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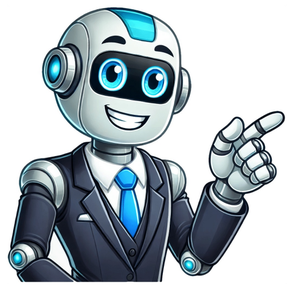

Philosophy & Religion Philosophical Issues What is positivism in philosophy? Who was the main philosopher associated with the development of positivism? What is the main aim of positivism as a philosophical approach? How does positivism view scientific knowledge compared to metaphysical beliefs? What role does observation and experimentation play in positivist philosophy? How did positivism influence the development of the scientific method? What are some critiques of positivism from other philosophical perspectives? How did positivism give rise to logical positivism or logical empiricism? positivism, in Western philosophy, generally, any system that confines itself to the data of experience and excludes a priori or metaphysical speculations. More narrowly, the term designates the thought of the French philosopher Auguste Comte (17981857).As a philosophical ideology and movement, positivism first assumed its distinctive features in the work of Comte, who also named and systematized the science of sociology. It then developed through several stages known by various names, such as empiriocriticism, logical positivism, and logical empiricism, finally merging, in the mid-20th century, into the already existing tradition known as analytic philosophy.The basic affirmations of positivism are (1) that all knowledge regarding matters of fact is based on the positive data of experience and (2) that beyond the realm of fact is that of pure logic and pure mathematics. Those two disciplines were already recognized by the 18th-century Scottish empiricist and skeptic David Hume as concerned merely with the relations of ideas, and, in a later phase of positivism, they were classified as purely formal sciences. On the negative and critical side, the positivists became noted for their repudiation of metaphysicsi.e., of speculation regarding the nature of reality that radically goes beyond any possible evidence that could either support or refute such transcendent knowledge claims. In its basic ideological posture, positivism is thus worldly, secular, antitheological, and antimetaphysical. Strict adherence to the testimony of observation and experience is the all-important imperative of positivism. That imperative was reflected also in the contributions by positivists to ethics and moral philosophy, which were generally utilitarian to the extent that something like the greatest happiness for the greatest number of people was their ethical maxim. It is notable, in this connection, that Comte was the founder of a short-lived religion, in which the object of worship was not the deity of the monotheistic faiths but humanity.There are distinct anticipations of positivism in ancient philosophy. Although the relationship of Protagorasa 5th-century-bce Sophistfor example, to later positivistic thought was only a distant one, there was a much more pronounced similarity in the classical skeptic Sextus Empiricus, who lived at the turn of the 3rd century ce, and in Pierre Bayle, his 17th-century reviver. Moreover, the medieval nominalist William of Ockham had clear affinities with modern positivism. An 18th-century forerunner who had much in common with the positivistic antimetaphysics of the following century was the German thinker Georg Lichtenberg.The proximate roots of positivism, however, clearly lie in the French Enlightenment, which stressed the clear light of reason, and in 18th-century British empiricism, particularly that of Hume and of Bishop George Berkeley, which stressed the role of sense experience. Comte was influenced specifically by the Enlightenment Encyclopaedists (such as Denis Diderot, Jean dAlembert, and others) and, especially in his social thinking, was decisively influenced by the founder of French socialism, Claude-Henri, comte de Saint-Simon, whose disciple he had been in his early years and from whom the very designation positivism stems. Auguste ComteAuguste Comte, drawing by Tony Toullion, 19th century; in the Bibliothque Nationale, Paris.Comtes positivism was posited on the assertion of a so-called law of the three phases (or stages) of intellectual development. There is a parallel, as Comte saw it, between the evolution of thought patterns in the entire history of humankind, on the one hand, and in the history of an individuals development from infancy to adulthood, on the other. In the first, or so-called theological, stage, natural phenomena are explained as the results of supernatural or divine powers. It matters not whether the religion is polytheistic or monotheistic; in either case, miraculous powers or wills are believed to produce the observed events. This stage was criticized by Comte as anthropomorphici.e., as resting on all-too-human analogies. Generally, animistic explanationsmade in terms of the volitions of soul-like beings operating behind the appearancesare rejected as primitive projections of unverifiable entities. The second phase, called metaphysical, is in some cases merely a depersonalized theology: the observable processes of nature are assumed to arise from impersonal powers, occult qualities, vital forces, or entelechies (internal perfecting principles). In other instances, the realm of observable facts is considered as an imperfect copy or imitation of eternal ideas, as in Platos metaphysics of pure forms. Again, Comte charged that no genuine explanations result; questions concerning ultimate reality, first causes, or absolute beginnings are thus declared to be absolutely unanswerable. The metaphysical quest can lead only to the conclusion expressed by the German biologist and physiologist Emil du Bois-Reymond: Ignoramus et ignorabimus (Latin: We are and shall be ignorant). It is a deception through verbal devices and the fruitless rendering of concepts as real things. The sort of fruitfulness that it lacks can be achieved only in the third phase, the scientific, or positive, phasehence the title of Comtes magnum opus: Cours de philosophie positive (183042)because it claims to be concerned only with positive facts. The task of the sciences, and of knowledge in general, is to study the facts and regularities of nature and society and to formulate the regularities as (descriptive) laws; explanations of phenomena can consist in no more than the subsuming of special cases under general laws. Humankind reached full maturity of thought only after abandoning the pseudoexplanations of the theological and metaphysical phases and substituting an unrestricted adherence to scientific method. In his three stages Comte combined what he considered to be an account of the historical order of development with a logical analysis of the leveled structure of the sciences. By arranging the six basic and pure sciences one upon the other in a pyramid, Comte prepared the way for logical positivism to reduce each level to the one below it. He placed at the fundamental level the science that does not presuppose any other sciencesviz., mathematicsand then ordered the levels above it in such a way that each science depends upon, and makes use of, the sciences below it on the scale: thus, arithmetic and the theory of numbers are declared to be presuppositions for geometry and mechanics, astronomy, physics, chemistry, biology (including physiology), and sociology. Each higher-level science, in turn, adds to the knowledge content of the science or sciences on the levels below, thus enriching this content by successive specialization. Psychology, which was not founded as a formal discipline until the late 19th century, was not included in Comtes system of the sciences. Anticipating some ideas of 20th-century behaviourism and physicalism, Comte assumed that psychology, such as it was in his day, should become a branch of biology (especially of brain neurophysiology), on the one hand, and of sociology, on the other. As the father of sociology, Comte maintained that the social sciences should proceed from observations to general laws, very much as (in his view) physics and chemistry do. He was skeptical of introspection in psychology, being convinced that in attending to ones own mental states, these states would be irretrievably altered and distorted. In thus insisting on the necessity of objective observation, he was close to the basic principle of the methodology of 20th-century behaviourism. Among Comtes disciples or sympathizers were Cesare Lombroso, an Italian psychiatrist and criminologist, and Paul-Emile Littr, J.-E. Renan, and Louis Weber. John Stuart MillJohn Stuart Mill, 1884.Despite some basic disagreements with Comte, the 19th-century English philosopher John Stuart Mill, also a logician and economist, must be regarded as one of the outstanding positivists of his century. In his System of Logic (1843), he developed a thoroughly empiricist theory of knowledge and of scientific reasoning, going even so far as to regard logic and mathematics as empirical (though very general) sciences. The broadly synthetic philosopher Herbert Spencer, author of a doctrine of the unknowable and of a general evolutionary philosophy, was, next to Mill, an outstanding exponent of a positivistic orientation. Positivism is a philosophical system deeply rooted in science and mathematics. Its based on the view that whatever exists can be verified through experiments, observation, and mathematical/logical proof. Everything else is nonexistent. In addition, positivists usually believe that scientific progress will eradicate, or at least sharply reduce, the problems facing mankind.Positivists are almost always strong realists that is, they believe that what we experience as reality is really out there in the world. In other words, they believe in objective truth. They also tend to deny the influence of things like theoretical and cultural biases that get in the way of science.Positivism divides all statements into three categories: true, false, and meaningless (neither true nor false). A meaningless statement is one that isnt clear enough to be tested through positivistic means. For example, The color green sleeps angrily is a meaningless statement. Theres no way you could test whether or not its true, which means it isnt true or false. Its just nonsense. This is an extreme example, of course, but many other sentences fall into this category when their terms are not clearly defined.If a statement does have a meaning, then it must be either true or false. But that doesnt mean we necessarily know which one it is. For example, There are exactly 23.8762 billion domestic cats in the world has a definite meaning, but no one can say for sure whether its true or not. It would be impossible to count all the domestic cats one by one, so no one can verify the statement. In principle, though, it could be verified through scientific observation which just dont have the actual means to carry out the study.Note: Despite its name, positivism has nothing to do with positive thinking or optimism its just a coincidence that they have similar names. II. Positivism vs. PostpositivismPositivism hit peak popularity in the early 20th century, but after that a new school the postpositivists started to notice problems with the theory.Positivism is an attractive philosophy because it affirms the value of science and maintains a strong distinction between true and false (a distinction which many other philosophies muddy up!) However, there are also serious problems with it, notably the fact that positivism fails to acknowledge the cultural, political, and psychological factors that get in between the observer and the truth.Even more importantly, positivism is self-defeating. Heres a schematic of the postpositivist argument:a. Positivism claims what is true can be verified by science and logical proof.b. Positivism also claims everything else is either false or meaningless.The argument:1. Claim a cannot be verified by science or logical proof.2. Therefore claim a is either false or meaningless.In other words, if positivism is true, then positivism is false! There is no objective basis for believing in objective truth!Realizing this flaw, many people decided to abandon positivism altogether they developed new schools of thinking that completely abandoned the positivist project. The postpositivists, however, still held on to many aspects of the older school. In particular, they still felt that the goal of philosophy should be to aim at objective truth. They believed that there was an objective reality, and felt that science was a flawed but still highly respectable means of understanding it, but they accepted that there were major complications in the process of knowing or understanding that truth. And, of course, they accepted that there was no objective basis for believing in objective truth.Postpositivism has been so successful in critiquing positivism that there are very few fully-convinced positivists left today. Youll notice throughout the article that the quotes and pop-cultural examples are mostly from people who are slightly critical of positivism thats because to find full-on positivist examples wed have to reach back many decades! III. Quotes about PositivismQuote 1From the study of the development of human intelligence, in all directions, and through all