

## 1: The Causal Theory of Perception - Bibliography - PhilPapers

*Sir Alfred Jules "Freddie" Ayer, FBA ( / ÉÉ™r /; 29 October - 27 June ), usually cited as A. J. Ayer, was a British philosopher known for his promotion of logical positivism, particularly in his books *Language, Truth, and Logic* () and *The Problem of Knowledge* ().*

See Article History Alternative Title: Ayer, in full Sir Alfred Jules Ayer, born October 29, , London , Englandâ€”died June 27, , London , British philosopher and educator and a leading representative of logical positivism through his widely read work *Language, Truth, and Logic* His logical views alone, expressed in an elegant, crystalline prose, would have ensured him a place in the history of modern philosophy. But Ayer, playful and gregarious , was also a brilliant lecturer, a gifted teacher, and a successful broadcaster, as ready to offer his opinions on politics and sports as on logic and ethics. Named a fellow of the British Academy in and knighted in , he became one of the most influential British philosophers of the 20th century. Early life Although Ayer was raised in London, both his father, a French Swiss businessman, and his mother, a Dutch citizen of Jewish ancestry, were born abroad, and Ayer grew up speaking French fluently. An extremely able, though sensitive, boy, he won a scholarship to Eton College , where he excelled in classics but had no opportunity to study science, an omission that he would always regret. In he won a classics scholarship to the University of Oxford , where he also studied philosophy. Instinctively irreverential, he used both works to attack the conventionally religious, socially conservative figures who then dominated philosophy at Oxford. *Language, Truth, and Logic* Having secured a fellowship at the college of Christ Church, Ayer spent part of in Vienna, where he attended meetings of the Vienna Circle , a group of mostly German and Austrian philosophers and scientists who were just then beginning to attract the attention of philosophers in England and the United States. Although Ayer spoke poor German and was hardly able to take part in the discussions, he became convinced that the doctrine of logical positivism that the group was developing marked an important advance in the empiricist tradition, and he returned home an ardent convert. Within two and a half years he had written a manifesto for the movement, *Language, Truth, and Logic*. In this work, following Wittgenstein and the members of the Vienna Circle, Ayer defended a verificationist theory of meaning also called the verifiability principle , according to which an utterance is meaningful only if it expresses a proposition the truth or falsehood of which can be verified at least in principle through experience. *Language, Truth, and Logic* eventually became one of the best-selling works of serious 20th-century philosophy. Despite his obvious abilities, however, Ayer could not secure a permanent teaching position at Oxfordâ€”a fact that increased his hostility toward the philosophical establishment there. In a series of important papers and a book, *The Foundations of Empirical Knowledge* , he wrestled with critics who doubted that all meaningful discourse could be analyzed in terms of sense experience. In a characteristic move, Ayer now contended that sense-data should be understood not as part of the furniture of the world but as conceptual constructs, or logical fictions, that allow one to distinguish between sensory experience and matter and between appearance and reality. In the years surrounding the publication of *Language, Truth, and Logic*, philosophy had to compete with more pressing concerns. After completing officer training, he joined an intelligence unit, eventually becoming a specialist on France and the French Resistance and gaining the rank of major. His war assignments took him to New York, to Algeria, and, after the liberation of France, to the southern part of that country and to Paris. Although little philosophy had been published in England during the war, Ayer found that the philosophical climate was now very different. Influenced by the ideas of the later Wittgenstein, which were only then becoming known outside Cambridge, a group of philosophers at Oxford, led by Gilbert Ryle and J. He remained loyal to the outlook of Russell, the early Wittgenstein, and the logical positivists and admired American philosophers such as W. He transformed the University College philosophy department into one of the best in the country, rivaling those of Cambridge and even Oxford. He edited several series of books, presided over various discussion groups, developed a friendship with his hero Russell, lectured around the world, and made lively contributions to literary journals and radio broadcasts. In this work the great combative proclamations of *Language, Truth, and Logic* were replaced by a quieter treatment of skepticism , in which

Ayer presented the various theories of knowledge that have been propounded by philosophers as responses to a radical skeptic who argues for the existence of gaps between, on the one hand, the belief in an external world, in the existence of other minds, and in the reality of the past and, on the other, the evidence on which these beliefs are based. Later years Ayer was metropolitan in his tastes, enjoying the company of writers, actors, and politicians as much as that of philosophers. He was especially close to Hugh Gaitskell, leader of the Labour Party until his early death in 1963, and later to the reforming Labour home secretary Roy Jenkins. It was with some misgivings, then, that Ayer returned to Oxford to become Wykeham Professor of Logic. As it was, his tenure there, until his retirement in 1970, proved extremely happy. Still fond of provoking and shocking others, Ayer moved to abolish the saying of grace before college dinner and publicly ridiculed the latest philosophical theories emanating from France. But he was a popular colleague and teacher and remained philosophically productive. In 1953 he published *The Central Questions of Philosophy*, in which he returned to familiar topics in the theory of knowledge and presented a commonsense conception of the world as a theory founded on the basis of sense-data. In 1940 his first wife, Renee Lees, whom he had divorced in 1938, died, and one year later their daughter Valerie died suddenly of Hodgkin disease. In 1945 he divorced his second wife, the writer Dee Wells. His third wife, Vanessa Lawson formerly married to Nigel Lawson, the chancellor of the Exchequer, died in 1968, leaving him bereft. His account was misunderstood by some critics as a recantation of his atheism. Just before his real death in 1984, Ayer remarried Dee Wells and was united with his daughter born to the Hollywood gossip columnist Sheilah Graham. It was an end in keeping with his colourful, eventful private life. Although I like that too.

## 2: Mind-Body Identity Theory

*A. J. Ayer was one of the foremost analytical philosophers of the twentieth century, and was known as a brilliant and engaging speaker. In essays based on his influential Dewey Lectures, Ayer addresses some of the most critical and controversial questions in epistemology and the philosophy of science, examining the nature of inductive reasoning.*

What is the relationship between the mind and the brain? Is the brain one thing while the mind is another thing entirely? Are mind and brain two distinct things? Or are mind and brain one and the same thing? Is mind identical to brain? Is the functioning of the mind simply nothing more than the functioning of the brain? If the brain is not the same thing as the mind, then how are they connected or related? The brain is a physical entity composed of billions of cells called neurons, each ultimately composed of billions of atoms and molecules. If the mind is not the same thing as the brain, then how do they communicate? What is the mind made of, if it is not a physical material thing? Here is another way to pose these questions: Our thoughts take place within a medium of some sort. Or within a nonphysical medium? What would a nonphysical or immaterial medium be like? Would it be what some call the soul? Is each person actually an immaterial soul or spirit operating a physical body, as most religions teach? Or is the physical body all there is to you? Descartes argued that mind and matter are two radically different types of things. Our conscious mind is one thing, argued Descartes, and our physical brain, which is made of matter, is another thing entirely. How did he reach this conclusion? Descartes lived at a time when people were questioning many traditional beliefs. Setting off in search of something that could be known with absolute certainty, Descartes began his philosophy by systematically and deliberately doubting everything it is rationally possible to doubt. His plan was to see how far this would go. If we carry the process of systematic doubt as far as it can go, he reasoned, perhaps we will eventually reach beliefs that cannot be rationally doubted. If we do, then we will have reached something we can know with complete and absolute certainty. Among the propositions he eventually claimed to have proven with certainty were two pertaining to the mind-body problem: The essence of matter is nothing but to be extended in space, that is, to occupy a volume of space. The essence of mind is nothing but the activity of thinking. From this he concluded: Since matter and mind have differing essences, the mind is not the brain, for the brain, being made of matter, is a purely material entity, and mind is not material in nature. Thus, the brain must be one thing and the mind must be another thing entirely. Back to Top

