

Philosophy 100

*Supplementary notes and exercises for Logic and Critical
Thinking*

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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.

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 1966 was approximately \$15 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 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. 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"
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. 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"
7. 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*

8. 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.
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.

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.

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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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.").

Informal Fallacies

Informal Fallacies are problems with factors other than logical form relevant to the analysis and evaluation of statements and arguments.

In general, a *fallacy* is an error in argument such that, even if the premises are true, they neither entail nor provide sufficient evidence for the conclusion. Therefore, we ask, even if the premises were true, could we justifiably accept the conclusions?

We can consider informal (or non formal) fallacies under the following main categories (based on Aristotle's division in *De Sophistici Elenchi* -- *On Sophistical Refutations*). (This list is by no means complete, nor is the categorization hard and fast).

Material Fallacies: i.e., the arguments are unsatisfactory for reason other than ambiguity of language; the fallacy arises from the subject matter of the argument. These can be divided into *fallacies of relevance* (i.e., the premises are irrelevant to the truth of the conclusion) and fallacies of *insufficient evidence* (i.e., the premises are relevant, but do not constitute sufficient grounds for the conclusion).

Fallacies of ambiguity: i.e., the argument is unsatisfactory because some word, phrase, or statement can be understood in different ways.

Material Fallacies of Relevance

Genetic: attacking the source of the argument rather than the argument itself.

ad hominem - attacks a person's character.

tu quoque - one tries to reply to a change made by an opponent by making the same change against him/her.

Ignoratio Elenchi (ignoring the refutation) - one tries to attack a position by arguing a claim or conclusion actually irrelevant to that position.

ad ignorantiam - assuming that the absence of proof or the inability to prove a statement constitutes proof that its contradictory is true.

Irrelevant Emotional Appeals: divert attention from weak or unreasonable claims. One tries to persuade someone of the truth or falsity of a view by appealing to his emotion and prejudices in some way rather than by giving reasons with support the view.

ad populum -

ad misericordiam - appeal to pity or sympathy.

ad baculum - appeal to force.

ad vericundiam - appeal to false authority (i.e., someone who is in fact not an authority on the subject matter).

Diversion:

extension - exaggerating the opponent's views to the absurd.

red herring - another issue is made the focus of discussion.

humor - to convert a serious argument into a ludicrous one.

pettifogging - dealing with trivial matters; attack on a minor point.

irrelevant function or goals - to criticize a policy because it does not achieve certain goals it was never intended to achieve.

oversimplification - misrepresenting the argument one is answer by leaving out significant portions. (similar to lifting out of context: - omitting significant portions of a statement, and hence misrepresenting it.)

Material fallacies of Insufficient Evidence

Petitio Principii (begging the question)

circular arguments - to assume the truth of that conclusion which you wish to prove, somewhere in the premises of the argument.

loaded questions - two questions, not one, are involved.

impromptu definitions - defending a conclusion by making it true by definition

Post hoc ergo propter hoc - assuming that because one thing temporally follows on another, that there is a causal relationship between them.

slanting - misrepresenting an argument by leaving out relevant factors which support an *opposing* view.

hasty generalization - generalizing on the basis of too few cases or unrepresentative ones.

irreversible order - overlooks the possibility of mutual or reciprocal relationships.

confusing necessary and sufficient conditions - assuming that if something is necessary for an effect to occur, that it is sufficient for it to occur (or *vice versa*).

division - something that is true of the whole is concluded to be true of the parts.

composition - something that is true of the parts is concluded to be true of the whole

fallacy of the beard - assumes that small differences are always unimportant.

bifurcation - assumes the alternatives are exhaustive (when not) or are not (when are).

Fallacies of Ambiguity or Verbal Fallacies

equivocation - a word or phrase essential to the argument is used in different senses.

amphiboly - a phrase or sentence has two or more meanings as a result of the awkward construction of a phrase or sentence.

