology:	The study of the possibility, the nature, the sources and the limits of knowledge. It asks such questions as 'What does it mean to say that I know something?', 'Can we be certain of anything at all?' 'Is knowledge the same in mathematics, natural science, and ethics?'
logic:	The study of the rules of reasoning and argument and of necessary truth.
critical philosophy:	The analysis of fundamental concepts and the clear statement and criticism of our fundamental beliefs.
speculative philosophy:	A reflection upon the results of critical philosophy and the conclusions of the sciences in order to reach some general conclusions on the nature of reality.
statement (proposition):	A unit of meaning which may be used to assert or deny something, and which can be true or false.
premise:	A statement asserting grounds, reasons, or evidence in support of a conclusion.
conclusion:	A statement which is either supported by premises or is claimed to be a consequence of them.

reasoning: The act of gathering evidence, weighing it, and drawing conclusions from it.

argument: A set of statements in which some are used as premises to support another (the conclusion).

consistency A set of statements is consistent if and only if it is possible for all of the statements in that set to be true at the same time (i.e., they do not contradict one another). NB: two false propositions can be consistent.

sound

valid

logically strong

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## ***Indicator words***

When attempting to identify and reconstruct arguments, it is often useful to see if there are any “indicator words.” Indicator words often, perhaps usually, but do not necessarily indicate either a conclusion or a premise. But indicator words can have other uses – they can appear in discourses that are not arguments, and they may have other functions in language as well.

Words that usually indicate a premise: because, since, for the reason that, furthermore, inasmuch as.

Words that usually indicate a conclusion: thus, hence, therefore, consequently, as a result, we may conclude that,

### **Examples:**

1. Kobe Bryant should've won the Most Valuable Player award for 2005-06, because he scored more points than any other player.
2. Philosophy 100 should not be required of all StFX students, since students should be free to take whatever classes they want to.
3. Mr. Smith's fingerprints were found on the weapon that killed Mr. Jones. Furthermore, no other fingerprints were found on the weapon. Therefore, Mr. Smith killed Mr. Jones.
4. Since I studied hard for this logic test, and since I understand the material very well, I will probably make a good grade.
5. There is probably gold in Antigonish County because there are many abandoned gold mines there and a popular geology guide lists sites in this county as places to look for gold.
6. If students were environmentally aware, they would object to the endangering of any species of animal. But the well known black squirrel is endangered as it has completely disappeared from the StFX Campus because the construction of the Millennium Centre and new Schwartz Building destroyed its native habitat. Yet, no StFX student has objected. So, StFX students are not environmentally aware.
7. I've worn glasses since I was 12.
8. I punched John because he insulted my mother.
9. I was late for class because my car ran out of gas and I could not find a gas station.

## ***Statements***

**Determine which of the following (in most contexts) are statements. Can you find a context in which some sentences not ordinarily construed as statements might be considered statements?**

1. Should we continue to fight?
2. Send your contribution to the Public Broadcasting System now!

3. Eastern European countries have experienced much economic growth since 1990.
4. Premarital sex is immoral
5. Why should *Canadians* be expected to put up with a dictatorship in North Korea?
6. Canada expects to be self-sufficient in oil by the year 2050.
7. Does severing relations with Iran promote the best interests of Canada?
8. Suppose that the economy will grow at a rate of 6 percent each year.
9. Except for having a lucrative scholarship, Jane would not have attended graduate school.
10. God exists.
11. I'm suspicious of anyone who doesn't look you in the eye.
12. The cost of the U.S. space program for the fiscal year 2006 was approximately \$18 billion.
13. People ought to be vegetarians.
14. Some historians attribute Hitler's rise to power largely to the Versailles Treaty.
15. The union shop violates the principle of free and open hiring.
16. How can we ever expect to get *peace* with such a program?
17. For the purpose of this discussion let us take "liberal" to mean "favourably inclined to change" and "conservative" to mean "opposed to change."
18. Do you call *that* a painting?
19. The armistice on Nov. 11, 1918 was signed at Compiègne.
20. Democracy is better than dictatorship.

### ***Arguments:***

**Determine which of the following are (or contain) arguments. Identify the conclusion, the premises (or reasons given in support), and the expression, if any, which suggests that the selection is an argument.**

1. In the provinces where Italian per capita income is the highest, the Communists received 52 percent of the total vote in the 1951-1952 elections.
2. An aged man is but a paltry thing,  
A tattered coat upon a stick, unless  
Soul clap its hands and sing, and louder sing  
For every tatter in its mortal dress,  
Nor is there singing school but studying  
Monuments of its own magnificence;  
And therefore I have sailed the seas and come  
to the holy city of Byzantium.