Arguing for Materialism Opposed to mind-body dualism is materialism, the view that nothing exists but matter and things made of matter. Matter may be defined as that which physics studies, namely, subatomic particles, atoms, molecules, fields, and things made of such things. If materialism is true, then the mind cannot be a separate, immaterial entity existing apart from the physical brain. If mind is a material thing, as materialism proposes, then it is reasonable to identify the mind with the brain or with the functioning of the brain, since the brain is a material or physical thing and it is certainly associated with thinking. Materialism is a monistic view since it says all things belong to one fundamental kind of thing: The British philosopher Thomas Hobbes was the first modern philosopher to argue systematically for materialism as a solution to the mind-body problem. Hobbes argued that everything in the world, including our thoughts and the states of our minds, can in principle be explained in terms of one thing and one thing only: Thoughts, for example, can be explained, he argued, as matter in motion in the brain. If everything can be explained as matter in motion, including the mental, then there is no good reason to suppose mind and matter are two fundamentally different kinds of things. Rather, it is more reasonable to suppose that if everything can be explained in material terms then everything is material. For example, Bob Dylan is identical with Robert Zimmerman, meaning they are one and the same person, not two different persons. For any  $x$  and any  $y$ , if  $x$  is identical with  $y$ , then any characteristic or property possessed by  $x$  is possessed by  $y$ , and any characteristic or property possessed by  $y$  is possessed by  $x$ . If  $x$  has a characteristic that  $y$  does not have or  $y$  has a characteristic that  $x$  does not have, then  $x$  is not identical with  $y$ . The general format followed by arguments for dualism can be put as follows: The argument begins with the claim that our mental states have a characteristic or property that is not possessed by our physical brain states. It follows that our mental states are not identical with our brain states,  $i$ . Therefore, the argument concludes, our minds are not identical

with our physical brains, i. The mental image argument and the intentionality argument are examples of arguments for dualism that fit this form. But no part of my physical brain turns red when I form the image in my mind. So, my mental state has a property—“the property of redness”—that my brain state lacks. If x has a property that y lacks, then x must not be identical with y. Therefore, my mental state is not identical with my brain state, i. Since my mental state is a state of my mind and my brain state is a state of my brain, it follows that my mind has a property that my brain lacks, and so my mind is not identical with my brain, i. Back to Top

**The Intentionality Argument** Mental states such as beliefs, hopes, desires, fears, and wishes possess an interesting property: A state has intentionality if it is about something. A hope is always a hope for something. However, intentionality is not a property of matter recognized and measured in physics textbooks, and furthermore it seems that no purely material thing can be inherently intentional. These considerations give rise to the intentionality argument which can be summarized as follows: Certain types of mental states, such as hoping, believing, knowing, wishing, dreaming, etc. However, no physical, purely material thing is intrinsically intentional. But the brain is purely physical in nature—it is a physical or material entity. Therefore, mind and brain must be two different things.

**Materialist Objections to the Intentionality Argument** Some materialists have argued that the following entity is a counterexample to the dualist claim that no physical object can be intentional: After all, a book is a purely physical object, they argue, and yet a book is about something. So it is purely physical and also intentional at the same time. Counterexample In reply, dualists argue that although a physical book is intentional, it is not intrinsically intentional—its intentionality is not part of its inherent constitution. Rather, they argue, its intentionality is read into it by a human writer or reader. This is why the dualist is careful to argue that no purely physical object can be intrinsically intentional. A book therefore is not a counterexample to the dualist claim. According to the intentionality argument, intentionality is not a physical phenomenon. A materialist could rebut this claim by showing that intentionality is, after all, nothing more than a physical phenomenon. This could be accomplished by explaining how a purely physical process or thing could be intrinsically intentional. This could also be accomplished if intentionality could be broken down without remainder into purely physical components. From here, the materialist would have to show how the physical brain might possess intrinsic intentionality, since the materialist thinks the brain is the mind and since the mind obviously does have intentionality. Dualists argue that such a reduction will never be made and are not holding their breath. Back to Top

**The Knowledge Argument** The knowledge argument is another argument for the claim that consciousness is nonphysical or immaterial in nature. Consider the following thought-experiment. A future neuroscientist named Mary, born and raised entirely in a black and white room, could in principle know all the physical truths about the brain. This is at least logically possible, for there is no contradiction in the idea. However, although this future neuroscientist would know all the physical facts about the brain and how it works, she would not know facts about consciousness, including what it is like to see red. For when she finally leaves the room and sees colored things, she learns something. She learns what it is like to see red, something that cannot be fully translated into words or equations, argues the dualist. Thus, there are truths about consciousness that cannot be logically derived from purely physical truths, that is, from truths about physical things. For instance, truths about what it is like to see red. Thus, consciousness is nonphysical or immaterial.

**A Reply** In reply, some philosophers have argued that the neuroscientist does not gain any new factual knowledge, all she learns is a new ability—an ability, moreover, that can be fully explained in purely behavioral terms. But this ability only involves physical patterns of motion, not any knowledge of new facts. Therefore, the knowledge argument fails. And such an experience is more than a mere ability. So argues the dualist. Back to Top

**Modal Arguments** A number of arguments employing the modal notions of possibility and necessity have taken center stage in philosophy of mind in recent years.

**The Zombie Argument** A zombie would be a creature physically identical to a conscious human being, acting in identical ways to a conscious human being, but that is not conscious. Zombies are conceivable, for there is no contradiction in the idea. Therefore, Zombies are logically possible. If Zombies are logically possible, then materialism is false and consciousness is not a purely material thing. Therefore, materialism is false. If it is true that X is identical with Y in one world, this identity is true in all possible worlds. Given any mental state M for example, a pain or an itch, and any

physical state P for instance, a group of neurons firing in the brain , we can imagine the mental state occurring in the absence of the physical state.

## 3: Philosophy of Religion » The Subjectivity of Experience

*Summary The causal theory of perception consists roughly of the claim that necessarily, if a subject S sees an object O, then O causes S to have a visual experience. Some have held that this claim is a conceptual truth. Thus, the idea is that in order to see an object, the object must be causally.*