times, the discovery arises of a great fundamental law, [which is that] each branch of our knowledge passes successively through three different theoretical conditions: the theological, or fictitious; the metaphysical, or abstract; and the scientific, or positive. (Auguste Comte)Auguste Comte was a French philosopher who lived in the early 19th century and was strongly associated with positivism (though he was more interested in sociology, a science that was just then getting under way, than he was in the natural sciences). In this short quote, he expresses the basic hope of positivism: that human knowledge will inevitably progress through predefined stages, never moving backward or evolving in unexpected directions. Notice, too, that he places religion at the bottom of his hierarchy, referring to it as a fiction. This skepticism of religion is common among positivists.Quote 2Our knowledge can only be finite, while our ignorance must necessarily be infinite. (Karl Popper)Karl Popper was probably the 20th centurys most influential theorist of the scientific method even today, many scientists base their research on his theories. Despite being such an important scientific figure, however, Popper was skeptical about positivism. As an early postpositivist, he argued that there were limits to scientific knowledge simply because there are limits to what we as human beings can possibly know and understand. Thus, he thought that positivism placed too much faith in science without being attentive enough to its blind spots. IV. The History and Importance of PositivismThe basic insight of positivism is as old as philosophy itself, and probably a lot older. That is, human beings have always understood that one of the best ways to know about reality is to observe it systematically, and ordinarily people believe pretty easily that the world around them is an objective reality.The modern form of positivism, however, is defined by the modern form of science, which dates back to around the 17th century. European thinkers developed a system for testing and evaluating their ideas which was not completely new it was strongly influenced by Indian and Islamic ideas developed in previous centuries but which did include some striking new elements. For example, the European scientists decided that supernatural ideas could not be used to explain their observations, an idea that would become central in modern positivism.Positivism reached its peak in the early 20th century, when philosophers in Britain and America were at the height of their efforts to integrate philosophy with the natural sciences. They were understandably impressed with the progress that science had made over the previous centuries, and believed that this progress was due to the inherent superiority of science over all other systems of thought.As weve seen, the postpositivists punctured this bubble at least partially. They showed that scientific thinking was not a perfect or complete system, and that it had to be supplemented with other non-scientific ideas. They didnt disparage science or advocate abandoning it, but they did show some of the gaps in positivism and demonstrated the need for a new way of understanding the world that would integrate science with other forms of knowledge.Today, we live in an age caught between two opposite forces: the continuing advancement of science, and a growing awareness of its limitations. On the one hand, our world is more deeply shaped by science than ever before our smart phones and 4G networks are obvious evidence of scientific power, but so is the globes massive population, which can only exist thanks to revolutionary agricultural technologies provided by science. However, we also realize that science is responsible for death and destruction on a massive scale, and that our love of technology has not helped us develop greater love for our fellow human beings. So the allure of positivism is still there, since we all understand the power of the scientific worldview but at the same time, we are much more aware of its dangers than the original postpositivists ever were. V. Positivism in Popular CultureExample 1Despite its ambiguous stance on science, the movie Avatar has some positivist underpinnings. For one thing, the nature-forces of Pandora are not spiritual beings theyre flesh-and-blood superorganisms that could in principle be understood through science. So the movie basically takes a positivist stance on what sort of things exist in the world, but it still makes room for a semi-spiritual relationship to the natural world. In addition, the scientists in the movie are mostly good guys, with better values than the films villains, who are mainly corporate and military types.Example 2In an episode of South Park, Cartman travels into the future to a time when positivism has taken over the world, replacing political and religious ideas with pure science. Although this future world has incredible technology, all the basic problems are exactly the same war, bigotry, and stupidity are still rampant. The show is communicating a critique of positivism through humor, showing that the progress of science wont solve all of humanitys problems. VI. ControversiesThe Existence of God: True, False, or Meaningless?For many people, the existence of God is a true-or-false question. Atheists say its false whereas theists say its true. But some positivists argue that the existence of God is neither true nor false its meaningless. They argue that the word God is not clear enough for a true-or-false analysis, and that before we can ask whether God exists we have to get much more clarity on what the word God actually means.Of course, God is not the sort of word that can have any easy definition. Whatever else they might disagree on, most religions agree that God is in some way beyond our understanding, which means its impossible to develop a clear, simple definition of the word God. From a positivist perspective, that means its impossible to establish whether or not God exists.Historically, most positivists (and many postpositivists) have been atheists. They believe only in what science can demonstrate, and since science cant demonstrate the existence of God they conclude that God does not exist. But notice that you cant have it both ways some positivists say that the existence of God is false, while others say that its meaningless, but it cant be both at the same time. (In order to be false, a statement must have an established meaning.)So, there are three possible positions for a positivist:God exists, and this can be shown through science(an unusual position!)God does not exist because science cannot show the existence of a god.The word God has no meaning. It has to be acknowledged that it is difficult to explain positivism research philosophy in a precise and succinct manner. This is because there are vast differences between settings in which positivism is used by researchers. The number variations in explaining positivism may be equal to the number of authors who addressed the area ofresearch philosophy. Nevertheless, in its essence, positivism is based on the idea that science is the only way to learn about the truth. The text below explains positivism research philosophy with the focus on business studies in particular. Positivism: IntroductionAs a philosophy, positivism adheres to the view that only factual knowledge gained through observation(the senses), including measurement, is trustworthy. In positivism studies the role of the researcher is limited todata collectionandinterpretation in an objective way. In other words, the researcher is an objective analyst and she distances herself from personal values in conducting the study. In these types of studies research findings are usually observable and quantifiable.Positivism depends on quantifiable observations that lead to statistical analyses.It has been a dominant form of research in business and management disciplines for decades. It has been noted that as a philosophy, positivism is in accordance with the empiricist view that knowledge stems from human experience. It has an atomistic, ontological view of the world as comprising discrete, observable elements and events that interact in an observable, determined and regular manner[1].Moreover, in positivism studies the researcher is independent form the study and there are no provisions for human interests within the study.Crowther and Lancaster (2008)[2]argue that as a general rule, positivist studies usually adoptdeductive approach, whereasinductive research approachis usually associated with aphenomenology philosophy. Moreover, positivism relates to the viewpoint that researcher needs to concentrate on facts, whereas phenomenology concentrates on the meaning and has provision for human interest.Researchers warn that if you assume a positivist approach to your study, then it is your belief that you are independent of your research and your research can be purely objective. Independent means that you maintain minimal interaction with your research participants when carrying out your research.[3]In other words, studies with positivist paradigm are based purely on facts and consider the world to be external and objective.The five main principles of positivism research philosophy can be summarized as the following:There are no differences in the logic of inquiry across sciences.The research should aim to explain and predict.Research should be empirically observable via human senses. Inductive reasoning should be used to develop statements (hypotheses) to be tested during the research process.Science is not the same as the common sense. The common sense should not be allowed to bias the research findings.Science must be value-free and it should be judged only by logic.The following are a few examples for studies that adhere to positivism research philosophy:A study into the impact of COVID-19 pandemic on the equity of fashion brands in North America.An analysis of effects of foreign direct investment in information technology industry on GDP growth inA study of relationship between diffusion of innovation of mobile applications and saturation of applications inThe following Table 1 illustrates ontology, epistemology, axiology and typical research methods associated with positivism research philosophy:OntologyEpistemologyAxiology Typical methods Real, external, independent One true reality(universalism) Granular (things) OrderedScientific methodObservable and measurable facts Law-like generalizationsNumbers Causal explanation and prediction as contributionValue-free research Researcher is detached, neutral and independent of what is researched Researcher maintains objective stanceTypically deductive, highly structured, large samples, measurement, typically quantitative method of analysis, but a range of data can be analysedTable 1 Ontology, epistemology, axiology and typical research methods associated with positivism research philosophy Science as an Underlying Ground for PositivismPositivism often involves the use of existing theory to develop hypotheses to be tested during the research process. Positivist researchers tend to use highly structured research methodology in order to allow the replication of the same study in the future. Science can be specified as a cornerstone in positivism research philosophy. Specifically, positivism relies on the following aspects of science.1. Science is deterministic. Scientific approach is based on the assumption that X causes Y under certain circumstances. The role of researcher when following the scientific approach is to discover specific nature of cause and effect relationships.2. Science is mechanistic. Mechanical nature of scientific approach can be explained in a way that researchers develop hypotheses to be proved or disproved via application of specific research methods. This leads to the fact that3. Science uses method. Chosen methods are applied mechanically in order to operationalize theory or hypothesis. Application of methodology involves selection of sample, measurements, analysis and reaching conclusions about hypotheses.4. Science deals with empiricism. In other words, science only deals with what can be seen or measured. From this perspective, science can be assessed as objective. Differences between Positivism and InterpretivismThe key features of positivism and social constructionism philosophical approaches are presented in the following Table 2 by Ramanathan (2008)[4].PositivismSocial ConstructionismThe observerMust be independentIs part of what is being observedHuman interestsShould be irrelevantAre the main drivers of scienceExplanationsMust demonstrate causalityAim to increase general understanding of the situationResearchprogresses throughHypotheses and deductionsGather rich data from which ideas are inducedConceptsNeed to be operationalised so that they can be measuredShould incorporate stakeholder perspectivesUnits of analysisShould be reduced to simplest termsMay include the complexity of whole situationsGeneralisation throughStatistical probabilityTheoretical abstractionSampling requiresLarge numbers selected randomlySmall numbers of cases chosen for specific reasonsTable 2 Differences between positivism and social constructionism Alternatively, the differences between positivist