W. B. Yeats, "Sailing to Byzantium"

3. [F]rom the time that Athens was the university of the world, what has philosophy taught men, but to promise without practicing, and to aspire without attaining? What has the deep and lofty thought of its disciples ended in but words? ... Did philosophy support Cicero under the disfavour of the fickle populace, or nerve Seneca to oppose an imperial tyrant? It abandoned Brutus, as he sorrowfully confessed, in his greatest need, and it forced Cato, as his panegyrist strangely boasts, into the false position of defying heaven.

John Henry Newman, *The Idea of a University*

4. A great portion of Canadian economic aid goes to a handful of countries.
5. Since all matter is subject to the law of gravity, it stands to reason that when someone steps out of a window, he is not going to fall up.
6. Alexander VI never did, nor thought of, anything but cheating, and never wanted matter to work upon; and though no man promised a thing with greater asseveration, nor confirmed it with more oaths and imprecations, and observed them less, yet understanding the world well he never miscarried. A prince, therefore, is not obliged to have all the forementioned good qualities in reality, but it is necessary that he have them in appearance

Niccolo Machiavelli, *The Prince*

7. According to the terms of the will, money is to be provided for the education of the deceased's nephew. Since "education" can be defined as a never-ending process, the boy should be paid for the rest of his life.

8. You ask me, why, though ill at ease,  
    Within this region I subsist,  
    Whose spirits falter in the mist,  
And languish for the purple seas.  
It is the land that freemen till,  
That sober-suited Freedom chose,  
The land where, girt with friends or foes,  
A man may speak the thing he will.

Alfred Lord Tennyson, "You Ask Me, Why, Though Ill at Ease"

9. If we have faith in democracy and in the ability of our students to make sound judgments, we should not fear that an occasional racist teacher will subvert the student body.

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**Which of the following contain either implicit or explicit arguments or no arguments at all? For those examples which contain arguments, formulate the premises and the conclusions.**

1. Ten percent of all homicides in England are caused by guns whereas sixty percent of all homicides in the United States are caused by guns. Furthermore, in England, a person cannot buy a long gun without getting a certificate from the local police. In France, in order to buy a handgun or a military rifle, a person has to have a police permit. In Sweden individuals must prove that they need a gun before they are allowed to purchase one. All handguns must be registered in Canada.
  
2. University students are spoiled. Living in an affluent society, they are accustomed to comfort and have never known what it is to go hungry. As a result they look for "causes" when the intellectual pressures at school become too overwhelming and the competition for academic success is keen. They get interested in the minority problem, in pollution, in any controversial issue that will enable them to rationalize their refusal to work hard to achieve a genuine education.
  
3. Why has every man a conscience, then? I think that we should be men first, and subjects afterwards. It is not desirable to cultivate a respect for the law, so much as for the right. The only obligation which I have a right to assume is to do at any time what I think right. It is truly enough said a corporation has no conscience; but a corporation of conscientious men is a corporation with a conscience. Law never made men a whit more just; and, by means of their respect for it, even the well-disposed are daily made the agents of injustice.  

H. D. Thoreau, *On the Duty of Civil Disobedience*
  
4. The War in Afghanistan has cost us dearly as a nation in lives and money, and those who insisted that we could never win this war in any real sense were right. We should never have intervened in that country. The notion that we did so to fight terrorism there and in the rest of the Middle East was an absurd excuse. We cannot and should not play the role of World Policeman. We have embarked on a very perilous course in foreign policy in this country, and it will prove disastrous to us from both a moral and an economic viewpoint.
  
5. When H. L. Mencken said that "the essential traits and qualities of the male, the hallmarks of the unpolluted masculine, are at the same time the hallmarks of the numskull," he was, of course, employing his usual hyperbole for comic effect. But he was right when he claimed that "women, in fact, are not only intelligent but they have almost a monopoly of certain of the subtler and more utile forms of intelligence." Specifically, they have the special female ability to distinguish between truth and delusion.

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## *Non-argumentative Discourse*

We have been discussing arguments, but there are other kinds of discourse. Language is used for different purposes. Sometimes we tell stories, real or imaginary, with the objective of relating what happens rather than proving some point. This is called *narrative discourse*. Examples of this type may range from the simple forms found in fairy tales, fables, anecdotes, and sketches to the more complex types such as autobiography, biography, short stories, plays, novels, poetry, and histories. Who has not as a child been spellbound by the promise of adventure inherent in the lines "Once upon a time there was a girl named Cinderella, who had a wicked stepmother ..." We want to know what happens to Cinderella, just as we want to know what happens to Chaucer's knight who commits rape in the "Wife of Bath's Tale."