More Philosophical Terms:

- inference: the process of reasoning whereby, starting from one or more propositions (or premises) accepted as true, the mind passes to another proposition (conclusion) whose truth is believed to be involved in the truth of the former. It is a psychological process.
- deductive inference: inference in which a conclusion is claimed to follow necessarily from one or more given premises. The premises are said to constitute complete evidence; it is impossible for the premises to be true and the conclusion false.
- inductive inference: inference which attempts to reach a conclusion concerning all the members of a class from observation of only some of them. The premises provide some, but not conclusive, evidence; it is possible that the premises be true and the conclusion false.
- valid: (said of deductive arguments or inferences) An argument or an inference is valid if the premises and conclusion are so organized that the conclusion follows necessarily. An argument may be valid, regardless of the truth of the premises.
- correct: (said of inductive arguments or inferences) An argument or inference is correct if the premises are so organized that the conclusion is probably true.
- sound: The argument or inference is valid and the premises are true.
- conditional (or hypothetical): a statement or proposition of the form "If ... then ...".
- a priori: This term is applied to all judgements and principles whose truth is independent of any experience of the world. Whatever is *a priori* must be always and necessarily true (e.g., All beagles are canines.) It is sometimes used to describe anything which can be known without referring to the world.

- a posteriori: Judgements or principles which are *a posteriori* are based on experience of some aspect of the world and purport to describe the world. Such judgements may be true or false (e.g., The book *Fear and Loathing in Las Vegas* was written by Hunter S. Thompson.) as the case may be.
- empirical: Something is empirical if it is open to some kind of scientific verification or, in general, refers to verifiable facts or experiences about the world. Such knowledge is gained *a posteriori*. (e.g., The Toronto Maple Leafs did not win the Stanley Cup in 1927.)
- necessary: A statement is necessary if its truth is able to be shown on purely logical grounds (e.g., Either it is raining or it isn't raining.).
- contingent: A statement is contingent if it is possible that, in some conceivable situation, it could be false. An event is contingent if it is possible that it occur and yet also that it might not have occurred. (e.g., The Yankees won the third game of the 1993 World Series.)
- analytic: An analytic judgement is one in which what is being affirmed is implicit in the subject alone (e.g., All rubies are corunda.). Such a judgement has no need of evidence; the only way in which it could be wrong is if it were self-contradictory.
- synthetic: Synthetic judgements are those in which what is being affirmed is not implicit in the subject alone. The truth of such judgements can only be determined by referring to facts in the world (e.g., There are at least three people in this room.).
- prima facie: This term is usually used in a context where a statement initially appears to be true (or false), but there may still be some question as to its falsity (or truth) (e.g., It is *prima facie* true that one ought not to use another for one's selfish ends.)

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).

DEDUCTION and INDUCTION(concerned only with the *form* of an argument).*Deduction**Induction**e.g.*

Every mammal has a heart
 All horses are mammals
Therefore, all horses have hearts.

e.g.

Every swan that I have ever seen was white.
Therefore, all swans are white.

- | | |
|---|---|
| <p>a) Logical strength is derived from <i>form</i> alone.</p> | <p>a) Logical strength is derived largely from the content of the premises.</p> |
| <p>b) If the premises are true, then the conclusion is certain. There is no question of "degrees of probability" in the conclusion.</p> | <p>b) If the premises are true, then the conclusion is possible or probably true. The conclusion can be possible, probable, very probable, etc., according to the relevant evidence. There are, then, in the conclusion, degrees of probability, but <i>no</i> certainty.</p> |
| <p>c) A denial of the conclusion is inconsistent with the truth of premises. It is impossible that the premises be true and the conclusion false.</p> | <p>c) It is possible that the conclusion be false and the premises still true.</p> |
| <p>d) All the information in the conclusion is contained, at least implicitly, in the premises.</p> | <p>d) The conclusion contains information <i>not</i> present in the premises. It goes beyond the evidence (e.g., speculates about items not in the sample).</p> |
| <p>e) The addition of premises to a deductive argument does not affect its validity.</p> | <p>e) The addition of premises to an inductive argument can make the conclusion more (or less) probable, and the argument itself stronger or weaker.</p> |
| <p>f) A good (logically strong) deductive argument is said to be <i>valid</i>.</p> | <p>f) All inductive arguments are formally <i>invalid</i>--though this does not mean that they are logically weak arguments.</p> |
| <p>g) e.g., mathematics and formal logic</p> | <p>g) e.g., the natural sciences, and the social sciences.</p> |