andphenomenologyparadigms are best illustrated by Easterby-Smith et al. (2008)[5]in the following manner:Positivist Paradigm Phenomenology paradigm Basic notionsThe world is perceived as external and objectiveIndependency of the observerValue-free approach to scienceThe world is perceived to be socially constructed and subjectiveObserver is considered a part of the object of observationHuman interests drives science Responsibilities of researcherFocusing on factsCausalities and fundamental laws are searchedPhenomenon are reduced to the simplest elementsHypotheses formulation and testing themTo be focusing on meaningsAiming to understand the meaning of eventsExploring the totality of each individual caseIdeas are developed by induction from dataMost suitable research methodsConcepts have to be operationalizedUsing several methods in order to different aspects of phenomenaSamplingSamples have to be largeSmall samples are analyzed in a greater depth or over longer period of timeTable 3 Positivist and phenomenology paradigms Shortcomings of PositivismPositivism as an epistemology is associated with the following set of disadvantages:Firstly, positivism relies on experience as a valid source of knowledge. However, a wide range of basic and important concepts such as cause, time and space are not based on experience. There might be many additional factors that have impacted research findings and positivism research philosophy fails to acknowledge the effect of these factors.Secondly, positivism assumes that all types of processes can be perceived as a certain variation of actions of individuals or relationships between individuals.Thirdly, adoption of positivism in business studies and other studies can be criticized for reliance on status quo. In other words, research findings in positivism studies are only descriptive, thus they lack insight into in-depth issues. My e-book,The Ultimate Guide to Writing a Dissertation in Business Studies: a step by step assistance contains discussions of theory and application of research philosophy. The e-book also explains all stages of theresearch processstarting from theselection of the research areato writing personal reflection. Important elements of dissertations such asresearch philosophy,research approach,research design,methods of data collectionanddata analysisare explained in this e-book in simple words.John Dudovskiy [1] Collins, H. (2010) Creative Research: The Theory and Practice of Research for the Creative Industries AVA Publications, p.38 [2] Crowther, D. & Lancaster, G. (2008) Research Methods: A Concise Introduction to Research in Management and Business Consultancy Butterworth-Heinemann [3] Wilson, J. (2010) Essentials of Business Research: A Guide to Doing Your Research Project SAGE Publications [4] Ramanathan, R. (2008) The Role of Organisational Change Management in Offshore Outsourcing of Information Technology Services Universal Publishers [5] Easterby-Smith, M, Thorpe, R. & Jackson, P. (2008) Management Research 3rd ed,SAGE Publications Ltd., London Positivism, in the context of sociology and the broader social sciences, refers to an intellectual and methodological stance that champions the application of the methods of natural sciences to the study of society. The central premise of positivism is that social phenomena should be observed, measured, and analyzed in a manner that is free from subjective interpretations and biases. Though it has evolved over time, the fundamental principles of positivism remain influential in shaping how researchers conceptualize and investigate social realities.Positivisms roots can be traced back to the Enlightenment era. During this period, scholars began to embrace rationality and empirical observation over tradition and religious doctrine. These transformations laid a strong foundation for the rise of modern scientific methods and shaped the way social phenomena were studied.Auguste Comte (17981857) is regarded as the founder of sociology and the principal architect of positivism. Comte proposed that society should be studied in the same empirical manner as the natural sciences, such as physics or biology. He formulated the law of three stages, which holds that human knowledge has progressed through three key phases:The Theological Stage Explanations of phenomena were grounded in religious or mystical beliefs.The Metaphysical Stage Abstract philosophical reasoning began to replace purely religious explanations.The Positive Stage Rational scientific methods began to dominate how people understood the world.In Comtes vision, society could be investigated scientifically through observation, experiment, and comparison. As one of the first thinkers to emphasize the systematic approach to social research, Comte effectively laid the groundwork for the further advancement and institutionalization of sociology. His insistence on empirical verification aimed to distance sociology from speculative philosophies and anchor it firmly in measurable realities.Although mile Durkheim is often associated with functionalism, his commitment to empirical research in sociology was deeply intertwined with positivism. Durkheim argued that social facts are external and objective realities that exist independently of individual consciousness. These social factsincluding norms, values, and collective representationscan and should be treated as things that can be measured and analyzed. This approach was heavily influenced by positivist thinking.For Durkheim, the sociological method should be modeled on the rigor of the natural sciences, employing statistical techniques and systematic data collection to uncover patterns and causal relationships in society. For instance, in his seminal study on suicide, Durkheim utilized official statistics across different social groups to identify rates of suicide and correlate these rates with social variables such as religion, marital status, and political upheaval. By doing so, he demonstrated how social phenomena could be studied quantitatively to yield insights into the broader social environment.Positivism stems from the belief that reality exists outside our subjective interpretations and that truth can be discovered through objective analysis. Its key principles can be summarized as follows:Empiricism: Knowledge must be derived from observable and measurable evidence rather than pure speculation or subjective intuition.Scientific Method: The scientific approachhypothesis formulation, empirical testing, replication, and falsificationis the cornerstone of valid knowledge.Objectivity: Researchers strive to remain neutral and free from personal or cultural biases, so as not to distort the interpretation of data.Quantitative Measurement: Emphasis is placed on using statistics and numerical data to represent social phenomena in ways that can be systematically compared and tested.Causality: One of the main pursuits of positivism is to determine cause-and-effect relationships that can lead to generalizable laws or theories about social life.The positivist approach, then, fundamentally views sociology as akin to the natural sciences, seeking to discern patterns, regularities, and laws that govern human behavior and social organization. By identifying empirical regularities, positivists believe it is possible to make predictions about future social developments, thus guiding interventions and policy decisions.As integral as positivism has been in the history of sociology, it has faced considerable criticisms, pushing scholars to refine or expand beyond its original framework. Challenges to positivism have led to the formation of other perspectives in the social sciences that emphasize interpretative, critical, and constructivist stances.Interpretivist sociologists argue that the complexity of human society cannot always be captured through quantitative measures and objective laws. Because social realities are embedded in symbols, cultural contexts, and human agency, subjective interpretation becomes vital.Subjectivity of Social Actors: Human beings do not simply react to stimuli; they interpret, negotiate, and redefine social contexts. This process of meaning-making cannot be fully understood through measurements alone.Context-Dependence: Cultural norms and social meanings can vary across communities, challenging the universalizing tendencies of positivism. What holds true in one setting may not apply in another.Another notable challenge to positivism comes from critical theory, which highlights the role of power structures, ideological influences, and inequality in shaping knowledge production.Values and Ideologies: Critical theorists argue that researchers cannot be entirely neutral, as all forms of inquiry are rooted in values, power, and historical contexts. Thus, the selection of research topics and the interpretation of data are inevitably influenced by social norms and power relations.Emancipatory Focus: Critical research aims to expose oppressive social structures, thereby going beyond the descriptive focus of simply identifying laws and patterns. Positivist methods, critics say, can overlook these structures by focusing too narrowly on measurable phenomena.Postpositivism and BeyondIn response to these critiques, some scholars have moved toward postpositivism, which acknowledges that complete objectivity is difficultif not impossibleto achieve. Postpositivists continue to hold the scientific method in high regard but accept that theories must be continually tested and refined, understanding that knowledge is provisional and contextual. Rather than discarding quantitative methods, they advocate for vigilance regarding potential biases and encourage methodological pluralism.Because of its emphasis on empirical rigor and objective measurement, positivism continues to influence the way sociologists and other social scientists design their research projects. Even if they do not fully embrace classical positivism, many researchers draw on quantitative approaches that are rooted in a positivistic paradigm.Positivist research designs often emphasize:Hypothesis Testing: Formulating clear, testable hypotheses and systematically evaluating them against empirical data.Operationalization of Variables: Defining abstract conceptssuch as social class, alienation, or prejudicein measurable ways. This step is crucial for enabling replication and comparison across studies.Statistical Analysis: Employing methods such as regression analyses, experimental designs, and large-scale surveys to quantify relationships. Statistical tools offer a systematic way of measuring associations and testing for causal links.Reliability and Validity: Ensuring that the measurements are consistent and truly capture the phenomena in question. Reliability refers to the consistency of a measure, while validity concerns whether the measure accurately reflects the intended concept.Sociologists employing a positivist approach often rely on methods that can generate quantifiable data:Surveys: Gathering standardized responses that can be statistically analyzed. Researchers might use carefully designed questionnaires to minimize bias.Experiments: Manipulating variables in controlled settings to identify causal relationships. While more common in psychology, experimental methods have been applied in sociology to study group dynamics or behavior changes.Secondary Data Analysis: Using existing large-scale datasets (e.g., census data, national surveys) to uncover patterns. This approach allows for large sample sizes, which can enhance the generalizability of findings.Structured Interviews: Limiting interviewer bias by employing standardized questions and procedures. Though these interviews can yield quantitative data, they may sometimes be supplemented by open-ended queries for deeper insight.The overall objective remains to glean insights that are as free from individual bias as possible and to develop generalizable findings about social processes and structures.The positivist paradigm believes that society should be studied scientifically. Sociology should approach research in the same way as the natural sciences. It should be objective and logical and follow the hypothetico-deductive method. A positivist approach prefers collecting quantitative data using objective research methods, such as closed questionnaires, structured interviews, and experiments. This will allow them to uncover and measure patterns of behavior, which will lead them to create social facts that govern society. Social facts are things such as institutions, norms, and values that exist external to the individual and constrain the individual. For example, the reality of crime is measured in terms of Official Statistics. Comte named the scientific study of social patterns positivism and said that using scientific methods to reveal the laws by which societies and individuals interact would create a positivist age of history. Also, by using quantitative data, positivists believe that they are able to uncover cause and effect that determine human behavior. The search for causality comes from the desire to be able to change things for the better. Causality means the relationships between cause and effect. How one stimuli can lead to a certain action. Thus, sociological positivists argue that, by