And so it happened that King Arthur  
Had in his house a lively bachelor  
Who one day came riding from hawking  
And in his path he saw a maiden alone walking before him  
Whom he raped by force.  
There was such outrage against this crime and  
Such suing for justice to King Arthur  
That this knight would have been doomed to die  
By the course of law and should have lost his head  
For that was the punishment then  
Except that the queen and other ladies  
Begged the King to have pity  
Till the King relented and spared his life  
And handed him over to the queen to decide  
At her discretion whether she wanted to  
Save or destroy him.

(Chaucer, *The Canterbury Tales*)

But even in the fairly simple narrative forms where the interest obviously centres on the unfolding of a series of events, some implicit arguments are involved in the telling of the story. In the case of Cinderella, the narrative has the implicit argument that if one is virtuous she or he will be rewarded. In the case of the knight who commits rape, the Wife of Bath tells this story perhaps to reinforce her argument that true happiness in marriage comes if the wife maintains sovereignty over her husband. Very rarely does the narrative type of discourse exist in pure form, with no other purpose but that of telling a story. But it is always necessary to ask whether the *primary aim* of a discourse is to tell a story or to present an argument. If it is to tell a story, then we do not expect as much logical precision as we might otherwise; truth and falsity of premises are not as significant. The Wife of Bath may indeed be wrong in believing that a wife ought to maintain sovereignty over her husband. It is still not obvious that women would in fact be better rulers than men. But whereas the truth of the evidence is important in an argument, it is not that important in a

story. We may not agree with the Wife of Bath, but her characterization and tale have been perennial sources of entertainment.

Similarly, it is very unusual to find the descriptive type of discourse in as pure a form as we find it in the following poem where the poet seems to have no other purpose except to appeal to our visual sensations through his description of a wave.

The long-rolling  
 Steady-pouring,  
 Deep-trenched  
 Green billow  
 The wide-topped  
 Unbroken  
 Green-glacid,  
 Slow-sliding,  
 Cold-Flushing,  
 --on--on--on--  
 Chill-rushing  
 Hush-rushing  
 ...Hush-hushing...

Thus the primary aim of *descriptive discourse* is simply to describe, to appeal to what is sensory in our experience through the employment of visual, auditory, gustatory, olfactory, tactile, and kinaesthetic images. But descriptive writing, like any other kind of writing, is rarely pure in form. The following passage by James Baldwin describes his bitter, handsome father who preached "chilling" sermons and was cruel in his personal relations:

... It must be said that there was something else in him, buried in him, which lent him his tremendous power, and even, a rather crushing charm. It has something to do with his blackness, I think -- he was very black --with his blackness and his beauty, and the fact that he knew that he was black but did not know that he was beautiful. He claimed to be proud of his blackness but it had also been the cause of much humiliation and it had fixed bleak boundaries to his life.

But this selection also may contain an implicit argument, which might be paraphrased as follows: "The blackness of a man's skin can make him look beautiful, powerful, and charming. My father was a black man. Therefore my father was beautiful, powerful, and charming." The descriptive vividness of Baldwin's style is most striking in the quoted passage. For this reason such writing is called descriptive, but a detailed analysis might also reveal an argument which equates blackness with beauty.

It is important, however, to keep in mind whether a passage is primarily a narration, a description, an argumentative discourse, or simply a collection of sentences. For our purposes, we are concerned with the third kind of discourse.

## *Arguments and Non-argumentative Discourse (Exercises)*

1. I saw on that ivory face the expression of sombre pride, of ruthless power, of craven terror--of an intense and hopeless despair. Did he live his life again in every detail of desire, temptation, and surrender during the supreme moment of complete knowledge? He cried in a whisper at some image, at some vision--he cried out twice, a cry that was no more than a breath--

"The horror! The horror!"

I blew the candle out and left the cabin. The pilgrims were dining in the messroom, and I took my place opposite the manager who lifted his eyes to give me a questioning glance, which I successfully ignored. He leaned back, serene, with that peculiar smile of his sealing the unexpressed depths of his meanness. A continuous shower of small flies streamed upon the lamp, upon the cloth, upon our hands and faces. Suddenly the manager's boy put his insolent black head in the doorway, and said in a tone of scathing contempt--

"Mistah Kurtz--he dead."