Futura Blue pill or red pill? Understanding the foundation of the classic Matrix dilemma as well as a brief account of free will and determinism and if joining them is possible. Fiction T - English - Words: To accomplish this, I shall analyse the theory of compatibilism from A. I shall attempt to discuss the relationship between these theories, from examples in The Matrix Reloaded and situations where humans appear not to be free and determined such as delusional mental states, forming a conclusion of my findings. Ayer defines free will as any situation where it is possible to act otherwise, and only if that condition is met can we be held responsible for our actions. He defines determinism as the law of causality where there is only one determined outcome. Ayer claims conflict arises if we believe both that a we have free will holding us to responsibility for our actions and b our behaviour is a product of causality. If human behaviour is governed by causal law then we cannot claim moral responsibility for our actions. Ayer doubts whether causal law is universal, if every event must have a cause. He speculates that if there is causal law, humans have no freedom of action, and it seems there is no difference between actions determined by causal law and actions that happen by chance. Ayer states freedom as a distinction between "causes" and "constraints"; acting without constraint is free action, and an action that is effected by causality does not mean it is constrained. In short, freedom is dependent on the existence of alternate courses of action for us to openly choose to act on. Determinism claims all events as part of a causal chain, with every action determined by an infinite number of previous ones. By joining these two concepts in a compatibilistic view we encounter what Ayer describes as the problem of the freedom of will. In order to analyse this concept, I will examine the case for determinism by breaking it down premise-by-premise: Compatibilism only finds a foothold within the first premise by refining the definition of freedom. Ayer says that freedom is doing what you want, and freedom of action is the ability to carry out this desire. The Matrix Reloaded explores problems with compatibilism through the characters of the Architect and the Merovingian. The Merovingian explains the weight of causal law: It is the only real truth: What, then, constitutes interference? As Neo aptly illustrates, "the problem is choice. This reveals that free will as displayed in the Matrix is in actuality another system of control. Effectively illustrating the most important question in this analysis, how can we know that freedom of will is not a system bound by determinism? Ayer makes a considered conclusion under this definition that determinism and freedom are compatible ergo we have freedom of action, but not free will. Those that refuse the program of the Matrix are those who take the red pill. More simply, freedom must be a situation where one could have done otherwise. The ability to do otherwise is now fulfilled. The Architect presents Neo with two doors representing two choices he can now make in this situation: The Architect points out the choice was clear, simply a chain reaction of impulsive desires "love. Neo had the ability to do otherwise, but only if the circumstances determined in the past with Trinity were different. Furthermore, this is an example of how desires within human emotions such as love are spontaneous and not something we are able to choose. For example, people with Stockholm Syndrome are victims who fall in love with their aggressors, not something that one would normally choose willingly, but it is a well documented abnormal desire. There are many non-science fiction examples of the case for abnormal desires and compatibilism. Expanding further on love and Stockholm Syndrome, the compatibilist position argues that these abnormal desires are not free because they have an abnormal cause. I believe that this method of compatibilism is useful in linking freedom and determinism, but only in limited ways. Still, this ultimately means the basic form of compatibilism must be amended to include further circumstances in order to claim an action as free. This might include that there is no direct psychological or physical problem hypnotism, mental illness or other mind altered state, etc. These conditions must then be satisfied by an action, even if the action is completely determined. Works Cited Ayer, A. Wachowski, Andy and Lana. Warner Home Video, The author would like to thank you for your continued

support. Your review has been posted.

## 4: Lecture Supplement on A

A.J. Ayer () was only 24 when he wrote the book that made his philosophical name, *Language, Truth, and Logic* (hereafter *LTL*), published in 1936. In it he put forward what were understood to be the major theses of logical positivism, and so established himself as the leading English representative of the movement, Viennese in origin.

Emotivism reached prominence in the early 20th century, but it was born centuries earlier. In 1791, George Berkeley wrote that language in general often serves to inspire feelings as well as communicate ideas. In moral deliberations we must be acquainted beforehand with all the objects, and all their relations to each other; and from a comparison of the whole, fix our choice or approbation. But after every circumstance, every relation is known, the understanding has no further room to operate, nor any object on which it could employ itself. The approbation or blame which then ensues, cannot be the work of the judgement, but of the heart; and is not a speculative proposition or affirmation, but an active feeling or sentiment. Moore published his *Principia Ethica* in 1903 and argued that the attempts of ethical naturalists to translate ethical terms like good and bad into non-ethical ones like pleasing and displeasing committed the "naturalistic fallacy". Moore was a cognitivist, but his case against ethical naturalism steered other philosophers toward noncognitivism, particularly emotivism. This criterion was fundamental to A. I did, and do, follow the emotivists in their rejection of descriptivism. But I was never an emotivist, though I have often been called one. But unlike most of their opponents I saw that it was their irrationalism, not their non-descriptivism, which was mistaken. So my main task was to find a rationalist kind of non-descriptivism, and this led me to establish that imperatives, the simplest kinds of prescriptions, could be subject to logical constraints while not [being] descriptive. Richards in their book on language, *The Meaning of Meaning*, and by W. Duncan-Jones in independent works on ethics in Ayer [edit] A. In that chapter, Ayer divides "the ordinary system of ethics" into four classes: Ayer argues that moral judgments cannot be translated into non-ethical, empirical terms and thus cannot be verified; in this he agrees with ethical intuitionists. But he differs from intuitionists by discarding appeals to intuition as "worthless" for determining moral truths, [17] since the intuition of one person often contradicts that of another. Instead, Ayer concludes that ethical concepts are "mere pseudo-concepts": The presence of an ethical symbol in a proposition adds nothing to its factual content. Thus if I say to someone, "You acted wrongly in stealing that money," I am not stating anything more than if I had simply said, "You stole that money. I am simply evincing my moral disapproval of it. It is as if I had said, "You stole that money," in a peculiar tone of horror, or written it with the addition of some special exclamation marks. He sees ethical statements as expressions of the latter sort, so the phrase "Theft is wrong" is a non-propositional sentence that is an expression of disapproval but is not equivalent to the proposition "I disapprove of theft". Having argued that his theory of ethics is noncognitive and not subjective, he accepts that his position and subjectivism are equally confronted by G. If Moore is wrong in saying that there are actual disagreements of value, we are left with the claim that there are actual disagreements of fact, and Ayer accepts this without hesitation: If our opponent concurs with us in expressing moral disapproval of a given type t, then we may get him to condemn a particular action A, by bringing forward arguments to show that A is of type t. For the question whether A does or does not belong to that type is a plain question of fact. First pattern analysis [edit] Under his first pattern of analysis, an ethical statement has two parts: Imperatives cannot be proved, but they can still be supported so that the listener understands that they are not wholly arbitrary: If told to close the door, one may ask "Why? They "back it up," or "establish it," or "base it on concrete references to fact. More generally, reasons support imperatives by altering such beliefs as may in turn alter an unwillingness to obey. For instance, someone who says "Murder is wrong" might mean "Murder decreases happiness overall"; this is a second-pattern statement that leads to a first-pattern one: Do so as well. The methods of moral argumentation he proposed have been divided into three groups, known as logical, rational psychological and nonrational psychological forms of argumentation. For example, someone who says "Edward is a good person" who has previously said "Edward is a thief" and "No thieves are good people" is guilty of inconsistency until he retracts one of his statements. Similarly, a person who says "Lying is always wrong"

might consider lies in some situations to be morally permissible, and if examples of these situations can be given, his view can be shown to be logically inconsistent. To modify the former example, consider the person who holds that all thieves are bad people. If she sees Edward pocket a wallet found in a public place, she may conclude that he is a thief, and there would be no inconsistency between her attitude that thieves are bad people and her belief that Edward is a bad person because he is a thief. However, it may be that Edward recognized the wallet as belonging to a friend, to whom he promptly returned it. His first is that "ethical utterances are not obviously the kind of thing the emotive theory says they are, and prima facie, at least, should be viewed as statements. Furthermore, he argues that people who change their moral views see their prior views as mistaken, not just different, and that this does not make sense if their attitudes were all that changed: Suppose, for instance, as a child a person disliked eating peas. When he recalls this as an adult he is amused and notes how preferences change with age. He does not say, however, that his former attitude was mistaken. If, on the other hand, he remembers regarding irreligion or divorce as wicked, and now does not, he regards his former view as erroneous and unfounded. Brandt contends that most ethical statements, including judgments of people who are not within listening range, are not made with the intention to alter the attitudes of others. Ross suggests that the emotivist theory seems to be coherent only when dealing with simple linguistic acts, such as recommending, commanding, or passing judgement on something happening at the same point of time as the utterance. Under this criticism, it would appear as if emotivist and prescriptivist theories are only capable of converting a relatively small subset of all ethical claims into imperatives. There must be some impairment. But we should look carefully at the crucial move in that argument, and query the suggestion that someone might happen not to want anything for which he would need the use of hands or eyes. Hands and eyes, like ears and legs, play a part in so many operations that a man could only be said not to need them if he had no wants at all. But is this impossibly difficult if we consider the kinds of things that count as virtue and vice? Consider, for instance, the cardinal virtues, prudence, temperance, courage and justice. Obviously any man needs prudence, but does he not also need to resist the temptation of pleasure when there is harm involved? And how could it be argued that he would never need to face what was fearful for the sake of some good? At the same time, their statement can be reduced to a first-order, standard-setting sentence:

## 5: Logical positivism | philosophy | [www.enganchecubano.com](http://www.enganchecubano.com)

A. J. Ayer's essay *Freedom and Necessity* (published in his *Philosophical Essays*) made it clear what determinism or compatibilism requires, the ability to do otherwise, which alone makes one morally responsible.

