

## 24.09x Glossary<sup>1</sup>

### A

#### A posteriori

Dependent upon experience. Person *S* knows *p* a posteriori (or *empirically*) **iff** *S*'s knowledge of *p* depends upon her experience. Smith's knowledge that Shakespeare died in 1616 is a posteriori, whether she knows it first hand (as an eye witness) or on the basis of testimony. (In the latter case, her knowledge depends on her experience of the testimony.) A **proposition** is a posteriori iff it can only be known a posteriori. An **argument** is a posteriori iff it contains at least one a posteriori premise.

See also **a priori**.

#### A priori

Prior to, or independent of, experience. Person *S* knows *p* a priori (or *non-empirically*) **iff** *S*'s knowledge of *p* does not depend on his experience. Our knowledge of logic and pure mathematics is widely (though not universally) held to be a priori. A **proposition** is a priori iff it can be known a priori. An **argument** is a priori iff all of its premises are a priori.

#### Abduction

See **inference to the best explanation**.

#### Abstract object

An object that does not exist in space and lacks causal powers. The existence of abstract objects is controversial, but possible examples include mathematical objects like the number 17, fictional characters like Spiderman, abstract **types** like the Greek letter "α" (as distinct from the concrete inscription of the letter on this page of your printed copy of this glossary), and **propositions** like the proposition that snow is white.

#### Accident

See **essence**.

#### Actual world

See **possible world**.

#### Analogical argument

An **argument** of the form:

- P1. *A* resembles *B* in so-and-so respects  
 P2. *B* has property *F*

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<sup>1</sup> Excerpted, with amendments and additions, from [The Norton Introduction to Philosophy](#), ed. Rosen, Byrne, Cohen and Shiffrin (Norton, 2015). Reproduced with permission.

Therefore:

C.  $A$  has property  $F$

### **Analysandum, analysans**

See **analysis**.

### **Analysis**

To analyze a word or a **concept** is to define it in more basic terms. For example, “triangle” can be analyzed as “plane figure with three interior angles”. The word or concept to be analyzed (for example, “triangle”) is the *analysandum*; the proposed definition (for example, “plane figure with three interior angles”) is the *analysans*. Philosophical analyses are standardly formulated as general **biconditionals**, e.g.,

$X$  is a triangle **iff**  $X$  is a plane figure with three interior angles  
 $S$  knows  $p$  iff  $S$  believes  $p$ ,  $S$ 's belief is **justified**, and  $p$  is true

“Analysis” can denote either the process of analyzing words or concepts (“Philosophical analysis is difficult”) or the product of this process (“Jill’s analysis of the concept *knowledge* was influential”).

### **Analytic and Synthetic**

A sentence is analytic **iff** it is “true solely in virtue of its meaning”, or “true by definition” or “true by virtue of linguistic convention”.

Alternatively, a sentence is analytic iff any competent speaker of the language is in a position to recognize its truth simply by virtue of being a competent speaker.

Examples are controversial (on either understanding of “analytic”), but possibilities include:

An even number is divisible by 2.  
 Red is a color.  
 Nothing can be red and green all over.  
 If  $a$  is taller than  $b$ , then  $b$  is shorter than  $a$ .

A true sentence that is not analytic is *synthetic*.

### **Antecedent**

See **conditional**.

### **Argument**

In logic, a list or sequence of **propositions** or *statements*:  $p_1, \dots, p_n, c$ . (Alternatively, as in 24.09x, a list of *sentences*: “ $P_1$ ”, ... “ $P_n$ ”, “ $C$ ”.)  $p_1, \dots, p_n$  are the **premises** and  $c$  is the *conclusion*. See also **soundness and validity**.

### **Axiom**

Broadly, an assumption; a claim taken for granted without proof or argument. More narrowly, one of a class of privileged statements in the presentation of a formal theory. Classically, an axiom is a proposition that “neither needs nor admits of proof”, but which is nonetheless clearly true. For example, “Every natural number has a successor”, is an axiom in the standard theory of arithmetic. In modern mathematics it is common to present a theory by specifying its axioms, and then to study the theory without regard to the truth of its axioms. The **theorems** of a theory are the *logical consequences* (see **entailment**) of its axioms.

## **B**

### **Begging the question and circular arguments**

An **argument** is *circular* **iff** if its conclusion is also one of its premises. The simplest form of such an argument “P, therefore P”. Note that there is need be no *logical* flaw in a circular argument: “P, therefore P” is **valid**, and may well be **sound**. The problem is that circular arguments cannot justify their conclusions, and so cannot provide a rational basis for accepting their conclusions. Circular arguments are unpersuasive because they *beg the question*: anyone who does not already believe the conclusion will not believe one of the premises. More generally, an argument begs the question against person S **iff** S regards the justification of a premise of the argument as resting on the truth of the conclusion.

Note that a **cogent** argument may sometimes beg the question against certain people. Consider:

P1: Radiocarbon dating shows these bones to be 60,000 years old.  
 Therefore:  
 C: The Earth is more than 6,000 years old and young-Earth creationism is false.

This argument may beg the question against a biblical literalist who maintains that P1 depends for its justification on the assumption that young-Earth creationism is false; and yet the argument is cogent in the sense that a reasonable person might come to accept the conclusion on the basis of it.

More controversially, some philosophers hold that the following argument is cogent.

P1: I have a hand  
 Therefore:  
 C: At least one material object exists.

Yet this argument begs the question against a **skeptic** who doubts the existence of the material world.

### **Behaviorism**

In psychology, the view that the proper object of psychological study is behavior, and that explanations of behavior that appeal to information processing in the brain are to be

avoided. In the philosophy of mind (see lecture 9), the view that **mental states** are **dispositions** to behave in such-and-such ways. *Analytical behaviorism* is the view that mental state **concepts** can be **analyzed** in terms of behavior.

### **Biconditional**

A statement of the form “ $P$  if and only if  $Q$ ” or some related form, either in a natural language or a formal logical language. Usually written in symbolic logic as “ $P \leftrightarrow Q$ ”.

### **Burden of proof**

In law, the burden of proof lies with the party who must prove his case if he is to prevail. (The term is also sometimes used to refer to the standard of certainty with which one’s case must be proved if one is to prevail.) More generally, the burden of proof in a debate or controversy lies with the party who must provide positive evidence for his view if it is to be accepted.

## **C**

### **Circular argument**

See **begging the question and circular arguments**.

### **Closure principle**

In epistemology, a principle affirming that knowledge or **justified belief** is “closed” under some form of **entailment**. For example:

If  $S$  knows  $p$ , and  $p$  entails  $q$ , then  $S$  knows  $q$ .

or

If  $S$  is justified in believing  $p$ , and  $S$  knows that  $p$  entails  $q$ , then  $S$  is justified in believing  $q$ .