Joseph Conrad, *Heart of Darkness*

2. I know this fellow down the block who is not working. He looks strong and healthy, but he's on welfare. He told me himself he's better off on welfare than working for peanuts at some cruddy job. He says he's looking forward to that guaranteed income that the government is planning to give him.
3. Scientists have recently discovered that the offspring of rats who have had regular doses of marijuana have given birth to defective offspring. We must draw the obvious conclusion that this is a harmful drug that should not under any circumstances be legalized.
4. Fog everywhere. Fog up the river, where it flows among green gaits and meadows; fog down the river, where it rolls defiled among the tiers of shipping, and the waterside pollutions of a great (and dirty) city. Fog on the Essex marshes, fog on the Kentish heights. Fog creeping into the cabooses of collier-brigs; fog lying out on the yards, and hovering in the rigging of great ships; fog drooping on the gunwales of barges and small boats ... The raw afternoon is rawest, and the dense fog is densest, and the muddy streets are muddiest, near that leaden-headed, old obstruction, appropriate ornament for the threshold of a leaden-headed old corporation: Temple Bar. And hard by Temple Bar, in Lincoln's Inn Hall, at the very heart of the fog, sits the Lord High Chancellor in his High Court of Chancery.  
Never can there come fog too thick, never can there come mud and mire too deep, to assort with the groping and foundering conditions which this High Court of Chancery, most pestilent of hoary sinners, holds, this day, in the sight of heaven and earth.

Charles Dickens, *Bleak House*

5. The police lined up in front of the building, trying to keep the unruly mob from entering. The youthful defenders of freedom and peace threw beer cans at them, yelling, "Fascist pigs, go home," and other assorted obscenities. The demonstrators had long hair, beards, and wore clothes from which such foul odors emanated that I had to hold my nose to keep from being nauseated. Some of them actually got close enough to hit the police, but they turned back when the police threatened to use their clubs.

### ***Additional Arguments (Exercises)***

1. Our major argument against live television of criminal trials is that television creates an atmosphere that makes it impossible to conduct a fair trial. This is because the trial judge is forced to devote an unduly large portion of his time and attention to keeping the situation within manageable bounds. In a recent case, for example, the judge made no less than ten separate rulings on television coverage during the trial. Furthermore, the presence of television cameras and technicians tends to distract and divert witnesses, and can have an unpredictable effect on their testimony.
2. Has it been found that bodies of men act with more rectitude or greater disinterestedness than individuals? The contrary of this has been inferred by all accurate observers of the conduct of mankind; and the inference is founded upon obvious reasons. Regard to reputation has a less active influence, when the infamy of a bad action is to be divided among a number, than when it is to fall singly upon one. A spirit of faction, which is apt to mingle its poison in the deliberation of all bodies of men, will often hurry the persons of whom they are composed into improprieties and excesses, for which they would blush in a private capacity. (from the *Federalist Papers*)
3. Intrinsically immoral actions cannot be rendered moral by subservience to a good end. For good intentions are not availing unless accompanied by intelligent foresight of consequences, since all the consequences of an action may have to be taken into account in judging its morality, and moreover we have a duty to take consequences into account in action. It follows that infringements upon individual rights are not a legitimate means of securing evidence for criminal convictions, and therefore evidence obtained in this fashion should not be considered admissible in court.
4. The soul is one thing, the body another; they are often at odds. And the superiority of the former to the latter is evident from its capacity to be moved by ethical obligations, to reason about remote and abstract things, and to direct the course of a person's life. Considering these facts about the soul, plus its apparent inner unity and consequent indestructibility, our belief in the immortality of the soul could not be more securely based. And this is a cause of satisfaction, since the justification for moral behaviour rests upon that belief.

## *Supplying Missing Statements*

Many, and perhaps most, sets of statements intended as arguments are not expressed in a fully explicit way. The intended conclusion and/or one or more of the premises may not be stated. (Such arguments, with parts only implicitly suggested, are known as *enthymemes*). If a series of statements clearly tends toward a certain conclusion without ever quite getting there, the conclusion can be assumed to be implicitly stated, and we are justified in adding it to complete the intended argument. Consider the following example:

High-rise apartments will destroy the rural character of our town. Studies have shown that the presence of such developments tends to increase the crime rate. Besides, we don't have the facilities to provide necessary services to such an enlarged population.

The conclusion, implicit though not stated, is clearly, 'High-rise apartments should not be permitted in our town'.

If premises rather than conclusions are left out, it is often because the intended audience is assumed to be aware of them already. Thus, almost anyone can supply the implicit premises in the preceding example -- 'Anything that will destroy the rural character of our town should not be permitted', 'Nothing that tends to increase the crime rate should be permitted in our town', and 'If facilities to provide necessary services to such an enlarged population are unavailable, then high-rise apartments should not be permitted'. A general rule of thumb for supplying missing premises is to add whatever premises are needed to make the intended argument as good as possible. This rule is sometimes referred to as *the principle of charity*.

To illustrate the importance of knowledge of context for identifying arguments, consider these three sentences.

The sun is shining today.  
Today is Wednesday.  
Tom will get an A in logic.

Assuming that these sentences do express statements, we do not have sufficient information to determine whether they might be intended as part of an argument. To make even an educated guess, we should know who is making these statements, where, when, to whom, and for what purpose. Let's consider two possible sets of circumstances in which these statement might be made.