In this blog I present, in an informal way, core ideas in philosophy and their application to current events and everyday life. For critical thinking lessons and resources, please check out my free online course [reasoningforthedigitalage.com](http://reasoningforthedigitalage.com). General Causal Reasoning Introduction Being able to separate correlation from causation is the cornerstone of good science. Many errors in reasoning can be distilled to this mistake. We can think of general causal reasoning as a sub-species of generalizations. That is to say, diets that are lower in the proportion of carbohydrate calories than other diets will have the effect of weight loss on any individual on that diet. A poor causal argument is called the fallacy of confusing causation for correlation or just the causation-correlation fallacy. Basically this is when we observe that two events occur together either statistically or temporally and so attribute to them a causal relationship. We might plausibly argue that there is a weak correlation between the NYSE index and the price of milk in Uzbekistan, but it would take quite a bit of work to demonstrate a causal relationship. Here are a couple of interesting examples: Strange but true statistical correlations A more interesting example can be found in the anti-vaccine movement. Symptoms of autism become apparent about 6 months after the time a child gets their MMR vaccine. Because one event occurs after the other, many naturally reason the the prior event is causing the later event. And why pick out one prior event out of the 6 months worth of other prior events? And why ignore possible genetic and environmental causes? Or why not say "well, my son got new shoes 6 months ago prior event therefore, new shoes cause autism"? A constant condition is a causal factor that must be present if an event is to occur. In order for there to be combustion there must be oxygen present. However, without oxygen there can be no combustion. In the case of combustion, we would say that oxygen is a constant condition. When we look at the element or variable that actually initiates a causal chain of events, we call it the variable condition. In the case of combustion it might be a lit match, a spark from electrical wires, or exploding gunpowder from a gun. There can be many variable conditions. Of course, you could also start a fire with several other things. But despite all the possible variable conditions, there must be oxygen present Basically, we are recognizing that for causal events there are some conditions that must be in place across all variable conditions and there are some other conditions that have a direct causal effect but that could be "switched out" with other conditions like different the sources of a spark. Separating constant conditions for variable conditions can be useful in establishing policy. But how do we evaluate it? To do this we can think of general causal claims as a special case of a generalization  $i$ . That is,  $a$  is it large enough to be statistically significant  $b$  is it free of bias  $i$ . To evaluate the claim we have to look at the implied but in good science explicit argument structure that supports the main claim which are actually an expansion of 2 into further aspects of evaluation. A general causal claim has 4 implied premises. Each one serves as an element to scrutinize.  $X$  is correlated with  $Y$ . For example, early germ theorist Koch suggested that we can determine if a disease is caused by micro-organisms if those micro-organisms are found on sick bodies and not on healthy bodies. There was a strong correlation but not a necessary causal relation because for some diseases people can be carriers but immune to the disease. In other words, micro-organisms might be a constant condition in a disease causing sickness, but there may be other important variable causes like environment or genetics we must consider before we can say the a particular diseases micro-organisms cause sickness. The correlation between  $X$  and  $Y$  is not due to chance. As we saw with the Uzbek milk prices and the NYSE, sometimes events can occur together but not have a causal relation--the world is full of wacky statistical relations. Also we are hard-wired to infer causation when one event happens prior to another. But as you now know, this would be committing the post hoc ergo propter hoc fallacy. The correlation between  $X$  and  $Y$  is not due to some mutual cause  $Z$ . Suppose someone thinks that "muscle soreness  $X$  causes muscle growth  $Y$ . An earlier study showed a strong correlation between overall level of happiness and degree of participation in a religious institution. The conclusion was that participation in a religious institution causes happiness. However, a subsequent study showed that there was a 3rd element

sense of belonging to a close-knit community that explained the apparent relationship between happiness and religion. Religious organizations are often close-knit communities so it only appeared as though it was the religious element that cause a higher happiness appraisal. It turns out that there is a more general explanation of which participation in a religious organization is an instance. Y is not the cause of X. For instance, some people say that drug use causes criminal behaviour. I think you could plausibly argue the arrow can point both directions depending on the person or maybe even within the same person i. Premise 2, 3, and 4 are all about ruling out alternative explanations. As critical thinkers evaluating or producing a causal argument, we need to seriously consider the plausibility of these alternative explanations. Recall earlier in the semester we looked briefly at Popperian falsificationism. We can extend this idea to causation: In other words, when you evaluate a general causal claim, you should do so by laying out the implied structure of the argument for the claim and evaluating them in turn.

### 6: Bertrand Russell, Ayer

*Sir Alfred Jules ("Freddie") Ayer (better known as Alfred Ayer or A. J. Ayer) ( - ) was a 20th Century British philosopher in the Analytic Philosophy tradition, mainly known for his promotion of Logical Positivism and for popularizing the movement's ideas in Britain.*