### **Cogent argument**

An **argument** that genuinely establishes its conclusion. Alternatively, an argument whose premises provide good, though perhaps inconclusive, grounds for accepting its conclusion.

### **Concept**

The meaning of a word or phrase. “Cat” (in English) and “gato” (in Spanish) both mean *cat*: that is, they both express the concept *cat*. Alternatively, concepts are symbols in the brain—perhaps words in some neural language—that are used in thinking.

### **Conceptual analysis**

See **analysis**.

### **Conditional**

A sentence of the form “If  $P$ , then  $Q$ ”, or some related form, either in a natural language or a formal logical language. “ $P$ ” is the *antecedent* of the conditional and “ $Q$ ” the *consequent*. Some important varieties of conditionals include:

**Material conditional:** in symbolic logic, usually written as " $P \supset Q$ " or " $P \rightarrow Q$ ". By definition, the material conditional is false when its antecedent is true and its consequent is false, and true in all other cases, even when the antecedent and consequent are entirely unrelated. For example, the following material conditionals are true:

$2+2=4 \supset$  Albany is the capital of New York;  
 $2+2=5 \supset$  the moon is made of cheese  
 $2+2=5 \supset$  Albany is the capital of New York

whereas the following is false:

$2+2=4 \supset$  the moon is made of cheese

**Counterfactual conditional:** A sentence of the form "If it were that  $P$ , it would be that  $Q$ " or "If it had been that  $P$ , it would have been that  $Q$ ".

**Indicative conditional:** A natural language sentence of the form "If  $P$ , then  $Q$ " where " $P$ " and " $Q$ " are in the indicative mood, e.g., "If Bob is not in his office, he's at home." Some philosophers hold that indicative conditionals are material conditionals. But consider:

If Ronald Reagan was a spy, no one knew it.  
 If Ronald Reagan was a spy, he was a spy for the Martians.

The corresponding material conditionals (e.g. "Ronald Reagan was a spy  $\supset$  no one knew it") are both true, since their antecedents are false and that is enough to render a material conditional true. But the first conditional seems true and the second false. This suggests that indicative conditionals are not material conditionals.

### Conjunction

A sentence of the form " $P$  and  $Q$ ", or some related form either in a natural language or a formal logical language. In symbolic logic, usually written as " $P \& Q$ " or " $P \wedge Q$ ". By definition, " $P \& Q$ " is true **iff** both *conjuncts*—"P" and "Q"—are true.

### Consequent

See **conditional**.

### Consistency

A set of sentences (or **propositions**) is consistent **iff** it possible for all of the sentences (or propositions) in the set to be true together. For example, the set {"John is happy", "John is poor"} is consistent, since it is possible for someone to be both happy and poor. By contrast, the set {"John is poor", "John is not poor"} is not consistent since it is impossible for the two sentences to be true together.

**Content (of a mental state)**

Some **mental states**, for example *believing that grass is green*, appear to involve **relations to propositions**—in this cases, the proposition that grass is green. (See **propositional attitudes**.) When a mental state involves a relation to a proposition, the proposition is called the “content” of the state, or sometimes its *representational* or *intentional* content. Thus the content of the state of believing that grass is green is the proposition that grass is green.

**Contingent proposition**

See **possibility and necessity**.

**Contrapositive**

The contrapositive of a **conditional**, “If  $P$  then  $Q$ ”, is the conditional, “If not- $Q$ , then not- $P$ ”.

**Converse of a relation**

See **relation**.

**Counterexample**

A particular case that refutes a general claim. The discovery of a black swan refutes the general claim that all swans are white and is thus a counterexample to that claim. If the general claim is supposed to be only *contingently* true, as in the example just given, the particular case must actually obtain. If the general claim is meant to be a *necessary* truth, as is common in philosophy, then it can be refuted by a merely *possible* counterexample. (See **possibility and necessity**.) Thus if a philosopher claims that, necessarily, an act is free only if the agent could have acted differently, her claim can be refuted by describing a merely possible case in which an agent acts freely but could not have acted differently.

**Counterfactual conditional**

See **conditional**.

**D****Demonstrative argument**

See **proof**.

**Disjunction**

A sentence of the form “ $P$  or  $Q$ ”, or some related form either in a natural language or a formal logical language. In symbolic logic, usually written as “ $P \vee Q$ ”. By definition, “ $P \vee Q$ ” is true **iff** at least one *disjunct*—“ $P$ ” or “ $Q$ ”—is true.

**Disposition**

In metaphysics, the tendency, power, or propensity of an object to behave in certain ways under certain conditions. Thus, fragility is a disposition (or a dispositional **property**), since it consists in the tendency to break when struck or dropped. (See lectures 9 and 20.)

## Dualism

In the philosophy of mind, dualism comes in two varieties. (See lecture 7.)

*Substance dualism*: the view that there are two fundamentally distinct kinds of **substance**: thinking things and material (or physical) things. This was famously defended by René Descartes (1596-1650), so is often called *Cartesian* dualism. Descartes also held that a thinking thing and its associated material body causally interact, and this is sometimes called Cartesian *interactionism*.

*Property dualism*: the view that there are two fundamentally distinct kinds of **property**: mental properties (e.g., the property of being in pain) and physical properties (e.g., the property of having a brain with such-and-such neural firing pattern).

Dualists reject **physicalism**.

## E

### Eliminativism

In the philosophy of mind, the view no one has ever been in any **mental state** (or in a mental state of a certain kind), and that mentalistic vocabulary should ultimately be eliminated from scientific psychology.

For example, eliminativism about belief is the view that no one has ever believed anything, and so psychologists should not use the word “belief” any more than biologists should use “Bigfoot.” More generally, eliminativism about *F*s—also sometimes called an **error theory** about *F*s—is the view that there are no *F*s, or that nothing has the property of being *F*. Thus *color eliminativism* is the view that nothing is colored—roses are not red (or any other color), violets are not blue (or any other color), and so on. (C. L. Hardin is a color eliminativist—see lectures 20 and 21.)

### Empirical

See **a posteriori**.

### Empiricism

Roughly, the view that all (substantive) knowledge derives from experience, or is **a posteriori**. **Concept** empiricism is the view that all *concepts* are either acquired from experience or “composed from” concepts that are acquired from experience (as the concept *unicorn* is said to be composed from concepts like *horse* and *horn*).

**Epistemological** empiricism is view that all **synthetic** knowledge is *a posteriori*. Empiricists typically deny the existence of innate knowledge and the existence of a faculty of Reason that yields substantive, a priori knowledge of reality. Prominent empiricists include David Hume (1711-76) and John Stuart Mill (1806-73).