If Linda wakes up on Monday, looks out the window, and says, "Oh, good, the sun is shining today"; two days later Professor Piffle looks at his calendar and says, "That's right, today is Wednesday"; and on Friday Bob, Tom's roommate, relaxes in the residence lounge and assures a friend, "Oh yeah, Tom'll get an A in logic. I don't dare start an argument with him any more" -- in this case, we can safely conclude that there is no argument. But if Linda, who is Tom's girlfriend, meets Bob in the library on Wednesday morning and makes all three of these statements, and if both of them already know certain other facts, there may be an argument intended after all. With the missing premises added, it might look like this:

The sun is shining today.  
Today is Wednesday  
The final exam in logic is on Wednesday.  
The exam counts for 10 percent of the final grade.  
Tom has a 90 average going into the exam.  
Tom has always done well on sunny days.  
The cutoff point for an A is 89.5 percent.  
Therefore, Tom will get an A in logic.

Knowing Tom and knowing the school -- that is, knowing the relevant context -- Linda and Bob can take all but the first two premises and the conclusion for granted, and perceive that these three original statements could be intended as comprising part of such an argument.

### ***Exercise***

**Assuming ordinary context, examine each of the following purported arguments. (a) Identify the conclusion. (b) Identify the stated premises, (c) Supply a missing premise.**

1. That is not a rose bush because it doesn't have thorns.
2. There is no reason to vote, since all politicians are corrupt.
3. The end of a thing is the perfection of life, so death is the perfection of life.
4. Bats are not birds, because birds have feathers.
5. This wine is not Chablis, for it is red wine.
6. Costas is not a Turkish Cypriot; therefore, he is a Greek Cypriot.
7. The baseball game was dull, since both teams played poorly.
8. Kristelle will not get the job. She has no experience.
9. All metaphysicians are eccentric, so Jorg is eccentric.
10. All trees are plants and all oaks are trees. Therefore, all oaks are living things.
11. Mr. McCormick did not work for the company, so he could not have stolen the money.
12. Since she just received a pay raise, she must be competent at her job.
13. All human beings make mistakes; consequently, so does Nikita.
14. Colin is not my friend, because he told lies about me.
15. He passed the examination; therefore, he must have lied.
16. This liquid is not acid, for the litmus paper we placed in it did not turn red.

## *Additional arguments for analysis*

1. Our major argument against live television of criminal trials is that television creates an atmosphere that makes it impossible to conduct a fair trial. This is because the trial judge is forced to devote an unduly large portion of his time and attention to keeping the situation within manageable bounds. In a recent case, for example, the judge made no less than ten separate rulings on television coverage during the trial. Furthermore, the presence of television cameras and technicians tends to distract and divert witnesses, and can have an unpredictable effect on their testimony.
2. Anthropologist Alexander Alland has refuted the much-popularized theory that man is only a "naked ape," dominated by savage ineradicable biological instincts to kill and destroy those who get in the way of his "territorial imperative." It turns out that aggressiveness is not instinctive, because it is not universal to human beings: take, for example, the Semai of Malaya, a culture in which youngsters are not punished, hardly ever see any violence, and so have no aggressive behaviour to imitate--hence there is no such thing as murder in that culture. Nor is territorial aggressiveness innate or biologically derived: the most primitive hunters and gatherers are the least possessive about territory; and often share the same territory with very different ethnic groups, who live off the environment in quite different ways. The fact that in our culture children have to be taught to be competitive in sports (and even then a lot of them never come to like it), and that patriotism has to be instilled by repeated ritual (pledges of allegiance, etc.) shows that aggressiveness is a product of culture, not of biological heredity.
3. A teacher's strike at this point in time would place a serious new burden on the already hard-pressed School Board, and should not be called by the union leadership. When you consider that the city's teachers have made great and deserved progress in the past six years (as is evidenced by the raise in minimum pay for teachers with B.Ed.'s from \$33,000 to \$35,906), and that their benefits compare favourably with those of others--which is shown by the fact that their overall pay scale (\$35,900 to \$68,000) is among the best in the country, and also by the fact that they put in fewer hours (six hours and five minutes a day in high schools) than teachers elsewhere in the province--we must conclude that they are out of order in demanding a raise right now (bearing in mind, too, that the money to pay them is simply not available, even from the province--at least, the Premier has indicated that the funds cannot be forthcoming). (The province provides 54% of the School Board's current operating funds.)
4. I'll be glad to tell you my opinion of sex-education courses in the public schools. They stir up interest in sex where it didn't exist before; they encourage immorality by making sex seem natural and nothing to be "uptight" about; they give the schools a job that is the responsibility of the parents; they are a filthy left-wing plot.