As recounted in Rogers , Ayer was a precocious but mischievous child, and so was sent to boarding school outside Eastbourne at the age of seven, from which he won a scholarship to Eton in There he impressed his peers with his intelligence and competitiveness, the latter trait manifesting itself in the way he played games. At the age of sixteen he specialized in classics and at the same time started reading some philosophy. Ayer said that this remained a motto for him throughout his philosophical career see Rogers , At the same time a reading of G. The Easter before leaving Eton, Ayer spent some time in Paris, where he met Renee Lees, whom he subsequently married in The following year he won a classics scholarship to Christ Church, Oxford, where he studied both Greek and philosophy, one of his tutors being Gilbert Ryle. Ryle was also instrumental in getting Ayer to go to Vienna in to study with Moritz Schlick, then leader of the influential Vienna Circle of philosophers, scientists and other intellectuals, joining W. Quine in being one of only two visitors to be members of the Vienna Circle. His philosophical experience in Vienna was somewhat limited by his uncertain knowledge of German, but he knew enough to pick up the basic tenets of logical positivism. After leaving Vienna, Ayer lectured for a short time at Christ Church, where in he was elected to a five-year research fellowship. In the same year he finished LTL, which caused a great deal of controversy and debate, partly for its sweeping dismissal of metaphysics, but especially for the metaethical emotivism Ayer championed in one of its most notorious chapters. Austin; the confrontations with Austin were to prove long-lasting. The product of this refining process was the book Foundations of Empirical Knowledge. During this time he also enjoyed life to the full; he was a good dancer, once confessing that he would have preferred to be a tap-dancer rather than a professional philosopher, but had given up on the idea when he recognized that he would never be as good as Fred Astaire. His marriage to Renee started to disintegrate; Ayer had numerous affairs, and Renee formed an enduring relationship with Stuart Hampshire. In the immediate pre-war years, Ayer had become passionate about politics. He supported the Republican side in Spain, flirted with joining the Communist Party, but instead became an active member of the Labour Party. When war was declared he joined the Welsh Guards and was helped to do so by Gilbert Ryle. He worked for a while in Cambridge interrogating prisoners, then was sent to America to join a secret service mission, one which seemed to involve gathering information about Fascist sympathizers in America. Whilst in New York he reviewed films for the Nation, fathered a daughter Sheila Graham was the mother , and made a record with Lauren Bacall. On being repatriated to England, Ayer found himself given the job of helping with the organization of the French resistance movements in London. Shortly after the war he was posted to Paris, where he took the opportunity to study French existentialism, writing articles on Sartre and Camus in Horizon. On his release from Army service Ayer accepted the offer of a tutorial fellowship at Wadham College, Oxford, but was there only a short while before becoming the Grote Professor of Philosophy at University College, London, at the age of He quickly appointed Hampshire to a lectureship making up for having cited Hampshire as co-respondent in his divorce from Renee , then Richard Wollheim. The department grew and became a thriving philosophical center. Ayer also ventured into the world of radio, being involved in many BBC Third Programme broadcasts, including panel discussions with the scientists Zuckerman, Huxley and Medawar, and a famous debate with the Jesuit priest Frederick Copleston on the existence of God. In he lectured at Bard College in New York, but it proved to be an unhappy experience. Back in London C. Not that it was completely sacrificed; he bi-located, spending long weekends in London with his second wife, Dee Wells, and at most three nights in New College during the week. He continued to travel widely: China, Russia, India, and Pakistan were added to the itinerary. His support for the decriminalization of homosexual behavior, he once quipped, could not be thought by anyone acquainted with him to involve a vested interest. His support for the SDP was a protest at the leftward trend of the Labour Party, and particularly its anti-Europeanism. He formed a relationship with Vanessa Lawson,

whom he would see whilst in Oxford. During this time, Ayer continued to be philosophically productive, doing some of his most original work. *The Origins of Pragmatism* was published in 1948, following this Russell and Moore: Andrews, in which he elaborated on the sophisticated realism first put forward in *The Origins of Pragmatism*. He visited Canada on a couple of occasions, giving the Gilbert Ryle lectures at Trent University resulting in his book on Hume, and the Whidden lectures at McMaster giving rise to *Freedom and Morality*. Tragically Vanessa was to die of liver cancer in 1951, leaving Ayer grief-stricken. He moved quickly to dispel these rumours. He spent most of the remaining couple of years responding to articles that were to appear in the Ayer volume in the *Library of Living Philosophers* series, edited by L. He remarried Dee Wells, but not long afterwards Ayer was admitted to hospital with a collapsed lung in the early summer of 1952 and died on the 27th, June. His circle of friends included many famous and influential people; the following in no particular order is only a brief list. Pritchett, and Christopher Hitchens. Ayer was a vain man whose vanity was part of his considerable charm. He made a distinction between vanity and egotism; an egotist, he said, thought he should have more medals, whilst a vain person just enjoyed showing off the medals he had. His first formulation of a criterion of meaning, the principle of verification, was in the first edition of *LTL*, where he claimed that all propositions were analytic true in virtue of their meaning or else either strongly verifiable or weakly verifiable. Strong verification required that the truth of a proposition be conclusively ascertainable; weak verification required only that an observation statement be deducible from the proposition together with other, auxiliary, propositions, provided that the observation statement was not deducible from these auxiliaries alone. This rapidly proved defective: So in the second edition Ayer amended the principle to read: This principle generated further criticism, most significantly from Alonzo Church, who claimed to show that, again, it allowed any statement to be meaningful. Take  $O_1$ ,  $O_2$ , and  $O_3$  as logically independent observation statements, and  $S$  any statement whatsoever.  $S$  becomes indirectly verifiable, as  $O_2$  follows from  $S$  and  $1$ , and  $1$  is directly verifiable. Despite the failure of these attempts to provide a rigorous empiricist criterion of meaning, Ayer continued to hold that there was a close connection between evidence and meaning, maintaining that a satisfactory account of confirmation was needed before a fool-proof criterion of empirical meaning could be supplied. Given later doubts about whether any theory of confirmation could provide a foundation for a theory of meaning Quinean doubts relating to the impossibility of ruling out any facts as possibly bearing on the truth of any sentence, it remains unclear as to how the evidence-meaning connection can be circumscribed. For a review of other attacks on, and adjustments to, the verification principle, see Wright, It was the strong version that was used in his discussion of the meaning of sentences about the past and other minds, but in his discussion of the latter another difficulty emerged. The strong interpretation of the criterion required there to be some decision made as to what evidence contributed to the meaning of verifiable sentences. For Ayer it was clear that not all evidence for a statement was to be included in the meaning of the statement: Further, although only present evidence is available to anybody making a statement about the past, the meaning of such a statement is not restricted to such present evidence; one is entitled to include in the meaning evidence that would be available if one were able to transport oneself to that past time. This is examined again in Section 7. The only class of statements that Ayer allowed to be meaningful without such a connection to evidence was that comprised of tautologies, which included all analytic propositions. These were the only propositions knowable a priori, their meaning being dependent on how language was used, and on the conventions governing that use. Ayer insisted that the necessity attaching to these propositions was only available once the conventions governing language-use were in play. Similarly, when we say a proposition is probable, or probably true, we are not assigning any intrinsic property to the proposition, nor saying that there is any relation it bears to any other proposition. We are simply expressing our confidence in that proposition, or, more accurately, it expresses the degree of confidence it is rational to possess in the proposition. This deflationary attitude to truth was supported by his verificationism about meaning; Ayer did not have to provide truth-conditions for the meaning of sentences. Assertions had meaning in virtue of their verification conditions, and propositions were defined just as an equivalence class of sentences with the same verification conditions. Deflationism about truth replaces a concern for a substantial theory of truth with a concern about which sentences, or utterances, are deemed to be truth-apt. Ayer denied that moral utterances