### Entailment

**Proposition** *p* entails proposition *q* **iff** it is *absolutely impossible* for *p* to be true and *q* false. Equivalently: *p* entails *q* when as a matter of *absolute necessity*, if *p* true then so is *q*. (See **necessity and possibility**.) Synonyms: *p* implies *q*; *p* necessitates *q*; *q* is a *consequence* of *p*. Alternatively: sentence “*P*” entails sentence “*Q*” if and only if it is absolutely impossible for “*P*” to be true and “*Q*” false.

The terminology of “*logical entailment*” and “*logical consequence*” is used more narrowly, and specifically for sentences: “*P*” logically entails “*Q*” iff “*Q*” follows from “*P*” by formal logic alone, or alternatively, iff the argument from the premise “*P*” to the conclusion “*Q*” is *formally valid*. (See **soundness and validity**.)

### **Entity**

A maximally general term designed to apply to anything whatsoever. Ordinary physical objects are entities. But so are immaterial souls (if they exist), mathematical objects (if they exist), events, properties, relations, facts, propositions, and so on.

### **Enumerative induction**

See **induction**.

### **Epiphenomenalism**

In the philosophy of mind, the view that a person’s psychology or mental life never has any physical effects (although it may have physical causes): wanting pizza never causes the ingestion of pizza, intending to go the lecture never causes attendance at the lecture, and so on. Sometimes more specifically, the view that **qualia** never have physical effects. According to the qualia epiphenomenalist, the distinctive qualia associated with pain do not cause what we naively regard as the physical manifestations of pain—wincing, etc. Rather, physical changes in the brain cause both distinctive pain qualia and these physical manifestations. (See lectures 23 and 24.)

### **Epistemic rationality**

See **practical vs. theoretical rationality**.

### **Epistemology**

Literally, the theory of knowledge. More commonly, the part of philosophy that studies knowledge, rational belief and the principles governing the rational revision of belief.

### **Error theory**

The view that our claims about some topic (e.g. color, ethics, mathematics) are completely mistaken because they involve a fundamental error about what the world is like. An error theoretic view of ethics holds that ethical claims are systematically false because *nothing* is right or wrong. (Alternatively, it might be held that ethical claims are meaningless, and so don’t even manage to be false.) An error theoretic view of color holds that color claims (“This rose is red”, etc.) are systematically false because, despite appearances, nothing is colored. This is C.L. Hardin’s view, as discussed in lectures 20 and 21. (See **eliminativism**.)

Alternatively, a theory that explains *why* we are prone to systematic metaphysical error in some area; for example, an account of why we think objects are colored when in fact nothing is.



### Essence and accident

The *essential properties* of an object are the properties that it cannot possibly fail to possess, or equivalently: the properties the object possesses in every **possible world** in which it exists. Alternatively, an essential property is a property an object possess *by its very nature*, or *simply in virtue of being the thing that it is*. A property that is not essential is **accidental**. Examples are controversial, but plausible examples include: Gold is essentially a metal, but only accidentally rare; Socrates is essentially human, but only accidentally wise.

### Event

A happening or occurrence, like a baseball game, a lecture, a wedding, a war, or a flash of lightning.

### Extension

The extension of a word or concept is the set of things to which the word or concept applies. For example, the extension of the concept *horse* is the set of horses. The extension of the phrase “man with nine fingers” is the set of nine-fingered men. Terms with the same extension are *co-extensional* or *co-extensive*. Note: co-extensional terms can be **contingently** co-extensional. So if, as a matter of fact, every philosopher is a genius and every genius is a philosopher, then “philosopher” and “genius” have the same extension, despite the fact that there could have been a philosopher who is not a genius and vice versa.

### Externalism and internalism about justification

In epistemology, *internalism* is (roughly) the view that when a person has a **justified belief**, the facts in virtue of which the belief is justified must be accessible to the subject. *Externalism*, the denial of internalism, is the view that a belief may be justified in virtue of facts that lie beyond the subject’s ken. One simple form of internalism holds that a belief is justified in virtue of facts about the subject’s conscious experiences, assumed to be accessible to the subject. One simple form of externalism (called *reliablism*) holds that a belief is justified in virtue of facts about the reliability of the causal process that produced the belief, regardless of whether the subject is in a position to know about this process or its reliability.

### Externalism and internalism about the mind

In the philosophy of mind (and in part 3 of 24.09x), *internalism* is the view that all **mental states** are *intrinsic* states. (See **extrinsic and intrinsic**.) Equivalently, internalism is the view that if two people are perfect duplicates, exactly alike “from the skin in”, they must have exactly the same mental states—the same beliefs, desires, intentions, sensory experiences, and so on. *Externalism*, the denial of internalism, is the view that some mental states involve the subject’s relation to his or her environment, and are thus *extrinsic*. According to an externalist, two people who are identical from the skin in may nevertheless have different beliefs because of differences in their respective environments.

### Extrinsic and Intrinsic

An *intrinsic property* is a property a thing possess “on its own”, regardless of its relations to other things. Alternatively, an intrinsic property is a property with respect to which *perfect duplicates* cannot differ. (A “perfect duplicate” of a certain dollar bill, say, is an atom-for-atom replica of the dollar bill, indistinguishable from the original by the most powerful microscopes.) For example, the property of being round is intrinsic, since, any perfect duplicate of a round thing must be round. A property is *extrinsic* iff it is not intrinsic. For example, the property of *being made in the USA* is extrinsic, since there could be a pair of perfect duplicates—perhaps two copies of *The Norton Introduction to Philosophy*—one made in the USA, the other made elsewhere.

## F

### Fact

A truth, a true **proposition**. That the Earth is round is a fact; equivalently, that the Earth is round is true, or is a true proposition.

Alternatively, a fact is something “in virtue of which” a true proposition is true. It is controversial whether there are facts in this alternative sense, but if there are, then they are not true propositions—instead, they “make” true propositions true, or “ground” the truth of propositions.

### Falsificationism

Narrowly, the view that a theory counts as genuinely scientific only if it can be falsified—that is, shown to be false. More broadly, the view that science proceeds by framing theories and then seeking to falsify them by means of observation and experiment, retaining only those theories that have survived many such tests.

### Formal validity

See **soundness and validity**.

### Function

In logic and mathematics, a mapping from one collection—the *domain*—to another—the *range*—that associates each item in the domain with at most one item in the range. Thus *heart of  $x$*  is a function from (say) the set of animals (the domain) to the set of organs (the range), since it associates each animal with at most one organ, its heart. By contrast *kidney of  $x$*  is not a function, since many animals have more than one kidney. Thus  $x^2$  is a function (from real numbers to real numbers) since every real number has just one square, whereas  $\sqrt{x}$  is not a function, since positive real numbers always have two square roots.

### Functionalism

In the philosophy of mind, the view that **mental states** are defined by their causes and effects, including their causal relations to other mental states. (See lectures 13 and 14.) Thus a functionalist might define *being in pain* as a state that is typically caused by damage to the body, and which typically causes certain behavior (e.g., wincing) and also certain other mental states, including the belief that one is in pain and the desire to change one’s state. Functionalism is opposed to **dualism**, the **identity theory** and also to

**behaviorism**, according to which mental states can be defined in terms of their environmental causes and behavioral effects, without mentioning their relations to other mental states.