applying scientific principles of research to the study of society, sociologists will be able to put forward proposals for social change, which will lead to a better society. Positivists believe that research should be detached from subjective feelings and interpretations. It is claimed that a scientists beliefs and values have no impact on their findings, and sociologists should be the same. Positivism is an approach to sociology, as well as philosophy, that relies on empirical evidence, such as those found through experiments and statistics, to reveal information about how society functions.Sociology should approach research in the same way as the natural sciences. It should be objective and logical.Positivism originates from the thinking of the French philosophers and sociologists Henri de Saint-Simon, Auguste Comte, and Emile Durkheim but branched off into German-Austrian and American traditions in the early 20th century.Positivisms in the philosophical and scientific sense share several key principles: phenomenalism, nominalism, refusing to call judgments and normative statements knowledge, and belief in the unity of the scientific method.Beginning with the Frankfurt School, critical theorists have critiqued positivism heavily. As a result, positivist methods have had relatively little influence on sociology since the 1970sPositivism in sociology emphasizes applying the scientific method to the study of society, focusing on gathering empirical data and objective facts to uncover universal laws that govern human behavior and social development. What Is Positivism?Positivism is a term used to describe an approach to the study of society that relies specifically on empirical scientific evidence, such as controlled experiments and statistics.Positivism is a belief that we should not go beyond the boundaries of what can be observed. To a positivist, science is the single most important route to knowledge, and only questions that can be approached by applying the scientific method should concern us.Reality exists outside and independently of the mind, and therefore, it can be studied objectively and as a real thing. They believe that there are social facts that make up the rules of society, which are separate andindependent of individuals.Social facts are things such as institutions, norms, and values that exist external to the individual and constrain the individual.Sociological positivism holds that society, like the physical world, functions based on a set of general laws. Positivism is based on the assumption that by observing social life, scientists can develop reliable and consistent knowledge about its inner workings.Thus, sociological positivists argue that by applying scientific principles of research to the study of society, sociologists can put forward proposals for social change that will lead to a better society.Due to this belief, Positivists believe that society can be studied in the same way as the natural world and that patterns can be observed and analyzed to create the social facts that rule society.This method is called inductive reasoning, which involves accumulating data about the world through careful observation and measurement. A theory can be formed and verified from this data through further study.Positivists believe that sociology should follow the objective experimental methods that the natural sciences follow so that the research remains value-free and patterns and causation can be established.Positivists prefer quantitative data and, as far as possible, should follow the experimental method of the natural sciences. This will allow them to uncover and measure behavior patterns, leading them to create social facts that govern society.Also, by using quantitative data, the positivists believe that they are able to uncover cause and effect that determine human behavior.Positivism, as a general term, has at least three meanings. It can describe how Auguste Comte and Emile Durkheim describe social evolution, the philosophical tradition of logical positivism, or a set of scientific research methods (Riley, 2007).Key PrinciplesPositivism has moved from the realm of philosophy to sociology. Nonetheless, positivism in philosophy and sociology share, according to Kolakowski (1972) four main rules:To positivists, experience is the foundation of human knowledge, according to the rule of phenomenalism. Scientists should only observe and record what they actually perceive through their experiences.Kolaski (1966) emphasizes that positivists do not necessarily ignore events and phenomena that are initially invisible; however, they do object to accounting for supernatural events and beings for which knowledge is, by definition, unknowable by humans.For sociologists, the rule of phenomenalism brings about three main difficulties.Firstly, while this rule apparently encourages sociologists to use empirical research methods, many have accused sociologists who use these methods of over-abstractifying the social world (Mills, 2000; Willer et al., 1973).Secondly, in sociology, the rule of phenomenalism demands that there is a common way to observe experiences without adding subjectivity. Yet, beyond the work of, say, Durkheim in The Rules of the Sociological Method (1938), sociologists have not put emphasis on finding a neutral observation language (Bryant, 1985).Thirdly, as Kolakowski himself notes, it is difficult to be sure exactly what can be observed and what cannot. For example, discussions around realism in sociology have observed hidden structures and mechanisms that Comte would have likely called unobservable (Keat and Urry, 1975; Bryant, 1985).According to the rule of nominalism, science is a way of recording experiences, and the recording of experiences can not create knowledge about parts of reality that were previously inaccessible to empirical research (Kolakowski, 1966).This has created controversy in sociology, specifically around whether or not social facts are the same as individual facts. Historically, divides over this question have created breaks between schools of positivism (Bryant, 1985)Sociology brings up the issue of whether or not the evaluations that a sociologist makes about the social world can be judged scientifically or rationally.Positivists believe that research should be detached from subjective feelings and interpretations; it is claimed that a scientists beliefs and values have no impact on their findings, and sociologists should be the same.To some, such as Giddens (1974), judgments of value that are not based on empirical evidence, meaning that they cannot be proven valid or invalid through experience, are not knowledge.Finally, Kolakowski says that the scientific method can be applied to all ways of knowing. Different positivists interpret what Kolakowski means by unity differently.For example, some positivists have argued that the unity of science stems from a single fundamental law that all other laws can be derived from such as Saint-Simon, who argues that this fundamental law is the law of gravity).However, Kolaski himself holds that different types of science have certain principles and practices in common (Kolakowski, 1972; Bryant, 1985).Hypothetico-Deductive MethodThe hypothetico-deductive method is a scientific process used in positivism, in which certain logical steps are taken to arrive at the truth.This method is usually conceptualized as consisting of a series of stages: Observation: the researcher observers a phenomenon considered worthy of investigation Conjecture: the research thinks of a plausible explanation Hypothesis formation: the conjecture is put in the form of a predictive statement that can be empirically tested Testing: a rigorous empirical test is designed and carried out under controlled conditions, with all observations and measurements objectively recorded Data analysis: the resulting data are carefully analyzed, using applied logical reasoning Conclusion: in the light of the results, the researcher decides whether the hypothesis is supported, rejected, or in need of further testing.Theories of PositivismUsually, scholars say that the French philosopher Auguste Comte coined the term positivism in his Cours de Philosophie Positive (1933).This is not completely accurate, as Comte did not write about the term positivism itself but about the so-called positive philosophy and positive method, and the philosopher Henri de Saint-Simon wrote about these ideas before him (Bryant, 1985).Positivism has a long history in sociology, which began in the French tradition. Following Saint-Simons application to positivism with industry and science and Comtes commentary on science and religion, Emile Durkheim offered what scholars widely considered to be a positivistic interpretation of sociology and education.Nonetheless, Durkheim was himself a critique of positivism, connecting positivism with an oversimplified conception of social science and exaggeration of the fields achievements, both of which he considered dangerous to the new applied social sciences.Durkheim rejected attempts to reduce the complexity of humanity to a single law or formula.He attacked Comte for assuming that mankind in its totality constitutes a single society which always and everywhere evolves in the same manner when what exists, in reality, are particular societies (tribes, nations, cities, states of all kinds, and so on), which are born and die, progress and regress, each in its own manner, pursuing divergent goals (Durkheim, 1915).Despite these criticisms, Durkheim argued that sociology deals with social facts and social facts alone (1895), that people are controlled by certain factors that can be seen through how individuals act, and that by observing how people act, sociologists can figure out social facts.Following Durkheim, Comte, and Saint-Simon, positivism evolved into different branches in Germany, Austria and the United States.Discussions around positivism began in Germany and Austria around economics; more generally about the differences between the natural and the historical, cultural and social sciences.A dispute over the place of values in academic and social sciences, known as the value-freedom dispute, and a further dispute over whether sociology should be in university departments (Bryant, 1985).The Vienna Circle and the Frankfurt School shaped German-Austrian positivism following World War I. The Vienna Circle was a group of philosophers and scientists from the natural and social sciences, logic, and mathematics who met from 1924 to 1936 at the University of Vienna.The Vienna Circle conceptualized the world as empiricist and positivist that there is only knowledge from experience. And secondly, that logical analysis can be used to gather knowledge about the world.This concept of Logical Analysis differentiates the Vienna Circle from earlier positivisms. According to logical analysis, there are two kinds of statements: those reducible to simpler statements about what is empirically given and those that cannot be reduced to statements about empirical experience.The second statements, such as those in the field of metaphysics, were meaningless to the Vienna Circle and either arose from logical mistakes or were interpretable as empirical statements in the realm of science (Bryant, 1985).The Vienna Circle also pursued the goal of a unified science, meaning a scientific system where every legitimate, logical statement can be reduced to simpler concepts that relate directly to an experience.This inspired a search for a so-called symbolic language that eliminates the ambiguity of natural languages (Bryant, 1985).The Frankfurt School, in contrast, critiqued positivism post-World War II. Horkheimer, a main figure in the Frankfurt School, believed that the methods of inquiry used in the social sciences could not imitate the scientific method used in the natural sciences.This was because, Horkheimer argued, the ongoing search for universal laws a logical and mathematical prejudice served to oversimplify and separate theory from how people interact in the world.Horkheimer posited that we should reconsider not merely the scientist, but the knowing individual, in general (Horkheimer, 1972).The main arguments of Horkheimer and other members of the school involved:The rejection of scientists: the Frankfurt school rejected the idea that that which cannot be known scientifically cannot be known. Horkheimer (1972) argued that this was because science and its interpretation are two different things, presenting an argument that the equation of science with knowledge rejects metascience, which is the only way through which science can be critiqued and its limitations exposed. Ironically, according to the Frankfurt School, positivists had wrongly claimed to have located the essence of knowledge in science (Bryant, 1985).The rejection of the positivist conception of science: according to what Keat calls the positivist conception of science, science tries to explain and predict observable phenomena by creating universal laws that apply in all regions of space and time (Keat, 1981). The Frankfurt School offers objections amounting to the idea that there are many ways phenomena are connected and thus many valid accounts of them and that it is wrong to reduce these accounts to one. To the critical theorists countering positivists, there are structures and processes limited by history that cause observable phenomena but whose existence can only be inferred (Bryant, 1985).The rejection of any theory-neutral observation language: the Frankfurt School dismissed the Vienna Circles quest for a theory-neutral observation language for science, saying that everyone who does science makes inquiries about the world in a way that will always be in relation to their own 