were truth-apt. Given that he thought that asserting that  $p$  was equivalent to saying that  $p$  was true, he had to deny that moral utterances could be assertions see section 7. These latter statements were the ultimate verifiers, forming the basis upon which our empirical world was constructed. His criticism of such views was that the favoured class of statements could not be picked out in the right way without an appeal to relevant experience. So a criterion for membership of the favored class of statements that required only those statements accepted by the scientists of the time to be members of the class was not going to be successful without knowing which sentences were thus accepted, and this, Ayer claimed, could only be known by experience. The alternative of using yet another sentence, one stating that these  $p, q, r, \dots$  were the sentences in the relevant class those accepted by the scientists, would make the foundations of science entirely arbitrary. It was this continuing commitment to sense-data as the objects of perception that drew J. Once we have this theory, we are able reinterpret the quale as mental states and claim that they are caused by the physical objects. This causal claim is only merited once the theoretical system is in place, and so cannot be a primitive element in any account of perception. The physical objects are required to be there before any causal hypothesis involving them makes sense. Austin attacked the way he saw the argument from illusion being deployed. He questioned just about everything in it: A consequence of this, he claimed, was that the secondary system embodied in ordinary perceptual judgments could not be a theory with respect to which the primary system was the data "the data have to be describable in terms that do not presuppose the very theory for which they are the data. Although, he argued, it may be possible, though difficult, for us to strip our vocabulary describing our experience of such secondary-system concepts, such an effort on our part would be unusual, and not at all like what is involved in our common-sense perceptual judgments, those that Ayer supposes to be the result of some theorizing on our part. Ayer was unmoved by the objections. The disagreement was primarily about whether the perceptual judgments were based on, or were inferred from, awareness of sense-data. Ayer conceded that such an inference would be only implicit. Ayer defined inductive inference in negative terms, as involving all factual inference in which the premises did not entail the conclusion. All such inferences, Ayer claimed, presumed the uniformity of nature, an assumption he put in terms of assuming that the future will, in relevant respects, resemble the past,  $p$ . To unambiguously cover cases of retrodiction, the assumption is better put in terms of the unobserved resembling, in relevant respects, the observed. A similar argument applied to any other principles that may have been thought to supply the missing ingredient, such as an appeal to universal causality, or to laws of nature. These were also not demonstrably true, so would require justification themselves, and any appeal to these principles in such a justification would be viciously circular. The fundamental problem here is that the inductive gap can be closed only if the premises can somehow be made to entail their conclusion, and Ayer denied that this could be done. This could work, if it did, only for perception, and not for other inductive inferences. Ayer by now thought phenomenalism was unsuccessful in this attempt, and again reductionism would not work for the future cases. In his he thought that the best we could do was to admit the gap and be content to describe the ways in which we actually went about justifying such inferences. Ayer went on in later work to examine the problem of induction in greater detail, in particular in relation to attempts to make the problem tractable by appeal to notions of probability. In he wrote an important article attacking the idea that the logical conception of probability could be a useful guide to the future. Given a proposition,  $a$ , that a horse is going to win the race, and various sources of evidence,  $h_1, h_2, h_3, \dots, h_n$ , one can estimate the probability of a given  $h_1$  to be  $p_1$ , given  $h_2$  to be  $p_2$ , and so on.

### 7: Causal Determinism (Stanford Encyclopedia of Philosophy)

*Explain the main idea of Alvin Goldman's causal theory of knowledge (as set forth in his article "The Causal Theory of Knowing"). Explain A.J. Ayer's distinction.*

Mind-brain identity theorists like to say that "mental states" are "brain states," but we will see that much more than abstract "states," "events," "properties," and "laws" are involved in explaining how the mind emerges from the brain. A more extreme position is to simply deny the existence of mind there is only a brain, or to say that mind is at best an epiphenomenon, with no causal influences on the physical world. Most identity theorists have been materialists who argued for a form of eliminative materialism or reductionism. Ultimately, they regard physics as the foundational science. They expect that molecules are reducible to atoms, biological cells are reducible to molecules, the brain is reducible to its neurons, and the mind is reducible to the brain. Other philosophers argue that the mind somehow "emerges" from the brain. They see emergence as producing new "laws" at each hierarchical level of "self-organization. On this view, the mind has "states," "events," "properties," and "laws" that are not predictable based on those of the brain. Some emergentists believe that the new laws in an upper hierarchical level are not reducible to those of the lower levels. They can thus claim to be materialists or physicalists but deny reductionism. This is known as "non-reductive physicalism. They claim that "mental events" supervene on "physical events. Descartes and others simply assumed that the mental world could influence the physical world and vice versa, but the mystery of exactly how this might be possible led to the "mind-body problem" the question how two unlike substances, one material, the other immaterial, can interact. Identity theory is one solution to that problem. The other solution is dualism and a theory of interactionism notably the work of Karl Popper and John Eccles. Twentieth-century philosophers best known to argue for an identity of mind or consciousness and brain include Ullin T. Place, Herbert Feigl, and J. Place explicitly describes "consciousness as a brain process," specifically as "patterns" of brain activity. He does not trivialize this identity as a succession of individual "mental events and physical events" in some kind of causal chain. He compares this identity to the idea that "lightning is a motion of electrical charges. Feigl describes his own thesis: The identity thesis which I wish to clarify and to defend asserts that the states of direct experience which conscious beings "live through" and those which we confidently ascribe to some of the higher animals, are identical with certain presumably configurational aspects of the neural processes in these organisms. Smart clarified and extended the identity theory of his colleague U. Place When I say that a sensation is a brain process or that lightning is an electric discharge, I am using "is" in the sense of strict identity. Just as in the "7 is identical with the smallest prime number greater than 5. He says "A man is a vast arrangement of physical particles, but there are not, over and above this, sensations or states of consciousness. Smart wrote the article on mind-body identity theory for the Stanford Encyclopedia of Philosophy, in which he says: The mind is an immaterial and non-physical process going on in the physical and material brain. The human mind is the most highly evolved form of the biological information processing that goes on in all organisms. Information philosophy sees the mind as a biological information processing system. Abstract information is neither matter nor energy, yet it needs matter for its concrete embodiment and energy for its communication. When we die, mere matter remains. What is lost is our developmental and experiential information - our life history, excepting that which may have been stored externally in other minds or in the Sum of human knowledge. Because it is embodied in the brain, the mind can control the actions of a body. The mind is normally unaffected by its own quantum level uncertainty excepting when we want to be creative and unpredictable. See the Experience-Recorder-Reproducer model of the mind. For Teachers To hide this material, click on the Normal link.

### 8: A. J. Ayer - Bibliography - PhilPapers

*Sir A.J. Ayer, in full Sir Alfred Jules Ayer, (born October 29, , London, England" died June 27, , London), British philosopher and educator and a leading representative of logical positivism through his widely read work Language, Truth, and Logic ().*

Ayer claims, following G. Moore , that he could have done otherwise, if he had chosen to do otherwise: For a man is not thought to be morally responsible for an action that it was not in his power to avoid. But if human behaviour is entirely governed by causal laws, it is not clear how any action that is done could ever have been avoided. It may be said of the agent that he would have acted otherwise if the causes of his action had been different, but they being what they were, it seems to follow that he was bound to act as he did. Now it is commonly assumed both that men are capable of acting freely, in the sense that is required to make them morally responsible, and that human behaviour is entirely governed by causal laws: For he is anxious to show that men are capable of acting freely in order to infer that they can be morally responsible for what they do. But if it is a matter of pure chance that a man should act in one way rather than another, he may be free but he can hardly be responsible. When they are fulfilled, I may be said to have acted freely. But this is not to say that it was a matter of chance that I acted as I did, or, in other words, that my action could not be explained. And that my actions should be capable of being explained is all that is required by the postulate of determinism. But now we must ask how it is that I come to make my choice. Either it is an accident that I choose to act as I do or it is not. If it is an accident, then it is merely a matter of chance that I did not choose otherwise; and if it is merely a matter of chance that I did not choose otherwise, it is surely irrational to hold me morally responsible for choosing as I did. But if it is not an accident that I choose to do one thing rather than another, then presumably there is some causal explanation of my choice: Philosophical Essays, , p. Looked at from the standpoint of common sense, Ayer says that "in so far as this is a question of what people actually believe, I now think it more likely that I was wrong. A conspicuous counter-example is one which I mentioned earlier in passing, the problem of the freedom of the will. As often happens in philosophy, this problem takes the form of a dilemma. On the one hand, we are inclined to believe that all spatio-temporal processes, and therefore also human actions, are governed by natural laws; and from this we are inclined to infer that given the initial circumstances whatever actually happens could not have happened otherwise. But these conclusions are mutually contradictory. It has to be shown, then, either that there is some flaw in this reasoning, or that at least one of the premisses of one or other of these arguments is false. Again, I do not propose to offer you a solution of this problem. To do so would mean going very carefully into a set of notions of which the correct analysis is by no means obvious; the notion of causality and of natural law on the one hand, and on the other the whole group of concepts; which figure in the teleological explanation of human action, as well as our idea of moral responsibility. The concept of a person would itself come under review. One would have to consider exactly what was involved in the shift from causal to statistical laws in micro-physics, and whether this was relevant to the present issue; whether there were any logical reasons for denying that every human action could be predicted; whether there was anything at all about a human being that could not be explained in physiological terms. My own view, which I give you without argument, is that we have as yet no very strong reason to believe in the emergence of a physiological theory which will account for every facet of our behaviour, but that the possibility of it cannot be excluded a priori. If this did prove to be the case, it would not follow that the idea of freedom would have to go by the board. We could still draw a distinction between the actions which a person chose to do, never mind how the choice came to be made, and those which were forced upon him, in the sense that he was subject to unusual pressures, or even deprived of any power to choose; and there might be utilitarian grounds for our responding to actions of these different sorts in different judicial ways. But certainly a great strain would be placed on the conventional ideas of merit and of guilt; and if these ideas were given up or greatly modified, it is hardly to be expected that our moral and our legal outlook would remain unchanged. The idea that man somehow stands outside the order of nature is one that many people find attractive on emotional grounds; so that it has to be received with some caution. It is, however, fairly widely