5. Requiring a worker to contribute financially to the labour union that is the recognized collective bargaining agent in his shop does not violate the worker's civil liberties. Because the union has both the authority and the responsibility to represent all employees in that unit, and because the agreement negotiated by the union regulates terms and conditions of employment, the union can properly be said to be an instrument of the worker's industrial government, and therefore the workers who benefit from it can be required to share its cost.
  
6. That Canadian parents are under an increasing strain in bringing up children is shown by the rapid and horrible rise in the incidence of child abuse. Obviously the government must provide substantial help to the family, which means there should be a broad system of day-care centres for children of working parents. The number of working mothers is constantly increasing so that small children are bound to be even more neglected unless there are day-care centres. Moreover, we now know how important it is for children to be stimulated and given the chance to learn at the earliest ages, and this need can best be filled by such centres.

### ***Verbal and Factual Disputes***

**Sometimes disputes which appear to be concerned with matters of fact turn out to be based on the how the individuals understand or define certain terms. What is the apparent factual dispute in each of the following examples? Explain how this dispute is, actually, a verbal one.**

1. Dan: Francis C. Lowell built the first cotton mill in New England and thus may be credited with making New England an industrial area.  
 Gail: Wrong. Sam Slater built a cotton mill in New England in 1790, twenty-four years before Lowell built his mill.  
 Dan: But Lowell's mill was the first to use power looms. Though Slater's mill may have been the first to have spinning machinery, it still used hand looms.
  
2. Rob: The United States treated Ezra Pound unjustly by putting him into St. Elizabeth's Hospital for the Criminally Insane, for they deprived him of his right to be tried in a court of law.  
 Sharon: Ridiculous. The United States actually treated Pound very justly, for by putting him into St. Elizabeth's, they prevented him from being convicted of treason -- for which the evidence was overwhelming -- and possibly shot.
  
3. Steve: Considering its fanaticism and devotion to Marxist philosophy, communism is really a religion.  
 Jackie: I disagree completely. Communists don't worship in churches or believe in the supernatural. If anything, communism is antireligious.

4. Joe: It looks as though we're over the worst. The latest figures from Statistics Canada show that the rate of unemployment has slowed down and that currently about 1.5 million are unemployed--just about the same as last month.
- Vanessa: Yes, but what Stats Canada doesn't report is that in the past month about 100,000 of the unemployed have become so discouraged that they have dropped out of the labour force altogether and are no longer counted as unemployed. So the rate of unemployed really has significantly increased during the past month.
5. Joanna: We're often told that we ought to legalize gambling because so many people refuse to obey the law and gamble illegally. I say, rather than make it legal, simply enforce the law.
- Will: But the law isn't enforceable. In Toronto alone there are over 17,000 bookies, and the jails of the entire province of Ontario can accommodate only 3,500.
6. Don: Babe Ruth holds the record for most home runs in a season -- 60.
- Kathy: Wrong. Roger Maris hit 61 in one season.
- Don: Yes, but that was over a period of 162 games - Ruth's was over a period of 154 games.
7. Ted: Modern abstract expressionist art is inferior art. It doesn't portray recognizable subjects. Much of it consists of dots, lines, or circles, which any draughtsman can produce. And many of the paintings are done in simply one or two colours. The impact and subtlety of the French impressionists are completely lacking.
- Marilyn: I don't see how you can call modern art inferior. First of all, most of the paintings are not done in simply one or two colours. Besides, you fail to consider the tension between the parts, the interesting treatment of space, the striking design, and the unusual forms found in many of the paintings.
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### ***Terms and Logical Form***

When we look at a statement or proposition, we may be interested not only in the *terms* it employs, but also in its *form*.

A term is a linguistic expression that may meaningfully refer to a thing. It is obvious that, in using language, some words do not refer to things (e.g., 'and', 'an', 'the', 'or'), and that sometimes a reference to a thing requires more than a single word (e.g., 'the polar bear sitting to my left'). Consequently, not all words are terms, and some phrases will count as terms.

We may classify terms in a number of ways: general and singular; absolute and relative; collective and mass; abstract and concrete; polar opposite. (This list does not

pretend to be exhaustive and, obviously, some terms can be classified in many different ways.) The distinctions made between general and singular terms depends on their roles in sentences, *not* on the words themselves.