Questions on Induction and Deduction

1. The carton is a cube; therefore it has six sides.
2. Most bouzouki players are right-handed, so since Stavros is a bouzouki player, he is probably right-handed.
3. The lights were out and the car was gone, so we concluded that nobody was home.
4. Mr. Hummingbird said that he was going to Toronto or to Stratford. He didn't go to Stratford, so he must have gone to Toronto.
5. If he bypasses the city, he will arrive at least one hour sooner. He arrived almost two hours sooner, so he must have bypassed the city.
6. If he catches a plane instead of a train, he will be in Detroit tonight. He caught a plane so he must be in Detroit tonight.
7. Statistics show that 86 percent of the people treated with penicillin recover from throat infections. Theodore had a throat infection and was treated with penicillin, so he probably will recover.
8. Since everybody loves somebody sometime, John either has loved somebody, loves somebody now, or will love somebody.
9. Everybody interested in being on the team was at the meeting yesterday. Phil was at the meeting yesterday, so he probably is interested in being on the team.
10. On my vacation to Cape Cod, I noticed that no fish were caught at low tide. I concluded that one cannot fish at low tide on the Eastern seaboard.
11. The last six sirloin steaks we bought at Foodville were excellent, so this steak, which was also bought at Foodville, is bound to be good.
12. Our problem was determining what caused the fuse to blow. Four hypotheses were proposed and for various reasons three of them were eliminated. This left us with the hypothesis that there was a short circuit in the terminal connection of the dryer. We therefore concluded that this must be the cause of the blown fuse.
13. Given that Sam is taller than Harry, and that Harry is taller than Ignatz, it follows that Sam is taller than Ignatz.
14. Since all horses are animals, we may conclude that the head of a horse is the head of an animal.

Further Questions on Induction and Deduction

1. Boswell's last two books were mysteries; so his next one will probably be a mystery.
2. There are no gold mountains; so there is no gold mountain in Tibet.
3. Jack was the sole owner of the tavern; so he had no partners.
4. The sprinklers were on; so someone must have been home.
5. French is spoken in Montreal, and Montreal is in Canada; so French is spoken in Canada.
6. If John is being honoured at commencement, he will be notified. Since he hasn't heard anything, we can only assume he isn't being honoured.
7. Independent thinkers are often misunderstood. Emerson was often misunderstood, and so were Hegel, Mill, Heidegger, and Plato.
8. He was born in New Orleans, so he's a native-born American.
9. Henry has difficulty reading. I never see him touch a book, and he's been taught by the new phonetic method, which has been giving students a lot of trouble.
10. Trains which don't stop at this station are express trains; so that last train must have been an express since it didn't stop.
11. Steve is the brother of Bob, and Bob is the brother of Michael; so Steve is the brother of Michael.
12. Fire is possible only if oxygen is present. Since oxygen is present, there's always the possibility of fire.
13. Khrushchev was a good friend of capitalism; he liked football and he liked to come to New York.
14. How can we take the word of a man who says he is against integration when he speaks in the South and for integration when he speaks in the North?
15. In the event of rain, the game was to be cancelled. I hear it's just been cancelled; so it must be raining.
16. If a child has measles, a characteristic spotting effect is visible. This child has the characteristic spots; so she has measles.