## H

### Hard problem of consciousness

An expression introduced by David Chalmers (1966-). The problem of explaining why certain physical states (e.g., states of the brain) are associated with certain conscious states, or with conscious states of any kind. Even if we had a complete account of the *neural correlates of consciousness*, the physical states that in fact underlie conscious states, the hard problem would still arise, since it would remain to say *why* these physical states give rise to conscious experience as they do. (See lectures 1 and 25.)

## I

### Idealism

In metaphysics, the view that reality as a whole is in some sense mental or mind-dependent.

### Identity

Objects A and B are **numerically identical** iff they are one and the same thing:  $A=B$ . Mark Twain and Samuel Clemens are numerically identical, as are  $2^2$  and 4. If A and B are numerically identical then the plural “are” is misleading: “they” are not two things, but one. Objects are **qualitatively identical** iff they are alike in all **intrinsic** respects; equivalently, iff they are perfect duplicates of one another. Numerically identical objects are alike in absolutely every respect. Qualitatively identical objects are alike in some respects — size, shape, chemical composition — though different in others: e.g., location, monetary value, etc.

### Identity theory (of mind)

The view that every **mental state** is *numerically identical* (see **identity**) to a physical state, e.g. the state of having a brain with such-and-such neural firing pattern. (See lectures 10, 11, and 12.)

### Iff

Abbreviation for “if and only if”. See also **biconditional**.

### Induction

A form of **argument** in which the premise describes a pattern or regularity in the observed data and the conclusion extends that regularity to cases that have not yet been examined. The simplest *inductive rule* is the rule of **enumerative induction**:

P1. Every observed  $F$  is  $G$   
 Therefore:  
 C: Every  $F$  is  $G$

or more cautiously:

C\*: The next  $F$  we examine will be  $G$

More sophisticated inductive rules specify the conditions under which statistics gleaned from observation (“95% of  $F$ s are  $G$ ”) support generalizations and predictions about unexamined cases.

### **Inference**

See **reasoning and inference**.

### **Inference to the best explanation**

Also called **abduction**. A form of argument in which the fact that some hypothesis  $H$  is the best available explanation of the evidence is taken to support the conclusion that  $H$  is true. In one version:

P1.  $H$  is the best available explanation for some fact  $F$

P2.  $H$  is a good explanation of  $F$  (and not just the best of a bad lot)

Therefore:

C:  $H$  is true.

### **Intentional content**

See **content (of a mental state)**.

### **Intentionality**

Some things are *about*, or are *directed on*, or *represent*, other things. For example, the sentence “Cats are animals” is about cats (and about animals), this glossary entry is about intentionality, Emanuel Leutze’s most famous painting is about Washington’s crossing of the Delaware, lanterns hung in Boston’s North Church were about the British, and a map of Boston is about Boston. In contrast, ‘&#39;, a blank slate, and the city of Boston are not about anything. Many mental states and events also have “aboutness”: the belief that cats are animals is about cats, as is the fear of cats, the desire to have many cats, and seeing that the cats are on the mat. Arguably some mental states and events are not about anything: sensations, like pains and itches, are often held to be examples. Actions can also be about other things: hunting for the cat is about the cat, although tripping over the cat is not. This—rather vaguely characterized—phenomenon of “aboutness” is called *intentionality*. Something that is about (directed on, represents) something else is said to “have intentionality”, or (in the case of mental states) is said to be an “intentional mental state”.

### **Internalism about the mind**

See **externalism and internalism about the mind**.

### **Internalism about justification**

See **externalism and internalism about justification**.

**Intrinsic**

See **extrinsic and intrinsic**.

**Invalid**

See **soundness and validity**.

**J****Justified belief**

$S$  is justified in believing  $p$  **iff**  $S$ 's belief is “rightly held”, e.g.  $S$  believes  $p$  on the basis of sufficient reasons or evidence for  $p$ , or adequate grounds. A belief can be true and yet unjustified, as when one makes a lucky guess. Also, a belief can be justified but not true, as when one comes to believe that Jones is guilty on the basis of compelling but misleading evidence. (Some philosophers dispute this last claim because they hold that a belief in  $p$  is only “rightly held” if one knows  $p$ . Since one can only know  $p$  if  $p$  is true, it follows that no false belief is justified.)

**K****Knowledge argument**

A controversial argument against **physicalism** in the philosophy of mind due to Frank Jackson (1943- ). Suppose Mary is an expert color scientist who knows all the physical facts, but who has been raised in a black and white environment and so has never seen red. When she sees a red thing for the first time, she learns a new fact. “I never knew that *that's* what it's like to see red!”, we can imagine her saying. But she knew all the physical facts in advance. Hence (the Knowledge argument concludes) physicalism is false. (See lectures 22 and 23.)

**L****Lawlike statement**

A statement or **proposition** that is suited, by its form and subject matter, to be a *law of nature*, for example:

Water boils at 100°C

Water boils at 50°C

$e=mc^2$

$e=mc^3$

Any statement that is in fact a law—e.g. the first and third of the above examples—is lawlike. But so are various false statements that are not laws but which might have been laws had the world been different—e.g., the second and fourth examples. Laws that have some tacit “all things equal” qualification, like the first example (water doesn't boil at 100°C on the summit of Everest) are *ceteris paribus* laws. Lawlike statements are supposed to be general in scope, and not to refer to particular individuals. (Thus the proposition that it snowed yesterday and the proposition that Fred is eating lunch are not

lawlike, even if they are true.) Beyond this, there are no clear tests to distinguish lawlike statements from the rest.

### **Logical consequence**

See **entailment**.

## **M**

### **Materialism**

In metaphysics, view that the world is wholly material or physical. The term derives from a period in which the physical sciences focused exclusively on the properties of matter. Since modern physics recognizes many things that would not ordinarily be classified as *material*—e.g., spacetime and the various fields that pervade it — philosophers now often prefer to speak of **physicalism** (see that entry for a more precise characterization of the view). Materialism is incompatible with the existence of disembodied minds and God as traditionally conceived. It is often held to preclude the existence of **abstract objects**.