not confined to the European mainland. The venerable institutions of Oxford and Cambridge in the UK became hotbeds for rigorous discussions on positivism. Through their prestigious publishing armsOxford University Press and Cambridge University Pressboth universities endorsed and critiqued positivist methodologies, testifying to the philosophy's profound impact.In the natural sciences, positivism's influence was nothing short of transformative. As researchers delved into the mysteries of atoms and galaxies, they adhered to the rigorous empirical methods backed by positivism. In the domain of social sciences, the philosophy found resonance among researchers keen to study societies and individuals through quantifiable and observable data, sidestepping unfounded speculation.By the end of the 20th century, while positivism faced critiques and modifications, its legacy was undeniable. It had indelibly shaped multiple disciplines, from law to sociology to natural sciences, molding the modern scientific temperament.Key Principles of PositivismThe Primacy of Observation and Empirical MethodsPositivism's foundational pillar is the belief that knowledge emanates primarily from observation and empirical methods. This conviction has its roots in the perspective that proper understanding of the world around us requires tangible, sensory-driven evidence, as opposed to abstract reasoning or speculation. It is not merely enough to theorize or philosophize; a claim to earn the positivist's trust must be demonstrable and observable.For instance, a positivist would not just accept anecdotal experiences or ancient texts as evidence if one were to make a claim about a specific medical condition. They would demand recent clinical trials, patient observations, and concrete data. This rigorous insistence on empirical evidence has directly influenced the methodologies of modern scientific research, ensuring that conclusions drawn are based on direct or indirect observations of the world.Rejection of Metaphysics and SpeculationAnother central tenet of positivism is its rejection of metaphysical assertions and speculative reasoning. This stance has made positivism somewhat controversial, especially when pitted against philosophical traditions relying heavily on metaphysics. For positivists, if a concept or idea cannot be directly observed, measured, or tested empirically, it remains outside the domain of genuine knowledge.Consider, for example, abstract concepts like 'soul' or 'afterlife.' While these notions hold significance in various cultural, religious, or philosophical contexts, positivism would refrain from making claims about their existence or nature since they are beyond empirical examination. This stringent boundary around what constitutes valid knowledge ensures clarity but also spurs debates about the limits of human understanding.The Search for Universal LawsThe ambition to uncover universal laws, inspired by the success of the natural sciences, underscores positivism's approach. Just as physicists might seek laws governing physical phenomena, a positivist sociologist aims to discern patterns or laws in human behavior. For instance, while individual human actions might seem spontaneous or unpredictable, positivists believe that, when observed in large numbers, these actions might reveal consistent patterns, reflecting underlying societal laws.This principle often translates into large-scale studies or surveys in the social sciences, where patterns emerge from vast amounts of data. The belief is that, much like gravity acts consistently on falling objects, there might be 'laws' of human interaction waiting to be discovered.The Use of Inductive ReasoningClosely tied to the emphasis on observation is the reliance on inductive reasoning. It is a process that begins with specific observations and measures, subsequently moving towards broader generalizations or theories. After accumulating sufficient data on a specific phenomenon, a positivist would seek to understand the broader implications or patterns underlying that data.Imagine a researcher studying the dietary habits of a specific population. After collecting detailed data on individual eating habits, they might use inductive reasoning to make broader statements about dietary trends or health implications for that entire population.Logical PositivismIntroduction and Origins (Vienna Circle)In the pulsating intellectual milieu of the early 20th century, the Vienna Circle, a consortium of forward-thinking philosophers, mathematicians, and scientists, concretized the foundations of logical positivism. Operating mainly in the 1920s and 1930s, this group did not merely coalesce to engage in academic exercises. Instead, they were on a mission: to conceptualize an approach to philosophy underscored by empirical science and formal logic. Their commitment was palpable, leading to regular meetings and rigorous discussions.Ludwig Wittgenstein's "Tractatus Logico-Philosophicus" was essential among the myriad influences shaping the group's thinking. This groundbreaking work was lauded for maintaining that propositions are meaningful only if they are empirically verifiable or logically deducible. The implications were vast, suggesting that a considerable portion of historical, philosophical discourse was, in fact, baseless.The Central Tenets: Verification Principle, Language AnalysisWhile rooted in the broader philosophy of positivism, logical positivism introduced fresh nuances to the discourse. The Verification Principle emerged as its most distinctive tenet. This rigorous principle advanced the belief that for a statement to possess meaning, it had to be either tautological or empirically verifiable.In simpler terms, if a claim did not hold true by its inherent definition (akin to mathematical or logical assertions) or could not be verified empirically, it was rendered meaningless. This revolutionary approach sought to discard vast expanses of traditional philosophy, especially metaphysical claims that evaded empirical testing.This rigorous empirical and logical scrutiny extended beyond just philosophical claims; it encapsulated language itself. Logical positivists were convinced that the ambiguity and imprecision inherent in language were major culprits behind many of philosophy's perennial problems.By meticulously dissecting language, they aspired to dispel these ambiguities, paving the way for more precise philosophical discussions. This convergence of positivism with linguistic analysis made logical positivism a unique sub-discipline, setting it apart from its philosophical contemporaries.Critiques and Limitations: Problems of Verification, Neglect of MetaphysicsHowever, the bold assertions of logical positivism were not immune to criticism. Foremost among the critiques was a paradox within the movement's foundation. The Verification Principle, the very bedrock of logical positivism, encountered a dilemma. It was neither a self-evident truth (tautology) nor verifiable through empirical means. This meant that, ironically, the principle itself was rendered meaningless when assessed by its own standards.Furthermore, logical positivism's emphasis on empirical verifiability inadvertently marginalized other philosophical approaches. For centuries, traditional metaphysical exploration, often criticized by logical positivists, offered profound insights into existential questions and informed the trajectory of scientific inquiries. To many, discarding metaphysics seemed a reductionist approach, ignoring the rich tapestry of human understanding and historical philosophical discourse.Moreover, while commendable, the movement's intense focus on linguistic precision was not without issues. Critics opined that this almost obsessive attention to language had the unintended effect of sidelining pressing philosophical queries of ethics, aesthetics, and existence. Though not always fitting neatly within the empirical or logical framework supported by logical positivists, such questions were undeniably central to understanding the human experience and deserved philosophical attention.Post PositivismRecognizing the Limitations of Strict PositivismPositivism, as a philosophy, reigned supreme during its pinnacle, emphasizing the necessity of observable, measurable phenomena for genuine knowledge acquisition. Its rigor and empirical stance provided a robust framework for scientific investigations. However, with the continuous evolution of philosophical thought and the increasing complexity of scientific inquiries, it became evident that a strictly positivist approach needed to be revised.One of the primary criticisms was positivism's exclusion of anything that could not be directly observed or measured. While this empirical approach held merit in many scientific arenas, it became limiting when addressing more abstract, nuanced subject matters. For example, emotions, beliefs, and intentions, which play crucial roles in the social sciences, do not always present themselves in directly observable ways but significantly influence human behavior. Strict adherence to positivism thus inadvertently risks sidelining these pivotal aspects of human experience and understanding.Introduction to the Concept of Falsifiability (Karl Popper)Karl Popper's challenge to the positivist framework provided a fresh perspective on the philosophy of science. Popper argued against the idea that scientific theories could be solidified solely by accumulating confirming evidence. Instead, he introduced the concept of falsifiability, emphasizing the importance of the potential to refute theories.Under this premise, a theory is not scientific because of the vast evidence supporting it but because it can be potentially disproven. The ability to state conditions under which a theory could be considered false makes it open to empirical testing and, thus, scientific scrutiny.For Popper, science grows through a repetitive cycle of conjecture and refutation. This idea was revolutionary as it shifted the focus from proving theories right to proving them wrong, making scientific inquiries more rigorous and dynamic.The Emphasis on Critical RealismAs the limitations of strict positivism became clearer, another philosophical stance, critical realism, started gaining traction. Founded on the belief that an objective reality exists, but our understanding of it is always mediated by human cognition, critical realism sought to bridge the gap between strict positivism and radical relativism.Bhaskar, a primary proponent of critical realism, argued that some real-world mechanisms and structures operate independently of our perceptions. However, our knowledge of these mechanisms is always fallible, shaped by our tools, methodologies, and perspectives.By recognizing this inherent fallibility, critical realism does not aim for absolute truth but instead seeks a continually refined understanding of the objective reality. This iterative approach emphasizes that while the world exists independently of our understanding, our knowledge and interpretations play a critical role in shaping our relationship with this reality.Understanding that Knowledge is Fallible and Theory-ladenEmbracing the post-positivist stance requires a nuanced understanding of the nature of knowledge. It refutes the positivist's absolute confidence in empirical findings and recognizes that all knowledge remains tentative and open to revision, no matter how rigorously obtained.Furthermore, acknowledging that our theories and hypotheses do not emerge in a vacuum is vital. The process of scientific inquiry, rather than being purely objective, is influenced by prior knowledge and beliefs: theory-laden.This does not discredit scientific findings but illuminates the need for continuous reflection and refinement of our method.Thomas Kuhn's influential work highlighted this by introducing the idea of paradigm shifts in science. He argued that scientific advancements do not occur linearly but in bursts, as dominant paradigms (widely accepted scientific viewpoints) are replaced by new ones.Kuhn emphasized that these paradigms are influenced by societal, cultural, and personal factors, reinforcing the idea that while aiming for objectivity, science is inherently a human endeavor influenced by the various factors that shape human perspective.Positivism in PsychologyModern-day scientists using advanced research equipment is a testament to positivism's lasting impact on scientific investigationEmphasis on Quantitative Methods and Statistical AnalysisWithin psychology, positivism has significantly influenced the emphasis on quantitative methods and statistical analyses. This stems from a desire to achieve objectivity, clarity, and replicability in understanding human behavior. Many psychologists, eager to solidify psychology's