accepted nowadays, even by philosophers who are supposed to be able to discount their emotional prejudices, and this for various reasons. One of them is of course the belief in the freedom of the will. It is argued that since men are free to behave as they choose, they are always capable of nullifying any generalization about their conduct to which they are alleged to be subject. If any such generalization is produced, it is only to be expected that someone will proudly or perversely exercise his option of rendering it false. The trouble with this argument is that it simply assumes the falsehood of the position which it is intended to demolish. If the attribution of free will is construed in such a way that a man can be said to have acted freely only if his action is not susceptible of any causal explanation, then there will indeed be no question but that if men ever act freely, their behaviour is not totally subject to causal laws. This still allows for its being subject to statistical laws, but on the assumption, which the proponents of this view tacitly make, that a man is free on any given occasion to try to do anything whatsoever that he believes to be feasible, the possibility of there being even statistical laws about human behaviour which would be of any scientific value is effectively excluded. But now it is surely fair to ask for some justification of these very strong assumptions. What reason have we for believing that men ever do act freely, in this sense? There may be a *prima facie* case for holding that men are capable of acting freely in some sense or other; but it is by no means clear that an action which passes this test of freedom, whatever it may be, cannot also be governed by some causal law. Compatibilist and incompatibilist views among philosophers and the general public may be a source of confusion. Many philosophers have in fact held that what we ordinarily mean by speaking of an action as freely done is not incompatible with its being causally determined; some have gone even further to the point of holding that when we say that an action is free we actually imply, or presuppose, that it is determined; others who take the view that determinism excludes free will, as this is ordinarily understood, have concluded just for this reason that our ordinary notion of free will has no application. I do not myself think that we stand to gain very much by making a conscientious effort to discover what people ordinarily mean when they talk about free will: The important question, so far as we are concerned, is whether human behaviour is or is not entirely subject to law. If we conclude that it is, or even just that there is no good reason to suppose that it is not, then we may find it expedient to introduce a sense of acting freely which squares with these conclusions. We shall presumably want it to apply, so far as possible, to the same actions as those that most people would now regard as being free, though not necessarily with the same implications, but we shall rather be correcting ordinary usage than merely following it. But the point is that before we can usefully embark upon such matters, we must first decide the issue of determinism. It may appear, indeed, that this is not an issue which one could hope to settle *a priori*. Surely, it may be said, we can never be in a position to show that any piece of human conduct is inexplicable: But while this remark is perfectly sound, it may also be thought to miss the point. That is to say, they do not account for an action as resulting from the operation of a natural law. Consider, for example, the simple action of drinking a glass of wine. All these are accepted as good explanations: Ayer calls here for some experimental philosophy to determine the popular opinions and common sense. In common with many other philosophers I used to hold that it was not, that in this respect the antithesis between the claims of free will and determinism was illusory, but in so far as this is a question of what people actually believe, I now think it more likely that I was wrong. This is indeed a matter for a social survey which, as I said before, would probably not yield a very clear result. I am, indeed, strongly inclined to think that our ordinary ideas of freedom and responsibility are very muddleheaded: It would not be at all easy to estimate the social consequences of discarding them.

### 9: Wrestling with Philosophy : Critical Thinking: General Causal Reasoning

1 Article 39 From *Language, Truth and Logic*, Chapter 6 *Critique of Ethics and Theology* A. J. Ayer Introduction: A. J. Ayer was born in London in He studied philosophy at Christ Church College at Oxford Univer-.

Introduction In most of what follows, I will speak simply of determinism, rather than of causal determinism. This follows recent philosophical practice of sharply distinguishing views and theories of what causation is from any conclusions about the success or failure of determinism cf. Earman, ; an exception is Mellor For the most part this disengagement of the two concepts is appropriate. Traditionally determinism has been given various, usually imprecise definitions. This is only problematic if one is investigating determinism in a specific, well-defined theoretical context; but it is important to avoid certain major errors of definition. In order to get started we can begin with a loose and nearly all-encompassing definition as follows: The world is governed by or is under the sway of determinism if and only if, given a specified way things are at a time  $t$ , the way things go thereafter is fixed as a matter of natural law. The italicized phrases are elements that require further explanation and investigation, in order for us to gain a clear understanding of the concept of determinism. The roots of the notion of determinism surely lie in a very common philosophical idea: In other words, the roots of determinism lie in what Leibniz named the Principle of Sufficient Reason. But since precise physical theories began to be formulated with apparently deterministic character, the notion has become separable from these roots. Since the first clear articulations of the concept, there has been a tendency among philosophers to believe in the truth of some sort of determinist doctrine. There has also been a tendency, however, to confuse determinism proper with two related notions: Fatalism is the thesis that all events or in some versions, at least some events are destined to occur no matter what we do. The source of the guarantee that those events will happen is located in the will of the gods, or their divine foreknowledge, or some intrinsic teleological aspect of the universe, rather than in the unfolding of events under the sway of natural laws or cause-effect relations. Not every metaphysical picture makes this disentanglement possible, of course. In a looser sense, however, it is true that under the assumption of determinism, one might say that given the way things have gone in the past, all future events that will in fact happen are already destined to occur. Prediction and determinism are also easy to disentangle, barring certain strong theological commitments. As the following famous expression of determinism by Laplace shows, however, the two are also easy to commingle: We ought to regard the present state of the universe as the effect of its antecedent state and as the cause of the state that is to follow. An intelligence knowing all the forces acting in nature at a given instant, as well as the momentary positions of all things in the universe, would be able to comprehend in one single formula the motions of the largest bodies as well as the lightest atoms in the world, provided that its intellect were sufficiently powerful to subject all data to analysis; to it nothing would be uncertain, the future as well as the past would be present to its eyes. The perfection that the human mind has been able to give to astronomy affords but a feeble outline of such an intelligence. Laplace In this century, Karl Popper defined determinism in terms of predictability also, in his book *The Open Universe*. Laplace probably had God in mind as the powerful intelligence to whose gaze the whole future is open. If not, he should have: But even if our aim is only to predict a well-defined subsystem of the world, for a limited period of time, this may be impossible for any reasonable finite agent embedded in the world, as many studies of chaos sensitive dependence on initial conditions show. Conversely, certain parts of the world could be highly predictable, in some senses, without the world being deterministic. When it comes to predictability of future events by humans or other finite agents in the world, then, predictability and determinism are simply not logically connected at all. Were she then to watch me live through it, she might smile condescendingly, as one who watches a marionette dance to the tugs of strings that it knows nothing about. Nor does it matter whether any demon or even God can, or cares to, actually predict what we will do: Whether such alarm is actually warranted is a question well outside the scope of this article see Hoefer a , Ismael and the entries on free will and incompatibilist theories of freedom. But a clear understanding of what determinism is, and how we might be able to decide its truth or falsity, is surely a useful starting point for any attempt to grapple with this issue.