### **Mental state**

A psychological or mental condition or **property**, e.g. *believing that it's sunny, wanting to go swimming, hoping for rain, being angry, having a headache, seeming to see a tomato*. Some philosophers would add states of knowing (e.g. *knowing that it's sunny*) and seeing (e.g. *seeing a tomato*) to this list. Philosophers sympathetic to *internalism* (see **externalism and internalism about the mind**) resist this, on the grounds that knowing and seeing involve relations to the external environment. (See lecture

### **Meta-ethics**

The part of philosophy concerned with the **metaphysics and epistemology** of ethics and with the linguistic function of ethical language. Meta-ethics asks, for example, whether ethical statements aim to describe a domain of ethical facts, and if so, whether those facts obtain objectively, independently of our beliefs about them. It asks whether moral words like “right” and “wrong” pick out moral properties, and if so, whether they can be defined in more fundamental (non-moral) terms. Meta-ethics asks whether ethical knowledge is possible, and in particular, whether it requires a special capacity for moral intuition. Meta-ethics is sometimes contrasted with *normative ethics*, which comprises both *ethical theory* — the effort to formulate and justify general moral principles — and *applied ethics*, the effort to solve relatively concrete moral problems.

### **Metaphysics**

The part of philosophy concerned with the nature and structure of reality. Contrasted with, e.g., **epistemology**, the part of philosophy concerned with our knowledge of reality.

### **Mind-body problem**

The problem of describing the relation between the mental lives of animals and the physical aspects of their brains, bodies, and environments.

### Modus ponens and modus tollens

Forms of formally valid argument (see **soundness and validity**):

Modus Ponens:      If  $P$  then  $Q$   
                            $P$   
                           Therefore:  
                            $Q$

Modus Tollens:     If  $P$  then  $Q$   
                           Not- $Q$   
                           Therefore  
                           not- $P$

## N

### Necessity and possibility

A **proposition**  $p$  is *necessary* (or *necessarily true*) iff  $p$  could not possibly have been false;  $p$  is *possible* (or *possibly true*) iff  $p$  could have been true;  $p$  is *impossible* iff its **negation**, not- $p$ , is necessary;  $p$  is *contingent* iff both  $p$  and not- $p$  are possible;  $p$  is *contingently true* iff  $p$  is both contingent and true.

Another explanation appeals to **possible worlds**: a proposition is possible iff there is a possible world in which it is true; a proposition is necessary iff it is true in all possible worlds. An impossible proposition is true in no possible world, and a contingent proposition is true in some possible worlds but not in others.

A *necessary being* is a being that could not have failed to exist, or a being that exists in every possible world.

Philosophers distinguish several varieties of necessity and possibility. For example:

A proposition is *absolutely* or *metaphysically* necessary if there is no possible world of any sort in which it is false. (Similarly, a proposition is *absolutely* or *metaphysically impossible* if there is no possible world of any sort in which it is true.) Examples are controversial, but the truths of pure logic and mathematics are widely regarded as metaphysically necessary, as are **analytic** truths (e.g., “Hexagons are six-sided”) and truths about the **essential properties** of things, e.g., “Gold is a metal”.

A proposition is *nomologically* or *physically necessary* iff it holds in every possible world in which the laws of nature hold. Thus it is nomologically necessary that massive bodies attract, even though there could have been a world without gravity in which massive bodies do not attract. A proposition is *physically possible* iff it is consistent with the laws of physics.

A proposition is *mathematically* necessary iff it is a logical consequence of the truths of mathematics and *logically* necessary iff it is a consequence of the laws of logic. Thus it is *mathematically impossible* to tile a rectangle with 17 square tiles and *logically impossible* for an object to be both square and not square at the same time.

### Necessary and sufficient conditions

Being  $G$  is a *necessary condition* for being  $F$  **iff** it is impossible for a thing to be  $F$  without being  $G$ . Being  $G$  is a *sufficient condition* for being  $F$  iff it is impossible for a thing to be  $G$  without being  $F$ . For example, being a poodle is sufficient for being a dog, and being a dog is necessary for being a poodle. One of the chief aims of philosophical **analysis** is to supply non-trivial necessary and sufficient conditions for the application of important words and concepts. An analysis of “knowledge”, for example, will supply a set of conditions for the truth of “ $S$  knows  $p$ ” that are *individually necessary* and *jointly sufficient*.

### Negation

A sentence of the form “It is not the case that  $P$ ”, or some related form either in a natural language or a formal logical language. In symbolic logic, usually written as “ $\sim P$ ”. By definition, “ $\sim P$ ” is true **iff** “ $P$ ” is false.

The negation of a **proposition**  $p$ , *not- $p$* , is a proposition that, necessarily, is true iff  $p$  is false.

### Non-demonstrative argument (or inference)

See **proof**.

### Normativity

Narrowly, a normative statement is a statement about how things ought to be, or about a person ought to think or act. More broadly, a normative statement is a statement that evaluates or applies a standard. Normative statements in the broad sense include claims about what is good or desirable, claims about virtue and vice, and claims to the effect that an action or mental state is rational or reasonable or justified. Normative statements are contrasted with *descriptive* (better: *non-normative*) statements. Thus the claim that John *is* eating his vegetables is descriptive; the claim that he *ought* to eat them is normative.

## O

### Object

Sometimes used broadly, as interchangeable with “**entity**.” On a narrower usage, an object is a **particular** that is not an **event**: on this usage, Barack Obama, Jupiter and (more controversially) the number 17, are objects while Obama’s second inauguration and the First World War are not.

### Occam’s razor

A methodological principle of parsimony in theorizing, often rendered by the slogan “Do not multiply entities beyond necessity”, sometimes misattributed to William of Occam (or Ockham) (c. 1287–1347). More generally, the view that when all else is equal, it is reasonable to prefer a simple theory to a more complex one. (See lectures xx.)



### Ontology

The study of being. Ontology seeks to clarify the sense (or senses) in which a thing may be said to be, or to exist, and to provide an account of the most basic categories of being. The *ontology of a theory* is the set of **entities** that exist according to the theory. The ontology of the Standard Model of particle physics, for example, includes quarks. A theorist is *ontologically committed to Fs* iff her views **entail** that *Fs* exist. So physicists who accept the Standard Model are ontologically committed to quarks.

### Operationalism

In philosophy of science, the view that expressions for the *results* of measurement (e.g. “length”, “temperature”) should be defined in terms of *measurement* (so “length” is defined in terms of rulers, temperature in terms of thermometers, etc.) In spirit, operationalism is closely connected to **behaviorism**, and is the target of similar objections.

## P

### Paradox

An apparently **valid argument** with apparently true premises, but with an apparently false conclusion. Faced with a paradox, you have three options: deny one of the premises, deny the validity of the argument, or accept the conclusion. A famous and ancient paradox is the *paradox of the heap*:

P1. 0 grains of sand do not make a heap.

P2. For all numbers  $n$ , if  $n$  grains of sand do not make a heap, then  $n+1$  grains of sand do not make a heap.

These two (apparently true) premises (apparently) **entail** that 1 grain does not make a heap, that 2 grains do not make a heap, and so on..., hence:

C. No number of grains of sand, no matter how large, make a heap.

To *solve* the paradox is to make a compelling philosophical case either for rejecting one of the premises or for denying the validity of the argument.