It is also important to be aware of the (logical) form of a statement. A clear expression of the form enables us to see what exactly is being proposed and makes the statement or proposition more readily functional in arguments. What exactly do we mean by form? We wish to draw attention to the structure of the statement--not the content. Form (generally) tells us how the parts of a statement are connected (e.g. The form of "All mammals are viviparous" is "All ... are ..."). It is obvious that a number of different statements have the same form. The form or structure of a statement can be represented by a statement form or formula (e.g., "All M are V"; where 'M' and 'V' are placeholders for terms). With respect to form, natural language is (we shall say) irrelevant. Moreover, a single statement may be expressed using different, though equivalent, forms. (e.g., All A is B = If A, then B; B, if A; A, only if B; B, if not not-A). Finally, a statement form does not, by itself, say anything, and hence cannot be true or false. The basic kinds of form which we may encounter are: negation (e.g., 'Not ...'); conjunction, the parts of which are conjuncts (e.g., '... and ...'); disjunction, the parts of which are disjuncts (e.g., 'Either ... or ...'); conditional or hypothetical, the parts of which are the antecedent and the consequent (e.g., 'If ... then ...'), and biconditional, the parts of which are conditionals (e.g., '... if and only if ...').

It is important to distinguish between conditionals and arguments. 'If it is raining, then I'll wear my galoshes' simply states a relation between two events, but does not state that either has occurred or will occur. 'Since it is raining, I'll wear my galoshes' states two things: that 'I will wear my galoshes' (which can be either true or false) and that 'It is raining' (which also is either true or false) and that the latter is the reason why I will do the former.

A statement which is true in virtue of its form is called a tautology (e.g., 'Either you will get 50% or you won't get 50%'). All tautologies are necessary truths, but not all necessary truths are tautologies. Tautologies (and necessary truths) are true *a priori* and independent of the evidence of our senses, and they say nothing about the world. They are factually empty and only say something about the use of language. Contradictions are statements which are necessarily false, either in virtue of their form or because of semantic considerations (i.e., the meaning of the terms used).

## ***Use and Mention***

When we **use** a term, we are talking about what [i.e., what object] the term refers to; when we **mention** a term, we are interested in talking about the term itself.

## ***Sense and Reference*** (also called connotation and denotation)

Terms have 'reference' - they refer to things:

individual things --e.g., names

classes of things -- e.g., boat, table, philosophy professor

In general, reference involves picking out the objects to which we give a certain label or word. Thus we may say that the reference of a term is all those objects of which the term is true.

But we can also talk about the sense [or the meaning] of a word. Generally, the sense of a term does not refer to a thing, but to the properties of a thing.

Consider the term "the Prime Minister". To what /whom does it refer? Now, what does it mean? (What other associations may there be?)

Some terms have a sense, but no reference (i.e., we can list all the properties necessary for the thing to be what it is, but in fact there is no such thing). Some terms have a reference but no sense. And sometimes terms can have the same reference, but different senses (e.g., the terms 'the morning star' and 'the evening star' both refer to the planet Venus).

### ***Ambiguity and vagueness***

There are two principal kinds of ambiguity: semantic [referential ambiguity] and syntactic [grammatical ambiguity or *amphiboly*].

Semantic [*referential*] ambiguity: a word can have more than one appropriate sense, and there is a problem with what sense the word has in a sentence. *Syntactic* ambiguity occurs because there is more than one way of interpreting the grammatical relations in a sentence, consistent with the context.

Equivocation an error in argument (fallacy) that occurs when a key word or phrase in the argument is used with more than one meaning.

We can have vagueness in sense (where we cannot provide a precise definition of a word or term) and vagueness in reference (in cases where the object admits of borderline cases) Some notoriously vague terms are "rich", "bald", "happy," "democracy."

### ***Definition***

A definition has two parts: the *definiendum* (the word or expression being defined) and the *definiens* (the phrase which defines the definiendum).

There are two main types of definitions: stipulative and lexical.

*Lexical* or dictionary definitions attempt to explain words by reference to their popular use. (Lexical definitions include connotative (or analytic) definitions; connotative definitions reflect those features of a thing which users of the language accept as criterion of use. Since the definiens may not include the necessary and sufficient conditions for use, such definitions may not be exact. Other kinds of lexical definition are: definition by synonym, ostensive definition, definition by example, and definition by enumeration of subclasses).

*Stipulative* definitions, on the other hand, are not concerned with whether the definition agrees with the way people ordinarily use the word; they are not reports of common usage. Instead, we might say that they are proposals to use a word in a specific way (e.g., in order to make a distinction not usually made. Some kinds of stipulative definitions are: precisising definitions, operational definitions, and contextual definitions). Of

course, some such proposals may become widely accepted so that they become part of established usage and, hence, eventually lexical definitions.

Sometimes a third type of definition (real or essential definition) is suggested. Such 'definitions' are of things, not words, and since the meaning of a word is often dependent on characteristics of the thing referred to, the distinction between real definitions and lexical definitions may become unclear. (Some examples of real definition are: definition by genus and difference, functional definition, genetic definition, and theoretical definition).