reputation as a rigorous science, championed positivist methods.As a result, controlled experiments, surveys, and standardized tests have been predominantly used, all producing quantifiable data that can be statistically analyzed to discern patterns and predict outcomes. Tools such as the IQ test and the Big Five Personality Traits assessment epitomize this positivist influence, simplifying complex human attributes into numerical scores.Systematic Approach to ResearchOne of the most commendable contributions of positivism to psychology is its systematic research approach. Positivism has allowed researchers to systematically investigate various psychological phenomena by emphasizing replicable experiments and observation-based evidence. This methodological rigor ensures that findings are not mere results of chance or subjective interpretation but are rooted in consistent patterns and reliable data. The demand for rigorous and objective investigation pushes researchers to ensure their studies can withstand scrutiny and be replicated under similar conditions, leading to more reliable conclusions about human behavior and cognition.Advancement in Standardized MethodologiesWith the positivist approach, psychology witnessed an evolution in its methodological tools. Standardized methodologies, ranging from structured interviews to psychometric tests, have become staple tools in the psychologist's toolkit. These tools offer a means to measure psychological constructs across various contexts and populations consistently.For instance, intelligence tests, developed based on positivist principles, aim to consistently measure cognitive abilities across different individuals, minimizing subjective biases. Such standardization ensures that regardless of the researcher or the participant, the results generated have a certain level of comparability and universality.Formulation of Evidence-Based TheoriesPositivism, emphasizing empirical evidence, has given rise to numerous evidence-based theories in psychology. Unlike philosophical speculations, these theories are grounded in observable and measurable phenomena. For example, the theory of classical conditioning, stemming from the works of Pavlov, is a testament to how empirical observations can lead to the development of foundational theories in psychology. These theories, backed by empirical data, provide a solid foundation for subsequent research and therapeutic practices.Achieving Psychology's Reputation as a Rigorous ScienceThe adoption of positivist principles played a pivotal role in elevating psychology's standing as a rigorous science. Before the incorporation of empirical methods, psychology was often seen in the same light as philosophy or mere introspection. However, the stringent methodologies and objective frameworks introduced by positivism have solidified its reputation as a discipline rooted in empirical evidence. This reputation has, in turn, facilitated funding, research advancements, and the integration of psychological insights into various domains of societal infrastructure, from education to healthcare.Critiques of Positivism in PsychologyOversimplification of Complex Human ExperiencesPositivism, with its staunch emphasis on empirical evidence and quantitative measures, is criticized for oversimplifying intricate human behaviors and emotions. While positivist psychology has advanced our understanding of certain phenomena by categorizing and measuring them, there are inherent complexities that this approach can sometimes fail to grasp. For instance, emotions like love, grief, or envy are multifaceted and cannot be easily boxed into a single quantifiable measure. Positivism sometimes assumes linearity in human behavior, neglecting many psychological phenomena's nonlinear and unpredictable nature.The Challenge of Quantifying Qualitative ExperiencesOne of the cornerstones of positivism is its trust in observable and measurable data. However, this poses a challenge when the subject matter revolves around experiences that are profoundly personal and qualitative in nature. How does one quantify the depth of a mother's love or the intensity of an artist's passion? Such experiences are inherently subjective and resist the kind of categorization positivism favors. While scales and questionnaires attempt to capture the essence of these experiences, they can sometimes miss the nuances and richness inherent in individual narratives.Concerns about Reductionism and Ignoring Subjective AccountsReductionism is a common criticism levied at positivist approaches. By attempting to reduce complex behaviors and emotions to mere numbers or observable traits, positivism can strip away the richness of human experience. For instance, a positivist approach might reduce depression to measurable symptoms, neglecting the lived experience and subjective accounts of those suffering. This limits the depth of understanding and can result in treatments or interventions that fail to address the underlying causes or individual variations in experience.By leaning heavily on the empirical, positivism often sidesteps subjective accounts, narratives, and personal stories. These accounts provide a wealth of insight into human behavior and are a cornerstone of many non-positivist approaches in psychology. By discounting or ignoring them, positivist psychology risks missing out on a rich tapestry of human experience and understanding.Alternatives to Positivism in PsychologyContrast with Phenomenological, Psychoanalytic, and Humanistic ApproachesWhile positivism emphasizes empirical observation and quantifiable data, other approaches in psychology delve deeper into the subjective realm of human experience.The phenomenological approach, for instance, seeks to understand the essence of an individual's lived experiences. It is not concerned with measuring or categorizing these experiences but rather with understanding them from the individual's perspective. Phenomenology considers the nuances of perception, consciousness, and experience, aiming to capture the richness of human subjective experience.The psychoanalytic approach, introduced by Sigmund Freud, delves into the unconscious mind, seeking to understand the hidden motives, desires, and conflicts that drive human behavior. This approach emphasizes early life experiences and internal conflicts rather than observable behavior. It is a deep dive into the intricate labyrinth of the human psyche, focusing on interpretation rather than quantification.The humanistic approach emphasizes individual potential and self-actualization. This perspective views humans as inherently good and believes each individual possesses a unique growth potential. It values subjective experiences and individual perceptions, stressing the importance of self-awareness, free will, and personal responsibility. Unlike positivism, which might see humans through a lens of measurable traits, the humanistic approach sees them as whole beings capable of personal growth and self-realization.The Balance between Quantitative and Qualitative Research MethodsQuantitative and qualitative research methods offer valuable insights into human behavior, and psychology benefits from a balanced integration of both. Quantitative methods, favored by positivism, provide objective, measurable data. They allow for large-scale research, hypothesis testing, and the drawing of general conclusions. However, they sometimes fall short of capturing the depth and intricacy of individual experiences.On the other hand, qualitative methods prioritize depth over breadth. They capture individual narratives, emotions, and experiences, offering a rich tapestry of insights that numbers alone cannot provide. Through methods like case studies, interviews, and open-ended questionnaires, qualitative research dives deep into individual experiences and perceptions.In modern psychology, there is an increasing recognition of the value of both approaches. Many researchers advocate for a mixed-methods approach, combining quantitative and qualitative methods, to provide a comprehensive picture of psychological phenomena. By leveraging the strengths of both methods, psychology can achieve a more holistic and nuanced understanding of the human mind and behavior.While positivism has played a pivotal role in shaping the trajectory of psychological research, it is not the only approach. By integrating insights from phenomenological, psychoanalytic, and humanistic perspectives and balancing quantitative and qualitative research methods, psychology can offer a more complete and multifaceted view of the human experience.ConclusionHistory shows us that not singular perspectives but rather integrative ones can guide us toward finding the fundamental truths of our world.Reflecting on the Legacy and Relevance of Positivism in Today's WorldPositivism has played an instrumental role in shaping the modern scientific landscape. Its unwavering commitment to empirical observation and its quest for universal truths have set the benchmark for rigorous research methodologies in natural sciences and across diverse academic disciplines.In today's complex, multifaceted world, the relevance of positivism remains profound, albeit more nuanced than before. The digital age, characterized by data-driven decision-making, resonates deeply with the positivist ethos. Large-scale data analyses, algorithm-driven predictions, and evidence-based policies underscore a world deeply influenced by positivist principles.Its Enduring Strengths and Contributions to Scientific KnowledgeThe strengths of positivism are undeniable. By supporting a systematic, objective approach, positivism has allowed for identifying patterns, consistencies, and regularities in seemingly chaotic phenomena. Such discoveries have paved the way for groundbreaking innovations, predictive capabilities, and a deeper understanding of the universe's underpinnings.The achievements of modern medicine, the marvels of space exploration, and the advances in computing are, to a significant extent, the fruits of a positivist approach to inquiry. Time and again, the empirically driven methodologies of positivism have showcased their ability to transcend cultural, geographical, and temporal boundaries, yielding knowledge that stands the test of scrutiny and skepticism.Positivisms Lasting Impact on PsychologyPositivism has underscored the importance of observable, measurable facts in the field of psychology. This school of thought asserts that genuine knowledge can only arise from empirical and logical foundations rather than metaphysical speculations. Hence, it paved the way for psychology to transition from a purely philosophical domain to one grounded in empirical research.Even today, positivisms principles remain influential in guiding researchers. The emphasis on empirical evidence ensures that studies are reliable, valid, and can be replicated. Such a rigorous approach has led to breakthroughs in understanding human behavior, cognition, and emotion.However, like all theories, positivism has faced criticism. Some scholars argue that not all psychological phenomena can be measured or observed directly. Yet, the enduring influence of positivism cannot be denied. It has set a benchmark for empirical rigor, leading to more nuanced methodologies that consider measurable and subjective human experience aspects.To truly understand the depths of concepts like positivism and its applications in psychology, acquiring a formal education can be of great help. Delving into intricate theories, methodologies, and their interconnectivity requires structured learning and guidance.Our Psychology Program at Meridian University is tailored to address these needs. It integrates rather than separates the myriad perspectives from different cultures, philosophies, and science paradigms.The program allows you to see the interconnected nature of these approaches and how to use them to explore the true nature of the human mind.Start your journey by emailing an Admission Advisor to determine whether our curriculum aligns with your academic and professional aspirations.ReferencesStanford Encyclopedia of Philosophy. (2019). Positivism and the separation of law and morals. Retrieved from linkTamanaha, B. Z. (1997). Realistic socio-legal theory: Pragmatism and a social theory of law. Oxford: Oxford University Press.Smith, L. D. (2008). Behaviorism and logical positivism: A reassessment of the alliance. Cambridge: Cambridge University Press.Mill, J.S. (1865). Auguste Comte and Positivism. London: Trbner & Co.Hart, H.L.A. (1961). The Concept of Law. Oxford: Oxford University Press.Carnap, R. (1934). The Unity of Science. 