Valid and invalid arguments

1. If withholding information is just the same as lying, then it's wrong too. But they are the same. So withholding information is wrong.
2. If you wear purple shoes, you'll look ridiculous. Hence if you wear purple shoes, no one will love you, since if you look ridiculous, no one will love you.
3. If capital punishment - killing those who have killed - really did deter further killing, then it would be an acceptable solution to a real social problem. But it doesn't have any measurable deterrent effect. It follows that capital punishment isn't an acceptable solution.
4. Either communism will take over the entire world as Marx predicted it would, or else it will disappear completely from the face of the earth. Since the communists will never be able to dominate every part of the globe, it's only a matter of time before communism fades entirely from view.
5. Where in the devil did I leave my car keys? Let me see. They've got to be either in the hall (because I had them when I came in the front door, I remember that) or in the kitchen (because that's the next place I went and after that I don't remember having them). I can't see them anywhere in the hall, so they must be in the kitchen.
6. If that cute guy in Psych 100 liked me, he'd have sat beside me again yesterday, but he was sitting with his buddies way up at the back of the lecture hall, so I guess he doesn't like me.
7. If my prof weren't sexist, he wouldn't use examples that stereotype female students as just interested in men; but he does; so he is.
8. You have heard of Shoeless Joe Jackson? Oh, so you must have read W.P. Kinsella's novel, *The Iowa Baseball Confederacy*, because if you read that book, you've heard of Shoeless Joe Jackson.
9. We should believe in ghosts. If we can't prove the non-existence of ghosts, then we should believe in their existence. And there's no way to really prove that ghosts don't exist.
10. In *The Brothers Karamazov*, Ivan overcame his doubts about the existence of God when he became convinced that if there is no God, then everything is permitted. But it is false, he thought, that everything is permitted; it's evident that some things are wrong, forbidden. So there must be a God.
11. Either my friends will all stand by me if I get into trouble or they'll all dump me. I know they won't all stand by me, so I guess they'll all dump me.

INDUCTION

Inductive arguments are indispensable to natural science, social science and, in general, any planning for the future.

Inductive arguments must "sacrifice" the certainty of deductive arguments, to go beyond the content of their premises.

I. *Generalization or enumeration*

In an inductive argument which depends on enumeration, we draw a conclusion about all the members of a class from premises which refer to some observed members of that class. Sometimes this is called *sampling*. Such arguments have the form:

All apples in the sample are Grade A. Therefore, all the apples in the barrel are Grade A.

or 41% of the voters in the survey said they would vote for the Rhinoceros Party.
Therefore, 41% of the total electorate will vote for the Rhinoceros Party.

or, like the first example,

Apple #1 is Grade A.
Apple #2 is Grade A.
Apple #3 is Grade A
Apple #N is Grade A,

Therefore, all the apples are Grade A.

II. *Causal reasoning or inductive elimination*

Some of these inductive methods are sometimes called "Mill's Methods" because they are discussed in detail by John Stuart Mill, a 19th century British philosopher, in his *System of Logic*.

a) *Method of Agreement*: When two or more instances of the phenomenon under investigation have only one circumstance in common, the circumstance in which all instances agree is the cause of the given phenomenon.

E.g., If A and B and C produce P, and
If A and D and E produce P, and
If A and F and G produce P,
We may conclude (inductively) that A is the cause of P.

b) *Method of Difference*: If an instance in which the phenomenon under investigation occurs, and an instance in which it does not occur, have every circumstance in common, save one, that one occurring only in the former, the circumstance in which alone the two instances differ, is the cause of the phenomenon.

E.g., If A and B and C produce P, and
If A and B *alone* do not produce P,
We may conclude (inductively) that C is the cause of P.

- c) *Joint Method of Agreement and Difference*: When 2 or more instances in which the effect occurs have only one circumstance in common AND 2 or more instances in which it does not occur have nothing in common (except the absence of that circumstance), the circumstance in which alone the two sets of instances differ is the cause of the effect.