## ***EXERCISE***

**State the general type and specific kind of each of the following definitions:**

1. "Cantankerous" means "quarrelsome."
2. "Bird" denotes a creature such as a swallow, oriole, or owl.
3. In this experiment, the expression "soluble in water" means "if anything x is put into water at any time t, then if x is soluble in water, x dissolves at the time t, and if x is not soluble in water, it does not."
4. "And that," said my friend as she pointed to a grey furry marsupial, "is a koala."
5. "Deviant behaviour" means "behaviour which violates institutionalized expectations."
6. "The word 'length' means what we do when we start with a measuring rod, lay it on the object so that one of its ends coincides with one end of the object, etc., etc."
7. "In": "X is in Y when X is entirely enclosed by Y."
8. A knife is a thin blade attached to a handle and used for cutting.
9. Flattery is praise that is excessive and insincere.
10. Poetry is what Auden, Browning, Milton and Shakespeare wrote.
11. 'Fortuitous' means 'accidental'
12. In 1993, Statistics Canada defined 'poverty' as an income below \$24,000 per annum for a nonfarm family of four.
13. A stalactite is a deposit, usually made of calcium carbonate shaped like an icicle, hanging from the roof of a cave and formed by the dripping of percolating calcareous water
14. For the purpose of this course, a passing grade will be defined as a grade of 70 or over.
15. "Circle" means "a closed plane figure whose points are equidistant from the centre".
16. The speed of an object is obtained by dividing the distance it covers by the time it takes to cover it.

## ***Conditions for definition:***

Since logic is concerned with the clear presentation of arguments, the terms we use must be precise. Thus, a definition should meet the following conditions:

1. be clear -

That is, it must *be clear* to your audience. Thus, a scientist's definition of gravitation would not be clear to the layperson because it is *too technical*. Alternately, the use of figurative language in the definiens may also impede clear understanding (e.g., Wilde's definition of "cynic" as "A person who knows the price of everything and the value of nothing."). Thus, definitions should avoid being *too figurative* or metaphorical.

2. positive -

Negative definitions leave too many possibilities open. For example, to define "radio" as "wireless communication" ignores that semaphore, too, is wireless communication.

Thus, the definiens should not be expressed negatively (unless, perhaps, the definiendum is negative).

3. Not circular -

That is, not defined in terms of itself. The definiendum should not appear in the definiens (e.g., "cause": "that which brings about an effect"; "effect": "that which is brought about by a cause," or "capitalism": "the doctrine which advocates capitalist ideas").

4. neither too broad nor too narrow -

A definition should *not* apply to more things than that which it defines normally applies (e.g., "automobile": "a self-propelled vehicle"). Neither should it apply to *fewer* things than the definition normally applies (e.g., "automobile": "a four-wheeled self-propelled vehicle with an engine in front".)

5. should state an important characteristic -

That is, it should state a characteristic whose presence or absence decides whether a thing is the sort of thing it is (e.g., 'human being': "rational animal," *not* "featherless biped.").

## ***EXERCISE***

Indicate which rules, if any, the following definitions violate:

- |                 |                               |                  |
|-----------------|-------------------------------|------------------|
| a) Too broad    | b) Too narrow                 | c) Circular      |
| d) Too negative | e) Too figurative or poetical | f) Too technical |

- "Piety means prosecuting the wrongdoer who has committed murder or sacrilege or any other such crime." - Euthyphro, as quoted by Plato
- "A cynic is one who knows the price of everything and the value of nothing." - Oscar Wilde

3. "Man is a featherless biped." (attributed to Plato)
4. Being autonomous is having autonomy over one's decisions and actions.
5. "To 'eat' is to perform successively (and successfully) the functions of mastication, humectation, and deglutination." - Ambrose Bierce
6. A prudent person is one who does not take unnecessary chances and who is not extreme in his or her actions.
7. "... to define true madness, What is't but to be nothing else but mad?"  
- Shakespeare, Hamlet
8. "A fanatic is a man who redoubles his efforts after he has forgotten his aim."  
- George Santayana
9. "What is pleasing to the gods is pious and what is not pleasing is impious."  
- Euthyphro, as quoted by Plato
10. A dormitory is an edifice used by college students as a residence away from home.
11. An effect is that which is produced by a cause, just as a cause is that which produces an effect.
12. A cow is a domesticated animal which gives milk.
13. "An idiot is a member of a large and powerful tribe whose influence in human affairs has always been dominant and controlling." - Ambrose Bierce
14. "A gentleman is a man whose principal ideas are not connected with his personal needs and his personal success." - William Butler Yeats
15. Democracy is that form of government which respects the civil rights of the people.