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Adopted by Auguste Comte, it came to designate a great philosophical movement which, in the second half of the nineteenth century and the first decades of the twentieth, was powerful in all the countries of the Western world.The characteristic theses of positivism are that science is the only valid knowledge and facts the only possible objects of knowledge; that philosophy does not possess a method different from science; and that the task of philosophy is to find the general principles common to all the sciences and to use these principles as guides to human conduct and as the basis of social organization. Positivism, consequently, denies the existence or intelligibility of forces or substances that go beyond facts and the laws ascertained by science. It opposes any kind of metaphysics and, in general, any procedure of investigation that is not reducible to scientific method.The principal philosophical sources of positivism are the works of Francis Bacon, the English empiricists, and the philosophers of the Enlightenment; but the cultural climate that made it possible was that of the eighteenth-century Industrial Revolution and the grand wave of optimism to which the first successes of industrial technology gave rise. Positivism made this climate into a philosophical programthat is, a universal project for human life. It exalted science without concerning itself (as does contemporary positivism) with the conditions and the limits of the validity of science, and it claimed that not only ethics and politics but also religion would become scientific disciplines. In one direction, this led to an attempt to establish a "positive" religion in place of traditional theological religions.Through its acceptance of the concept of the infinity of nature and of history and, therefore, of necessary and universal progress, positivism had affinities with the other important nineteenth-century philosophical movement, absolute idealism, and belongs with it in the general range of romanticism.There are two fundamental kinds of positivism: social positivism, with a professedly practicopolitical character, and evolutionary positivism, with a professedly theoretical character. Both share the general idea of progress, but whereas social positivism deduces progress from a consideration of society and history, evolutionary positivism deduces it from the fields of physics and biology. Comte and John Stuart Mill are the principal representatives of social positivism, and Herbert Spencer of evolutionary positivism. A materialistic or spiritualistic metaphysics is often associated with evolutionary positivism. A third, critical type of positivism, also known as empiriocriticism, should be distinguished from both social and evolutionary positivism. Contemporary forms of positivismlogical positivism and neopositivismare directly connected with critical positivism.Social PositivismSocial positivism arose in France through the work of Saint-Simon and other socialistic writers (Charles Fourier, Pierre Joseph Proudhon) and in England through that of the utilitarians (Jeremy Bentham and James Mill), who, in turn, considered their work closely associated with that of the great economists Thomas Malthus and David Ricardo. Social positivism sought to promote, through the use of the methods and results of science, a more just social organization. According to Saint-Simon, men now lived in a critical epoch because scientific progress, by destroying theological and metaphysical doctrines, had eliminated the foundation of the social organization of the Middle Ages. A new organic epoch, in which positive philosophy would be the basis of a new system of religion, politics, ethics, and public education, was required. Through this system society would regain its unity and its organization by basing itself on a new spiritual powerthat of the scientistsand a new temporal powerthat of the industrialists. In his last writing, The New Christianity (1825), Saint-Simon considered the new organic epoch to be a return to primitive Christianity.comteSaint-Simon's ideas inspired the work of Auguste Comte. The point of departure of Comte's philosophy is his law of the three stages. According to this law, both the general history of humanity and the development of the individual man, as well as that of every branch of human knowledge, passes through three stages: the theological, or fictitious, stage in which man represents natural phenomena as products of the direct action of supernatural agents; the metaphysical stage, in which the supernatural agents are replaced by abstract forces believed to be capable of generating the observable phenomena; and, finally, the positive stage, in which man, refusing to seek the ultimate causes of phenomena, turns exclusively toward discovering the laws of phenomena by observation and reasoning. The positive stage is that of science, whose fundamental task is to predict phenomena in order to use them."Science whence comes prediction; prediction whence comes action" is the formula in which Comte epitomized his theory of science. The formula, as Comte himself recognized, expresses exactly Francis Bacon's point of view. The law of the three stages permits the classification of the sciences according to the order in which they entered into the positive phasesan order determined by the degree of simplicity and generality of the phenomena which are the objects of each science as it reaches the positive phase. Thus, according to Comte the following hierarchy constitutes "a necessary and invariable subordination": astronomy, physics, chemistry, biology, and sociology. Mathematics remains outside this order because it is at the basis of all the sciences; psychology, because it is not a science, also remains outside. Psychology should be based on introspective observation. But introspective observation is impossible, because the observed and observing organ would have to be identical. The apex of the hierarchy of sciences is sociology, or social physics, which Comte divided into social statics, or theory of order, and social dynamics, or theory of progress.Progress is a necessary law of human history: The realization of progress is entrusted not to individuals, who are only the instruments of progress, but to the true subject of historyhumanity, conceived as the Great Being in which past, present, and future beings partake. "We always work for our descendants, but under the impulse of our ancestors, from whom derive the elements and procedures of all our operations" (Politique positive, Vol. IV, pp. 3435). Humanity is the continuous and uninterrupted tradition of the human race, and it is the divinity that must replace the God of traditional religions. The wisdom and providence of humanity preside infallibly over the realization of progress. At the end of progress there is sociocracy, a new absolutist social regime based on science and the religion of humanity and directed by a corporation of positivist philosophers. Sociocracy, by limiting liberties, will make impossible any deviation from the fundamental beliefs of the positivistic cult.In his last work, Philosophy of Mathematics (1856), Comte proposed a new kind of religious trinity, the Great Being (humanity), the Great Fetish (Earth), and the Great Way (space). The religious aspect of Comte's philosophy drew a great number of followers and generated the greatest wave of enthusiasm. Pierre Lafitte and mile Littr in France, Richard Congreve and G. H. Lewes in England were the most philosophical of Comte's first disciples. The influence of Comte's religious thought, however, rapidly exhausted itself, except among small groups of devotees, while his philosophical ideas (the law of the three stages; the conception of science as description and prediction; the theory of progress; and sociology as a positive science) have exercised a lasting influence on science and philosophy.bentham and the millsComte's English contemporaries, the utilitarians Jeremy Bentham and James Mill, presented with equal force, although more modestly, the fundamental requirement of positivism: that every kind of valid knowledge be included within science. They sought to establish a science of mind based on facts, as is the science of nature, and tried to make ethics itself, as Bentham used to say, an "exact science." They considered the mind to be an associative mechanism, ruled by precise laws whose constitutive elements are sensations, which were regarded as the ultimate facts of mind. Traditional ethics was substantially a theory of the end of human conduct: It established by a priori means what that end was and deduced from it the rules of conduct. Bentham and Mill intended to substitute for traditional ethics a theory of the motives of conductthat is, of the specific causes of conduct. If it were ascertained what are the motives and the rules that human beings obey, Bentham and Mill believed, it would be possible to direct human conduct in the same way that nature can be controlled by knowing its causal laws.These principles remained fundamental in later developments of positivism, first in the work of John Stuart Mill, who was influenced by both Saint-Simon and Comte. Mill, like Saint-Simon and Comte, spoke of reorganizing society on new foundations. He rejected, however, the doctrinaire political and religious absolutism of Comte and defended instead the freedom and development of the individual, to whom he considered the social organization subordinate. Mill's classic Principles of Political Economy (1848) concluded by determining the limits of governmental intervention in economic affairslimits required so that there would be in human existence "a sacred fortress safe from the intrusion of any authority."Mill's System of Logic (1843), which is perhaps the most important work of nineteenth-century positivism, contains a fundamental correction of Comte's view of science. Comte had stressed the rational aspect of science and considered its experimental basis, the verification of facts, as merely preparatory to the formulation of laws. He had excluded the notion that once they were formulated, laws could again be subjected to the test of facts and eventually placed in question by "a too detailed investigation," and he had prescribed for scientific investigation a series of limitations to keep it from being transformed into "a vain and at times a seriously disturbing curiosity." Mill's logic, instead, appealed to a radical empiricism and avoided any dogmatizing of scientific results. The very principles of logic, according to Mill, are generalizations of empirical data, and induction is the only method that science has at its disposal. The basis of induction itself, the principle of the uniformity of the laws of nature, is, in turn, an inductive truth, the fruit of many partial generalizations. Prediction is possible in science only on the basis of past experience, which alone furnishes the evidence both for the major premise and for the conclusion of the traditional syllogism. "'All men are mortal' is not the proof that Lord Palmerston is mortal; but our past experience of mortality authorizes us to infer both the general truth and particular fact with the same degree of certainty for one and the other" (System of Logic, Bk. II, Ch. 3).Like the other utilitarians, John Stuart Mill held that the human mind has the same structure as natural phenomena and is knowable in the same ways. "If we knew the person thoroughly, and knew all the inducements which are acting upon him, we could foretell his conduct with as much certainty as we can predict any physical event" (System of Logic, Bk. VI, Ch. 2, 2). To make such predictions possible, he held that a new science, ethology, was needed to study the laws of the formation of character. Mill placed this science alongside Comtian sociology, to which he attributed the task of discovering the laws of progress that make it possible to predict social events infallibly (ibid., Ch. 10, 3).Mill held that even religion should be based on experience. Experience, by suggesting that there is a limited and imperfect ideological order in nature, permits belief in a divinity of limited power, a kind of demiurge. Such belief encourages a religion of humanity based upon an altruistic ethics and the "supernatural hopes" of humankind.social positivism in italy and germanyIn Italy social positivism had two defenders, Carlo Cattaneo and Giuseppe Ferrari. Both were influenced by the work of Saint-Simon, and both saw him as a continuer of the work of Giambattista Vico, whom they credited with having founded "a science of man in the very heart of humanity."The German social positivists Ernst Laas, Friedrich Jodl, and Eugen Dhring appealed to Ludwig Feuerbach rather than to Saint-Simon and Comte. But faith in science, in progress based on science, and in a perfect social form to which this progress must lead was the inspiration of all social positivists.Evolutionary PositivismEvolutionary positivism shared the faith in progress of social positivism but justified it in a different way. Evolutionary positivism is based not on society or history but on nature, the sphere of physics and biology. Its immediate forerunners were the work of the geologist Charles Lyell and the doctrine of biological evolution. Lyell, in The Principles of Geology (1833), demonstrated that the actual state of Earth is the result not of a series of cataclysms (as Georges Cuvier had argued) but rather of the slow, gradual, and imperceptible action of the same causes that are acting before our eyes. The doctrine of evolution triumphed in 1859 with the publication of Charles Darwin's Origin of Species, which first presented adequate proofs of biological evolution and formulated the doctrine in a rigorous way. Lyell's and Darwin's doctrines made possible the formulation of the idea of a natural