E.g.,
 $A + B + C + D > E$
 $A + B + H + G > E$
 $A + G + J + L > E$
 $\text{not } A + G + M + N > \text{not } E$
 $\text{not } A + O + C + R > \text{not } E$
Therefore, $A > E$

In *all* cases, we must ensure that we are considering all of the *relevant* factors that are involved in the production of the effect. Even if we are careful, we can never be certain that we have considered them all, which is why the argument is inductive (and not deductive).

- d) Mill also mentions the method of concomitant variation by direct and inverse variation and the method of residues. We need not discuss these here.

III. *Analogy*

In an inductive argument that uses analogy, we draw a conclusion about some thing, based on relevant similarities that that thing has to another.

In general, these arguments have the following form:

1. Objects of one kind are known to be similar in certain respects to objects of another kind.
2. Objects of the first kind are known to have some additional characteristic.
3. Therefore, on the basis of their similarity (under #1), we conclude that objects of the second kind will have this additional characteristic.

The crucial question is whether, in step #1, the similarities noted between the two things are *relevant* to the issue. Relevant *similarities* strengthen an analogy; relevant *dissimilarities* weaken an analogy.

For example:

1. Rats and humans are similar on the basis of their physiology.
2. Rats, when injected with chemical C, have a large percentage of heart disease.
3. Therefore, when humans consume chemical C, they will have a large percentage of heart disease.

There is no foolproof way of ensuring relevance in the similar characteristics. But we can have some rules of thumb: knowledge of the general area under consideration will help us distinguish between significant and insignificant elements *and*, generally, getting used to using analogy, and seeing how far it may be useful.

Exercises on Causal Reasoning:

Which inductive ‘method’ is being used in each of the following examples? How strong is the inference being drawn and justify your answer.

1. When asked if certain comic books depicting violence had any effect on their actions, many juvenile delinquents have said "yes." In reply, the Comics Code Authority has pointed out that most children who read comic books which depict violence do not become juvenile delinquents, and it therefore concludes that such comic books exert very little influence upon the behavior of its youthful readers.
2. In studying British genius, Havelock Ellis found that most of the famous men whose lives he looked into were first-born children. He therefore concluded that certain environmental factors contributed significantly to the development of outstanding ability.
3. Several years ago 16 children died and 250 other persons were hospitalized in Tijuana as a result of poisoning. First, certain drug products were suspected of having become contaminated, but an investigation showed that many people who were unaffected had consumed these products. Then suspicion fell on the bread that the afflicted parties had been known to eat. An investigation revealed that parathion, a deadly pesticide used in Northern Mexico against the boll weevil, had been stored in a certain warehouse along with flour and sugar, which were distributed to about nine bakers and used to make bread and sweet rolls. Mexican officials concluded that the insecticide had become mixed with the flour and sugar and was responsible for the poisonings.
4. Just before the last war, a poll showed the Prime Minister's popularity to be at 39 percent. Two days after he sent in troops, another poll showed his popularity to be at 48 percent. His action evidently made a favorable impression on the Canadian people.
5. In his autobiography Lord Asquith relates an incident concerning a member of Parliament named Kinglake, whose speeches contained excellent content but whose voice was so poor that his speeches made little impact. One day he delivered a particularly brilliant speech, which as always was received apathetically. The next day the second Sir Robert Peel, after getting permission, concluded his own speech with the identical words of Kinglake's conclusion and received a standing ovation. Asquith concludes that Peel's delivery made all the difference.
6. Because of certain deviations in the predicted orbit of Uranus, Leverrier concluded that a theretofore undiscovered planet was exerting a pull on Uranus and causing the deviation. His conclusion subsequently led to the discovery of the planet Neptune.
7. To determine the effect of fluorinated water on teeth, the neighbouring communities of Newburgh and Kingston, New York, conducted an experiment. For ten years the residents of Newburgh drank water containing 1 part sodium fluoride to 1 million parts of water while the residents of Kingston drank water containing little or no fluorine. Before the test began, 1,000 children in each community had their teeth carefully checked so that the control groups used had approximately the same number of cavities. After ten years it was found that the children of Newburgh had approximately 40 percent fewer cavities than those of Kingston. The result was

attributed to the fluorine.