### Particulars and universals

A *particular* is an individual, non-repeatable **object** or **event**, e.g. you, your **token** copy of the *Norton Introduction to Philosophy* (assuming you are lucky enough to possess one) or your first philosophy lecture. A universal is an item that is (typically) capable of being repeated or multiply instantiated, e.g. the **property** of being human (instantiated by you, but also by Socrates); the **relation** of being *smaller than* (instantiated by Woody Allen and Charles Barkley, but also by the moon and the sun); the *Norton Introduction to Philosophy*, understood as a **type** with many tokens; and so on.

**Persistence**

In metaphysics, an object is said to persist through an interval of time **iff** it exists at every moment in the interval. A leaf that turns from green to red persists through the change iff there is a single item that exists at each moment of the process. Some philosophers hold that what we call “change” is really a process in which one object (e.g., the green leaf) is replaced by another (the red leaf). If this is right in general then strictly speaking nothing persists through change.

**Personal knowledge**

The sort of knowledge we attribute when we say, e.g., that Fred knows Mary, or that Alice knows London well. (See lecture 15.) See also **procedural knowledge** and **propositional knowledge**.

**Phenomenal character**

See **qualia**.

**Phenomenal consciousness**

A term introduced by Ned Block (1942-). A **mental state** is phenomenally conscious **iff** there is “something that it is like” to be in that state; that is, iff the mental state has **qualia**. A phenomenally conscious *creature* is a creature who is in a phenomenally conscious state. The states of *feeling pain*, or *seeing green*, or *tasting sweetness*, are (at least typically) phenomenally conscious. The states of *believing that there are canals on Mars*, or *wanting to go to graduate school*, are (at least typically) not phenomenally conscious. We don’t know what it’s like to perceive insects by bat echolocation (and perhaps we could never know), but if there *is* something it is like to perceive in that way, then bats are often phenomenally conscious. (See lectures 21 and 22.)

**Phenomenology**

The study of the objects and structures of consciousness, as they seem from the first-person perspective. Sometimes used in a strict sense for an approach to philosophy pioneered by Edmund Husserl (1859-1938). In contemporary philosophy of mind, used for any attempt to characterize how things appear to us in perception or reflection.

**Physical possibility**

See **possibility and necessity**.

**Physicalism**

Also known as **materialism**. The view that the world is entirely physical: every **object** a physical object, every **property** a physical property, etc. Sometimes given a (weaker) formulation as a **supervenience** thesis: all the **facts** supervene on, or are determined by, the physical facts (roughly, facts expressible in the language of a complete physics). Alternatively put, any **minimal physical duplicate** of the actual world is a perfect duplicate of the actual world. (A minimal physical duplicate of the actual world is a possible world that exactly resembles the actual world in every physical respect, and which contains nothing more than is needed to be a physical duplicate of it.) 24.09x uses a slightly simpler version of this formulation: see lecture 22.

Physicalism can be restricted to a particular phenomenon: *physicalism about color* is the view that the colors are physical properties, or facts about colors supervene on the physical facts. (See lecture 21.) *Physicalism about the mind* (opposed to **dualism**) is that **mental states** are physical states, or that mental facts supervene on the physical facts. In 24.09x physicalism as in the above paragraph and physicalism about the mind are not distinguished.

### **Possible world**

A maximally specific way things could have been. Picturesquely, a novel or story that (a) *could have been true* and (b) is *complete* in the sense that for every **proposition** *p*, either *p* or its **negation** is true according to the story. The *actual world* is the maximally specific way things in fact *are*. See also **necessity and possibility**. (See lecture 11.)

### **Possibility**

See **necessity and possibility**.

### **Practical vs. theoretical rationality**

Practical rationality is the sort of rationality that governs choice and action; *theoretical* or *epistemic rationality* is the sort of rationality that governs the revision of belief in response to evidence. (See **theoretical vs. practical reasons for belief**.)

### **Predicate**

A linguistic expression that combines with a proper name, or a sequence of proper names, to yield a complete sentence. So, for example, "... is tall" and "... loves ..." are predicates, since they yield complete sentences when the blanks are filled in by names. Sometimes we omit the copula, "is", and say that "tall" by itself qualifies as a predicate.

### **Premise**

See **argument**.

### **Primary and secondary qualities**

A distinction drawn in several ways by philosophers in the early modern period, notably John Locke (1632-1704). *Primary* qualities are qualities (**properties**) possessed by bodies independently of our experience of them and which figure in a correct scientific account of their behavior. Examples include size, mass, and motion. *Secondary* qualities, by contrast, are not possessed by bodies independently of our experience of them, but rather consist in **dispositions** to produce certain sorts of experiences in us, or perhaps in features *of our experiences* that we mistakenly locate in external objects. On this way of using the terminology, it is a controversial thesis that colors (for example) are secondary qualities. (See lecture 20.) Alternatively, secondary qualities are sometimes defined by means of a list including color, taste and odor, and excluding size, weight and motion. In this sense, everyone agrees that colors are secondary qualities.

### Procedural knowledge

The sort of knowledge we attribute when we say, e.g., that John knows how to ride a bicycle, or that Samantha knows how fix the toaster. (See lecture 15.) See also **personal knowledge** and **propositional knowledge**.

### Proof

A *valid argument* that establishes its conclusion with certainty. Alternatively, a *formally valid* argument whose premises are true (or are known to be true). (See **soundness and validity**.) Also known as a *demonstrative argument*. A cogent argument that is not a proof is a *non-demonstrative* argument.

In formal logic, a proof in a formal system is an argument whose premises are **axioms** or **theorems** of the system and whose conclusion follows from the premises according to the rules of the system.

### Property

A *feature* or *attribute*. Properties are often denoted by abstract nouns, e.g., “whiteness,” “wisdom”, or by complex noun phrases like “(the property of) weighing 2 grams”.

Unlike **particulars**, properties have *instances*. Many properties have multiple instances— the many white things are all instances of whiteness. But there may be properties with only one instance (*being John Malkovich*) or with no instances at all (*the property of being a round square*). Some philosophers hold that properties literally exist *in* the items that possess them; others hold that properties do not exist in space, and are therefore **abstract objects**.

### Proposition

When a French speaker utters the sentence “La neige est blanche” and a German speaker utters “Schnee ist weiß” they have used different words to make the *same* claim or statement, namely *that snow is white*. This shared claim or statement is called a *proposition*, the proposition that snow is white. (See lecture 8.) Propositions can be assessed for truth or falsity: the proposition that snow is white is true, the proposition that snow is purple is false. Propositions are commonly taken to play a number of roles in metaphysics, and the philosophy of mind and language. They are said to be:

the primary bearers of truth and falsity: when a sentence is true, that is because the proposition it expresses is true. When a belief is true, that is because the proposition that is its **content** is true.

the meanings of (declarative) sentences: “La neige est blanche” and “Schnee ist weiß” both have the same meaning, the proposition *that snow is white*.

the contents of **propositional attitudes** like belief and hope: Carlos believes/hopes *that it will rain*.

the objects of certain linguistic acts: Marcus asserted/denied/implied *that Lisa is a lawyer*.