We return to the issue of freedom in section 6, Determinism and Human Action, below. Conceptual Issues in Determinism Recall that we loosely defined causal determinism as follows, with terms in need of clarification italicized: One might have thought that a focus on individual events is more appropriate: Then if all—or even just most—events *E* that are our human actions are causally determined, the problem that matters to us, namely the challenge to free will, is in force. Nothing so global as states of the whole world need be invoked, nor even a complete determinism that claims all events to be causally determined. For example, the start of a football game on TV on a normal Saturday afternoon may be sufficient *ceteris paribus* to launch Ted toward the fridge to grab a beer; but not if a million-ton asteroid is approaching his house at. Bertrand Russell famously argued against the notion of cause along these lines and others in *An Inquiry Into Meaning and Truth*, and the situation has not changed. By trying to define causal determination in terms of a set of prior sufficient conditions, we inevitably fall into the mess of an open-ended list of negative conditions required to achieve the desired sufficiency. Moreover, thinking about how such determination relates to free action, a further problem arises. If the *ceteris paribus* clause is open-ended, who is to say that it should not include the negation of a potential disruptor corresponding to my freely deciding not to go get the beer? They are also too short. For the typical set of prior events that can intuitively, plausibly be thought to be a sufficient cause of a human action may be so close in time and space to the agent, as to not look like a threat to freedom so much as like enabling conditions. So we have a number of good reasons for sticking to the formulations of determinism that arise most naturally out of physics. And this means that we are not looking at how a specific event of ordinary talk is determined by previous events; we are looking at how everything that happens is determined by what has gone before. The state of the world in only entails that Ted grabs a beer from the fridge by way of entailing the entire physical state of affairs at the later time. We will briefly explain some of them. Why take the state of the whole world, rather than some perhaps very large region, as our starting point? One might, intuitively, think that it would be enough to give the complete state of things on Earth, say, or perhaps in the whole solar system, at *t*, to fix what happens thereafter for a time at least. But notice that all sorts of influences from outside the solar system come in at the speed of light, and they may have important effects. If no physical influences can go faster than light, then the state of things must be given over a spherical volume of space 1 light-month in radius. In the time of Laplace, of course, there was no known speed limit to the propagation of physical things such as light-rays. In such a world, evidently, one has to fix the state of things over the whole of the world at a time *t*, in order for events to be strictly determined, by the laws of nature, for any amount of time thereafter. In all this, we have been presupposing the common-sense Newtonian framework of space and time, in which the world-at-a-time is an objective and meaningful notion. Below when we discuss determinism in relativistic theories we will revisit this assumption. That is, a specification of the state of the world at a time *t*, along with the laws, determines not only how things go after *t*, but also how things go before *t*. Philosophers, while not exactly unaware of this symmetry, tend to ignore it when thinking of the bearing of determinism on the free will issue. The reason for this is that we tend to think of the past and hence, states of the world in the past as done, over, fixed and beyond our control. Forward-looking determinism then entails that these past states—beyond our control, perhaps occurring long before humans even existed—determine everything we do in our lives. It then seems a mere curious fact that it is equally true that the state of the world now determines everything that happened in the past. We have an ingrained habit of taking the direction of both causation and explanation as being past—present, even when discussing physical theories free of any such asymmetry. We will return to this point shortly. Another point to notice here is that the notion of things being determined thereafter is usually taken in an unlimited sense—i. But conceptually speaking, the world could be only imperfectly deterministic: For example, suppose that near-perfect determinism were regularly but infrequently interrupted by spontaneous particle creation events, which occur only once every thousand years in a thousand-light-year-radius volume of space. This unrealistic example shows how determinism could be strictly false, and yet the world be deterministic enough for our concerns about free action to be unchanged. Part of understanding determinism—and especially, whether and why it is metaphysically important—is getting clear about the status of the presumed laws of nature. In the physical sciences, the assumption that there are fundamental, exceptionless laws of nature, and that they have some strong sort of modal force,

usually goes unquestioned. We can characterize the usual assumptions about laws in this way: They make things happen in certain ways, and by having this power, their existence lets us explain why things happen in certain ways. For a defense of this perspective on laws, see Maudlin. Laws, we might say, are implicitly thought of as the cause of everything that happens. If the laws governing our world are deterministic, then in principle everything that happens can be explained as following from states of the world at earlier times. In this respect also, we see that laws of nature are being implicitly treated as the causes of what happens: Interestingly, philosophers tend to acknowledge the apparent threat determinism poses to free will, even when they explicitly reject the view that laws are pushy explainers. Earman, for example, advocates a theory of laws of nature that takes them to be simply the best system of regularities that systematizes all the events in universal history. Yet he ends his comprehensive *Primer on Determinism* with a discussion of the free will problem, taking it as a still-important and unresolved issue. *Prima facie* this is quite puzzling, for the BSA is founded on the idea that the laws of nature are ontologically derivative, not primary; it is the events of universal history, as brute facts, that make the laws be what they are, and not vice-versa. Taking this idea seriously, the actions of every human agent in history are simply a part of the universe-wide pattern of events that determines what the laws are for this world. It is then hard to see how the most elegant summary of this pattern, the BSA laws, can be thought of as determiners of human actions. The determination or constraint relations, it would seem, can go one way or the other, not both. On second thought however it is not so surprising that broadly Humean philosophers such as Ayer, Earman, Lewis and others still see a potential problem for freedom posed by determinism. For even if human actions are part of what makes the laws be what they are, this does not mean that we automatically have freedom of the kind we think we have, particularly freedom to have done otherwise given certain past states of affairs. It is quite another thing to add: One might try to defend this claim—“unpalatable as it seems intuitively, to ascribe ourselves law-breaking power”—but it does not follow directly from a Humean approach to laws of nature. Instead, on such views that deny laws most of their pushiness and explanatory force, questions about determinism and human freedom simply need to be approached afresh. A second important genre of theories of laws of nature holds that the laws are in some sense necessary. For any such approach, laws are just the sort of pushy explainers that are assumed in the traditional language of physical scientists and free will theorists. But a third and growing class of philosophers holds that universal, exceptionless, true laws of nature simply do not exist. For these philosophers, there is a simple consequence: As with the Humean view, this does not mean that concerns about human free action are automatically resolved; instead, they must be addressed afresh in the light of whatever account of physical nature without laws is put forward. Determinism requires a world that a has a well-defined state or description, at any given time, and b laws of nature that are true at all places and times. If we have all these, then if a and b together logically entail the state of the world at all other times or, at least, all times later than that given in a, the world is deterministic. The Epistemology of Determinism How could we ever decide whether our world is deterministic or not? Given that some philosophers and some physicists have held firm views—with many prominent examples on each side—one would think that it should be at least a clearly decidable question. Unfortunately, even this much is not clear, and the epistemology of determinism turns out to be a thorny and multi-faceted issue. Most philosophers and scientists since the 17th century have indeed thought that there are.

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