8. To test his vaccine against anthrax, Pasteur inoculated twenty-four sheep and then injected them and twenty-four other sheep with anthrax microbes. Two days later the vaccinated sheep were still healthy while the others were dead or dying. Pasteur was satisfied that his vaccine worked.

Exercises on generalization

Suppose that on a recent visit to a small village in southern France, a village named "Fromage," you noticed that the first six Fromagians whom you met ate cheese with white wine. You therefore concluded that most Fromagians eat cheese with white wine. Would this inference be made stronger or weaker by the following alterations? Why?

1. The six Fromagians were members of the same family.
2. The six Fromagians were members of the same economic and social class.
3. We observed 100 Fromagians eating cheese with white wine.
4. The six Fromagians were all Catholic and we saw them on Friday.
5. We remembered seeing many residents of the Cote d'Azur eating cheese with white wine.
6. The six Fromagians were all Catholic and they were observed on different days of the week.
7. Instead, we concluded that most Frenchmen ate cheese with white wine.
8. We remembered seeing many Parisians eating cheese with white wine.
9. We saw one Fromagian who ate cheese with red wine.
10. We saw one Fromagian who ate snails with white wine.

Exercises on analogy

Determine which of the following selections contain inductive analogies and which contain analogies for explanation or vividness. Appraise the inductive analogies by applying the tests discussed here.

1. There should be ethical limits on the operation of our economy. Our competitive economy is like a vehicle with a motor, but no driver--the more powerful the motor, the more dangerous the vehicle.
Albert Jacquard, J'accuse l'economie triomphante
2. Speaking of Federal appropriations to the States, James M. Beck, Solicitor General under President Harding, compared them "to that tragedy on the ocean seas when the Titanic was struck by a submerged ice floe. After the collision, which was hardly felt by the steamer at the time, the great liner at first seemed to be intact and unhurt and continued to move. But a death wound had been inflicted under the surface of the water ... The power of appropriation is such an ice floe ... and has inflicted a similar fatal wound to the good ship Constitution."
As quoted by Lindsay Rogers, "Speaking of Books: Metaphors"

2. When a squid injects its ink into the water to confuse an enemy or its potential prey, it is obfuscating - that, clouding the water in order to prevent clear sight. Many editorial writers act like the frightened squid. They confuse and cloud, obfuscate, by introducing issues which are not germane to the question being discussed.
Curtis Bradford and Hazel Moritz, *The Communication of Ideas*
3. Much of the revulsion against the use of atomic weapons arises because the very newness makes it seem more horrible. A careful cataloguing of the injuries resulting from the use of the automobile would also be impressive but any proposal to outlaw the automobile would be considered ridiculous.
R. E. Lapp. *Must We Hide?*
4. Concerning the illegal faking of football injuries to get a time-out, the sports writer Whitney Martin once wrote: "Efforts have been made to defend the faking of injuries by pointing out it has been done hundreds of times, which is the same as saying a speeder isn't guilty of exceeding the speed limit because others do it and get away with it."
5. The difference between a composition that is not planned and one that is well planned is the difference between a pile of stones and a house made of stone. A pile of stones has no organization; it is a mere heap. A stone house has organization: the stones have been put into place according to a design; they are parts of a whole.
Donald Davidson, *American Composition and Rhetoric*
6. Gentlemen, I want you to suppose a case for a moment. Suppose that all the property you were worth was in gold, and you had put it in the hands of Blondin, the famous rope walker, to carry across the Niagara Falls on a tight rope. Would you shake the rope while he was passing over it, or keep shouting to him, "Blondin, stoop a little more! Go a little faster!" No, I am sure you would not. You would hold your breath as well as your tongue, and keep your hands off until he was safely over. Now the government is in the same position. It is carrying an immense weight across a stormy ocean. Untold treasures are in its hands. It is doing the best it can. Don't badger it! Just keep still, and it will get you safely over.
Abraham Lincoln
7. Running a government is like running a ship; we need a strong hand at the helm.
Thomas Carlyle
8. In arguing that the cure of mental illness should be stressed rather than the exact diagnosis of it, Dr. William Menninger, the well-known psychiatrist, once stated: "One does not have to know the cause of a fire to put it out."
9. A Monarchy is a merchantman which sails well, but will sometimes strike on rock, and go to bottom; a republic is a raft which will never sink, but then your feet are always in the water.
Fisher Ames