**facts**, when true: *that the Earth is round* is a fact.

It is a matter of controversy whether one kind of thing can play all of these roles.

### **Propositional attitude**

A mental state that consists in a relation between a person and a proposition. If Alfred believes that the Pope is infallible, then Alfred bears a certain relation—the belief relation—to a certain proposition: the proposition that the Pope is infallible. If Elizabeth hopes that the Pope is infallible, then Elizabeth bears a different relation—the hope relation—to the same proposition. Believing and hoping are thus propositional attitudes: relations to— or attitudes towards—propositions. Wanting is commonly taken to be another example, but this is not as clear, because the most natural ways of ascribing wants do not employ a “that-clause”, e.g. “Alfred wants pizza”.

### **Propositional knowledge**

*Factual* knowledge, knowledge that something is the case; the sort of knowledge we attribute when we say, e.g., that Eleanor knows that Sue is a philosopher. (See lecture 15.) See also **personal knowledge** and **procedural knowledge**.

### **Psycho-physical laws**

Laws governing the relation between **mental states** and physical states. (See Smart on “nomological danglers” in lecture 10.) See also **lawlike statement**.

## **Q**

### **Qualia**

From Latin, “of what kind”; singular: *quale*. *Seeing green* is a **phenomenally conscious mental state**, and so are *seeing pink*, *being in pain*, and *tasting bitterness*. However, they are quite different states, in the sense that what it’s like to see green is quite different from (e.g.) what it’s like to taste bitterness. Put in the terminology of “qualia”, *seeing green* and *tasting bitterness* have different qualia. (See lecture 21.)

In this broad sense of “qualia”, only an **eliminativist** about phenomenal consciousness would deny that mental states have qualia. But there is a narrower sense of the term, according to which qualia are (in addition) *non-physical properties* of mental states. In this narrow sense, **physicalists** deny that mental states have qualia.

In yet another sense of the term, qualia are perceptual qualities or properties, e.g. colors and tastes. In this sense, qualia are not properties of mental states, but properties of things in our environment, like cucumbers and coffee.

### **Quantifier**

Expressions like “all”, “some”, “many”, “few”, and “at least one” which serve to express claims about quantities of things, e.g. “All/some/many/few students attended the lecture”. “All” and “every” are **universal quantifiers**, written in symbolic logic as “ $\forall$ ”.

Statements like “All professors are wise” are **universally quantified statements** or **universal generalizations**. “Some” and “at least one” are **existential quantifiers**,

written in symbolic logic as “ $\exists$ ”. Philosophers (but not linguists) often classify “there is ...” and “there are ...” as existential quantifiers, on the ground that “There are talking dogs” is equivalent to “Some dogs talk”.

## R

### Reasoning and inference

The psychological process of forming new beliefs on the basis of other beliefs (or suppositions). For example, a detective may form the belief that the butler committed the murder on the basis of her beliefs that the butler had means, motive, and opportunity, or she may form the belief that the butler did it after supposing that the gardener did, and seeing that that supposition or assumption lead to absurdity, leaving the butler as the sole remaining suspect.

Reasoning is often divided into **theoretical reasoning** (*inference*, or reasoning as explained above) and **practical reasoning**, which results in an intention or decision to do something.

### Reductio ad absurdum

A form of **argument** in which a **proposition**  $p$  is established by showing that its **negation**, not- $p$ , **entails** a contradiction or some other manifestly absurd conclusion.

### Reductionism

In the philosophy of science, reductionism about a domain of inquiry (e.g. psychology, biology, economics) is the view that every **concept** in the domain can be **analyzed** or defined in terms drawn from a more fundamental science (often physics). The term is sometimes used more broadly for the view that facts in one area (e.g., psychology) can be explained in more fundamental terms, and so amount nothing “over and above” these more basic facts. **Physicalism** is a reductionist theory in this broad sense.

### Relation

A relation is a **universal** instantiated by two or more entities or *terms*. Thus *...is taller than...* is a *two-place relation* (also called a *binary relation*), since it relates two term — John is taller than Sam—whereas *...is between...and...* is a *three-place relation*, since it relates three terms: Chicago is between New York and San Francisco. (A more expansive definition counts **properties** as one-place relations.) The terms of a relation are its *relata*.

A binary relation  $R$  is *reflexive* **iff** every object bears  $R$  to itself. Examples: **numerical identity**, sameness of height, weight, color.

A binary relation  $R$  is *symmetric* iff whenever  $x$  bears  $R$  to  $y$ ,  $y$  bears  $R$  to  $x$ . Examples: *...is married to ...*, *...lives next door to...*

A binary relation  $R$  is *transitive* iff whenever  $x$  bears  $R$  to  $y$  and  $y$  bears  $R$  to  $z$ ,  $x$  bears  $R$  to  $z$ . Examples: *... is taller than...*; *is exactly the same color as ...*

A binary relation  $R$  is an *equivalence relation* iff  $R$  is reflexive, symmetric, and transitive. Examples: ...*is the same height as* ... ... *is parallel to*. (See lecture xx.)

The *converse* of a binary relation  $R$  is the relation  $R^*$  such that  $x$  bears  $R$  to  $y$  iff  $y$  bears  $R^*$  to  $x$ . Example: ...*is shorter than*... is the converse of ...*is taller than*....

### Reliabilism

See **externalism and internalism about justification**.

### Representational content

See **content (of a mental state)**.

### Rigid designator

An expression that, when used to talk about what could or might have been the case, refers to the very same thing it refers to when used to talk about what actually is the case. For example, a proper name like “Gordon Sumner” is a rigid designator because when we say “Gordon Sumner could have been a plumber and not a rock star”, and “Gordon Sumner is a rock star” we are using “Gordon Sumner” both times to refer to the very same individual, namely Sting. In contrast, “The lead singer of *The Police*” is not rigid, because when we say “The lead singer of *The Police* could have been a woman”, we are not (at least on one permissible interpretation) using “the lead singer of *The Police*” to refer to Sting. That is, we are not saying that *Sting* could have been a woman, we are saying that it could have been that some woman or other was the lead singer of *The Police*. (See lectures 11 and 12.)

## S

### Secondary quality

See **primary and secondary qualities**.

### Sense data

The *sense datum theory* holds that in sensory experience one is immediately or directly aware of *sense data*—patches of color, sounds, odors—that invariably *are* as they *appear*. If you look at the mountains in the distance and they look purple, the *mountains* need not be purple. However, according to the sense datum theory, you *are* aware of a something that *really is* purple, namely a purple *sense datum*. If there is such a thing, it is not a physical object, since there need be no purple physical object in the vicinity. Some versions of the theory hold that sense data are cannot exist unperceived; others hold that they are entirely mind-independent. (See lectures 18 and 19.)