Summary: Conditions for Satisfactory Arguments

Philosophy is concerned not just with what people say, but with *why* they say they do. So an important part of reading philosophy, and of writing it, is the argument. An argument is just a statement (called the conclusion) with one or more reasons (called premises) given to support or prove it. But to have a satisfactory argument, we must have more than this.

Consider the following arguments:

- a) All jabberwocks are gzady and all gzady things are slithy.
So, this must be slithy, as this is a jabberwock.
- b) North Uist is in the Outer Hebrides.
So, there is a bell tower in the front square of Trinity College, Dublin.
- c) Smith smoked "Likely Stroke" cigarettes.
"Likely Stroke" cigarettes were found at the scene of the murder.
So, Smith was the murderer.
- d) Ninety-nine percent of all people have an IQ below 146.
So, Bob has an IQ below 146.
- e) All beagles are canines.
All canines are vertebrates.
So, all beagles are vertebrates.

Before we can say we have a satisfactory argument, we must be clear what exactly is being argued for (the conclusion) and why (the premise or premises). These are two respects in which an argument should be *clear*. First, when presented with a passage we want to know immediately whether there is an argument present. Therefore, unless we are clear what exactly the conclusion is, and what the premises given for it are, we cannot be certain that there is an argument at all, or that it is in fact the one that we might think it is. Second, in stating what the premises and conclusions are, we must be clear what they mean. Otherwise, we will not be able to determine whether the premises are in fact true, and whether they are relevant to, and provide sufficient evidence for, the conclusion. So, in the first place, we must have clarity in the argument if it is to be satisfactory. Thus argument (a) is unclear - perhaps because we may not be able to tell what exactly is being argued for and what reasons are given, but certainly because the premises and the conclusion have no clear meaning. It is, therefore, not satisfactory.

Once we are clear what is being argued for, and why, we must ask whether the premises are *true* (or, at least, believed to be true, given all the available evidence). The conclusion and the premises in argument (b) are stated clearly, and the premises (in this case, just one premise) are true. It is obvious, however, that for this argument to be satisfactory, we must have more than this. Thus we insist that, in an argument, the premises must be *relevant* to the conclusion as well.

Given these three conditions an argument may possibly be satisfactory -- but then again, it may not be. Why? Because we can have arguments where the premises and conclusions are clear, and the premises true and relevant, but the conclusion false or unwarranted.

In argument (c) the premises and conclusion are clear, the premises relevant, and (let us suppose) true. In order for the argument to be satisfactory, however we must know something more than what is explicitly stated in the argument -- that Smith was the only one near the scene of the crime (or who had a motive) who also smoked "Likely Stroke", for example. As it stands, we might say that there is not enough evidence for the argument to be satisfactory, and our conclusion true. Thus, a fourth condition for a satisfactory argument is that the premises must provide *sufficient evidence* for the conclusion.

There are some issues that arise in connection with this. First, we realize that, in many arguments, not all the premises are explicitly stated. Some may be explicit, because the speaker expects audience to be already aware of them. Thus we should adopt a *principle of charity* -- give the author the benefit of the doubt -- and add premises that are required in order to establish the conclusion, *if* it seems likely that the author herself would have added them (e.g., were it not for lack of time or space, or which should not be necessary given the context). Once this is done, we must still determine first, whether such 'hidden premises' are true (presumably, they will be clear and relevant) and second, whether the sum of all the premises provides sufficient evidence for the conclusion.

The second issue here is that, in some arguments, an author may make certain assumptions, which are required for the argument to be satisfactory, but which are not explicit (e.g., because it would expose some fault in the argument or perhaps because the author herself is not aware of them). Thus we must *make explicit, hidden assumptions*, and determine whether they are true, and whether this affects the truth, clarity, or relevance of the premises or inferences which depend on them.

Finally, we might also ask (though this does not affect satisfiability as such) what the *implications* are of the conclusions to which we come. We might find that acceptance of an argument would commit us to other views or principles on related matters, contrary to those we already hold. Such implications, then, might cause us to reconsider the argument at hand, or those for the other views or principles concerned. Consequently, we should also be aware of whether and how the conclusions of our arguments affect other views we might hold.

There are different kinds of satisfactory arguments that may meet the previous four conditions. These are determined by the way in which the premises provide sufficient evidence for the conclusion, and involve what is called the logic or *form* of the argument. We classify arguments as either inductive or deductive.

An *inductive* argument is one where the truth of the premises, while not guaranteeing the truth of the conclusion, purports to be a good reason for belief that it is true. (The classical conception of induction is that of generalizing from particular instances. The sense we use here is broader than that.) Arguments (c) and (d), for example, are inductive arguments. It is possible, however, that while the premises are true, the conclusion is discovered later to be false. Inductive arguments, therefore, cannot establish a conclusion as certain.

A *deductive* argument is one in which the conclusion follows necessarily from one or more of the given premises--i.e., if the premises are true, then the conclusion must be true.

(Because of this characteristic, such arguments are also called *valid*. Validity, then, refers simply to the form of the argument or process of reasoning. It does not indicate, suggest, or entail that either the premises or the conclusion are actually true). Arguments (a) and (e) are examples of deductive arguments.

Having either of these forms is not sufficient to make an argument satisfactory. Thus we talk of the correctness or soundness of these arguments, respectively. An inductive argument is *correct* and, therefore, satisfactory if (i) the premises are clear, true, and relevant, (ii) there are *no* clear, true, and relevant contradictory premises, and (iii) the premises provide adequate evidence for believing the conclusion to be probably true. A deductive argument is *sound* and, therefore, satisfactory if the premises are clear, true, and relevant, and are arranged in a way that establishes the conclusion as certainly true (i.e., that it has a valid form). In short, then, some inductive and deductive arguments are *not* satisfactory. (i.e., inductive and deductive arguments which have unclear, false or irrelevant premises and inductive arguments in which the premises do not provide good reason for believing that the conclusion is true.)

This, then, outlines the conditions for a satisfactory argument. When we read or write philosophical arguments, we should keep these conditions in mind, because an argument can be criticized if it does not meet one or more of them. If an argument has premises which are false, or unclear, or irrelevant, or if the premises do not provide sufficient evidence for the conclusion, we usually have good grounds for rejecting it.

N.B. ... It is one thing to say that an argument is not satisfactory; it is quite another to say that it is not convincing. Bad arguments often do convince people and some good arguments fail to convince people. To be convinced refers to a psychological state of the listener or reader, and people can (though they should not, if they are fully rational) be influenced through emotion or prejudice rather than argument.

Common problems in identifying arguments

1. A set of sentences each of which expresses a proposition may constitute an exposition rather than an argument.
2. Indicator words may be missing from an argument, in which case the premises and conclusion can often be recognized by other linguistic cues or by knowledge of the context.
3. Indicator words may be present when there is no argument.
4. The conclusion may be implicit rather than stated.
5. Premises may be omitted, in which case it may be necessary to examine the context to determine exactly which premise(s) should be applied.