### Soundness and validity

An **argument** is *valid* iff it is absolutely impossible for the premises to be true and the conclusion false. For example:

P1. The book on the table is scarlet.  
Therefore

C. The book on the table is red.

An argument is *formally valid* iff every argument that shares its *form* is valid. Thus the argument just given is not formally valid, but

P1. Simon is a philosopher  
 P2. All philosophers are subtle  
 Therefore  
 C. Simon is subtle.

is a formally valid argument because it is an instance of the valid form:

P1. *A* is *F*  
 P2. All *F*s are *G*  
 Therefore  
 C. *A* is *G*

A *sound* argument is a *valid* argument with true premises.

P1. If a number is even then it is divisible by 2.  
 P2. 8 is even  
 Therefore  
 C. 8 is divisible by 2.

### **Skeptical hypothesis**

Arguments for **skepticism** often proceed by describing a hypothetical scenario—a skeptical hypothesis—that is alleged to be consistent with our evidence, but in which our beliefs would be radically and systematically mistaken. Famous examples include the *dream hypothesis*, according to which you are currently dreaming; the *brain in a vat hypothesis*, according to which you are a disembodied brain whose sensory receptors are being stimulated by a supercomputer (the modern version of Descartes' *evil demon hypothesis*—see lecture 7); and the *no past hypothesis* (due to Bertrand Russell (1872-1970)), according to which the physical universe was created five minutes ago with all of the traces of an apparent “past” in place.

### **Skepticism** (also spelled “scepticism”)

The view that nothing is known about a certain subject matter, or that we do not have **justified** beliefs about it. **Global skepticism** is the view that there is no knowledge (or justified belief) at all. **Local skepticisms** are (at least to some extent) selective, e.g., *moral* skepticism is the view that we have no moral knowledge; *inductive* skepticism the view that **inductive arguments** are never **coherent**; *external world* skepticism is the view that we have no knowledge of our environment.

### **Solipsism**

The view that there is only one conscious subject, and that reality as a whole exists (or can be known to exist) only insofar as this subject is conscious of it.



**Stuff**

In metaphysics, a category that includes *water*, *plastic* and other items allegedly denoted by (some) *mass nouns*, common nouns that have no plural and cannot be modified by numerical adjectives (like “seven”). Thus “rice” (no plural) is a mass noun, while “chair” is a *count* noun. Many nouns occur in both mass and count forms: there is *some hair* in the soup (mass occurrence of “hair”); there are *three hairs* in the soup (count occurrence).

**Substance**

Roughly, an independently existing **entity**. Traditional metaphysics draws a distinction between substances, which exist *in themselves*, and beings of other sorts, which exist only *in* substances, or as modifications of substances. Thus an animal might be a substance, whereas its various **properties**, the species to which it belongs, and its shape, would not be substances. Alternatively, the word is sometimes used for the basic or fundamental entities: items that exist, but not in virtue of the existence of other things. When the word is used in this way, even though Socrates exists and exemplifies various properties, he is not a substance because he exists in virtue of the arrangement of the atoms (or subatomic particles) that compose him. On a view of this sort, elementary particles might qualify as substances.

**Sufficient condition**

See **necessary and sufficient conditions**.

**Supervenience**

A relation between one class of facts—the **higher-level** or **supervenient** facts—and a class of more fundamental facts—the **supervenience base**—according to which the higher-level facts are fixed or determined by facts in the base. Thus the biological facts plausibly supervene on the physical facts in the following sense: two situations that are exactly alike in every physical respect—down to the last atom—must also be alike in every biological respect. More generally, the B-facts supervene on the A-facts **iff** the B-facts cannot differ unless the A-facts also differ. (“No B-difference without an A-difference”.) Supervenience claims are common in philosophy. For example, it is widely held that the moral facts supervene on the purely descriptive, non-moral facts in the following strong sense: If two actions differ in some moral respect (the one good, the other bad, say), then they must also differ in some non-moral respect. (See lecture 22.) Many philosophical doctrines are framed as supervenience theses. Thus **physicalism** is sometimes formulated as the thesis that all of the facts supervene on the physical facts. (See lectures 22 and 23.)

**Symmetric relation**

See **relation**.

**Synthetic statement**

See **analytic and synthetic**.

## T

**Theoretical (or epistemic) rationality.** A **theoretical** (or **epistemic**) **reason** for believing that  $p$  is a fact that supports the conclusion that  $p$  is true. A **practical** (or **pragmatic**) reason for believing that  $p$  is a reason for thinking that it would be good or beneficial to believe that  $p$  regardless of whether  $p$  is true. Thus the fact that the pavement is wet is a theoretical reason to believe that it has rained, while the fact you will be happier if you believe that God exists is a practical, though not an epistemic, reason to believe that God exists.

See also **practical rationality**.

### Tokens

See **types and tokens**.

### Turing machine

A simple form of hypothetical computer, devised by the English mathematician Alan Turing (1912–1954). At any time, a Turing machine is in one of a finite number of states, and it changes state over time according to rules specified by its Machine Table. Turing machines are often pictured as printing and erasing symbols on a tape. (See lecture 5.)

### Turing test

A test proposed by the English mathematician Alan Turing (1912–1954) in his paper “Computing machinery and intelligence” (1950) that involves conversing with a judge. Turing proposed his test as a replacement for the question “Can machines think?”. (See lecture 6.)

### Types and tokens

In metaphysics, a *type* is a kind or category of which there may be many concrete instances or examples or *tokens*. Thus a particular inscription of the sentence

The cat sat on the mat

will contain five word types—“the”, “cat”, “sat”, “on” and “mat” — but six word *tokens*: one token each of “cat”, “sat”, “on” and “mat”, but two distinct tokens of “the”. The tokens of a given type are unrepeatable individuals, whereas the types themselves are **universals**.

Another example: supposing you own one copy of Ryle’s *The Concept of Mind*, your copy is one of many tokens of a single *type*, Ryle’s most famous book. (See lecture 11 on the mis-named “type-type” identity theory.)

## U

### Universals

See **particulars and universals**.

## V

### Validity

See **soundness and validity**.

## W

### Warrant

In epistemology, sometimes used loosely as a synonym for “evidence” or “justification”. Alternatively, following Alvin Plantinga (1932-), a technical term for whatever must be added to true belief to yield knowledge. (See Williamson on decomposing knowledge in lecture 16.)

## Z

### Zombies

In the philosophy of mind, hypothetical creatures exactly like human beings in all physical and biological respects but who are never **phenomenally conscious**. If there *could have been* zombies then **physicalism** is false. (See lectures 1, 23 and 24.)