and necessary progress of the whole universe, beginning with a cosmic nebula and, through the uninterrupted development of the inorganic and organic world, continuing into the "superorganic" development of the human and historical world. It is superfluous to note that the scientific theories that furnish the occasion for the rise of the idea of evolutionary positivism do not constitute the elements of a sufficient proof of it, since it is so highly generalized a hypothesis that it seems to be of a metaphysical nature. Darwin himself remained "agnostic" (to use the term created by another biological evolutionist, T. H. Huxley) with respect to all problems that concern the universe in its totality.spencerThe importance of Herbert Spencer, however, and the lasting influence of his work, depends on his defense of universal progress as a continuous and unilinear evolution from a primitive nebula to the more refined products of human civilization. Spencer used the term evolution in preference to progress in an early programmatic article of 1857, and even then he saw universal progress as modeled on biological evolution. His definition of evolution as "the passage from the homogeneous to the heterogeneous" or from the simple to the complex was suggested by the development of vegetable and animal organisms, whose parts are chemically and biologically indistinct at first but which then differentiate to form diverse tissues and organs. Spencer held that this process can be discovered in all fields of reality and that each of these fields has a specific science whose task is to recognize and clarify its characteristics. Philosophy is (as Comte conceived of it) the most generalized knowledge of the process of evolution. The role of philosophy begins with the widest generalizations of the individual sciences; from these generalizations it seeks to realize a "completely unified" knowledge. However, neither philosophy nor science, according to Spencer, can take the place of religion.The truth of religion is that "the existence of the world with all that it contains and all that it encompasses is a mystery that always needs to be interpreted" (First Principles, London, 1862, Par. 14). All religions, however, fail in giving this interpretation; therefore, the sole task of authentic religion is to serve as a reminder of the mystery of the ultimate cause. The task of science, on the other hand, is to extend indefinitely the knowledge of phenomena. Like William Hamilton and Henry Mansel, Spencer held that human knowledge is enclosed within the limits of the relative and the conditioned, that is, within the limits of phenomena. Beyond these limits there is the unlimited and unknown force on which all phenomena depend. The unknowability of this force is revealed in the insolubility of certain problems at the limits of philosophy and science, such problems as those concerning the essence of space, of time, of matter, and of energy, the duration of consciousness (whether finite or infinite), and the subject of thought (whether it is the soul or not).If Comte's religion of humanity had little success among philosophers and scientists, Spencer's agnosticism found many adherents among them, and for a few decades it was a required attitude for intellectuals generally. Other positivists, however, such as Roberto Ardig, rejected agnosticism and denied that one could speak of an "unknowable" in an absolute sense. Ardig;, moreover, wanted to redefine the process of evolution by considering it as "a passage from the indistinct to the distinct," referring to psychological experience rather than to biology.Spencer wrote on many fields of knowledgebiology, sociology, ethics, politics, and education. When he turned his attention to sociology, he attempted to rescue it from the practical and political task that Comte had assigned to it and to consider it as a theoretical discipline whose task is to describe the development of human society to its present state. This change was accepted by such positivist sociologists as John Lubbock, Edward Tylor, mile Durkheim, and William Graham Sumner, who were strongly influenced by Spencer.Evolutionary positivism is, in its more rigorous form, as far from materialism as it is from spiritualism. Spencer affirmed (First Principles, Par. 194) that the process of evolution can be interpreted both in terms of matter and movement and in terms of spirituality and consciousness: The Absolute that it manifests can be defined neither as matter nor as mind. Positivism embraces both trends that interpret the concept of evolution materialistically and trends which interpret it spiritualistically. The laws of the conservation of matter discovered by Antoine Lavoisier (1789) and the laws of the conservation of energy implicit in Robert Mayer's discovery of the equivalence of heat and work (1842) were taken as proofs of the hypothesis that a single substance, of which matter and energy are inseparable attributes, is the eternal subject of cosmic evolution and necessarily determines all its characteristics.haeckel and monismThe German philosopher Ernst Haeckel termed the view that matter and energy are inseparable attributes of one basic substance "monism" and utilized it to combat the dualism that he held was proper to all religious conceptions based on the duality of spirit and matter, of God and the world. Haeckel also found a decisive confirmation of biological evolution and of its necessity in what he termed the "fundamental biogenetic law" of a parallelism between ontogeny, the development of an individual, and phylogeny, the development of the species to which that individual belongs. Monism was accepted by many chemists, biologists, and psychologists and became popular through the diffusion of Haeckel's writings and of such other works as Ludwig Bchner's Force and Matter (1855).Monism also inspired literary and historical criticism. A passage from the introduction to Hippolyte Taine's History of English Literature (1863) has remained famous as an expression of this tendency: "Vice and virtue are products just as vitriol and sugar are, and every complex datum is born from the encounter of other simpler data on which it depends."lombrosoThe positive school of penal law, founded by Cesare Lombroso, drew its inspiration from materialistic and especially from deterministic positivism. This school taught that criminal behavior depends on inevitable tendencies which are determined by the organic constitution of the delinquent. The structures of this constitution would be analyzed by a corresponding sciencecriminal anthropology.wundtEvolutionary positivism was also interpreted spiritualistically, notably by Wilhelm Wundt, who sought to substitute "psychophysical parallelism" for materialistic monism. Wundt's doctrine was that mental events do not depend on organic events but constitute a causal series by themselves and correspond point for point to the series of organic events. He made this doctrine the basis of his psychological investigations (Wundt founded the first laboratory of experimental psychology), and for many decades it remained the working hypothesis of experimental psychology. Wundt cultivated, moreover, a "psychology of peoples" that is descriptive sociology, in Spencer's sense. Like Spencer, Wundt intended it to be the study of the evolutionary process that produces institutions, customs, languages, and all the expressions of human society.influence of evolutionary positivismEvolutionary positivism has left as a legacy to contemporary philosophy the idea of a universal, unilinear, continuous, necessary, and necessarily progressive evolutionan idea that forms the background and the explicit or implicit presupposition even of many philosophies which do not recognize their debt to positivism and which, in fact, argue against it. The idea of evolution is fundamental to the philosophies of C. S. Peirce, William James, and John Dewey, as well as to those of George Santayana, Samuel Alexander, and A. N. Whitehead. Some of these philosophers have sought to remove the necessitarian character from the idea of evolution and to include within it an element of chance or freedom (Peirce, James, Dewey) or of novelty and creativity (Henri Bergson, C. Lloyd Morgan). Bergson, who interpreted evolution in terms of consciousness and insisted upon its creative character, explicitly acknowledged his debt to Spencer (La pense et le mouvant, 

empiricism. Meanwhile, Carnap, Herbert Feigl, Reichenbach, and Carl Hempel (a student of Reichenbach) headed the American phase of the movement. Ernest Nagel, although of a more Deweyan pragmatic cast, was a close associate. In America, unlike Europe, the aforementioned all had important academic positions, which they used to found the new specialty discipline of philosophy of science as well as to teach a new generation of philosophers, including Adolf Grnbaum, Wesley Salmon, and Hilary Putnam. With its rigorous formal methods, LE made the pragmatism of Charles Peirce, William James, and John Dewey seem quaintly dated and gradually displaced it as the official scientific philosophy. LE remained dominant until the 1960s and still casts a large shadow at the start of the twenty-first century.The received view of the Vienna Circle is largely a post-Kuhnian construction that is now being contested. To be sure, the LEs wanted to make philosophy (or their replacement for it) a collective, progressive enterprise like that of the sciences, but the manifesto announced a more iconoclastic unity than was actually present. Accordingly, it was easy for opponents to miss the internal discord and tar all LEs with the same brush. Although the LEs were vehemently antimetaphysical and rejected most philosophy as a meaningless, fruitless pursuit of solutions to "pseudoproblems," they were liberal in refusing to dogmatize about empirical questions and they viewed their group as open to discussion of all views. Another source of misunderstanding was A. J. Ayer's inflammatory Language, Truth, and Logic (1936), the book that brought German positivism to an English-speaking audience. Ayer's "potboiler" (as it has been called) mis-located the positivists in the British empiricist tradition.Archival research sensitive to the intellectual and cultural milieu of central Europe later provided a major reinterpretation of the Austro-German positivist movement from Mach to Hempel. The participants came from varying academic backgrounds and life experiences and they frequently disagreed over matters of philosophical content as well as strategy and politics. They were their own most trenchant critics. For example, Kurt Gdel defended a Platonist (and hence metaphysical) ontology of mathematics. Neurath was out of sympathy with Carnap's project to reconstruct science within a formal logical system and with Schlick's commitment to the correspondence theory of truth. Neurath rejected the foundational, linear empiricist theory of justification, from supposedly infallible basic statements up through ever-higher levels of theory, in favor of a holistic coherence position featuring mutual support, a stance that he famously articulated in his ship metaphor: "There is no tabula rasa. We are like sailors who have to rebuild their ship on the open sea, without ever being able to dismantle it in drydock and reconstruct it from the best components" (Giere and Richardson, p. 83).The LEs also disagreed over labels. Several members attacked "positivism," and Reichenbach sometimes denied that he was a "logical empiricist." (By the beginning of the twenty-first century, however, the inclusive term "logical empiricism" was commonly applied to both the Vienna and Berlin groups as well as the American contingent and was preferred to "logical positivism.") Also, the views of the leading figures developed significantly over their lifetimes. Accordingly, a summary that is both brief and accurate is impossible.Contrary to Ayer, the LEs had too serious an engagement with Kant to be squarely in the British empiricist tradition. They were anti-Kantian up to a point, with the political goal of displacing the neo-Kantians of the Marburg school (which included Ernst Cassirer) as the dominant school of scientific philosophy in Europe. The central problem was to retain what was correct in Kant's critique of crude, British empiricism without commitment to Kant's permanent categories and forms of intuition, which licensed synthetic a priori judgments. The latter are necessary truths that are knowable a priori yet make substantive statements about the universe, for example, that physical space is Euclidean and the laws of mechanics, Newtonian. Without them, Kant had said, mathematics and natural science would be impossible.Kant had realized that sensory inputs do not automatically sort themselves into intelligible perceptions about which we can make coherent judgments. Coherent perception and thought must be actively constituted by the human mind by means of its processing rules (the categories and forms of intuition). Upon analyzing relativity theory, Reichenbach and Schlick concluded that Kant was partly right: science does need constitutive framework principles that are neither logical truths nor empirical claims subject to testing and in that sense a priori. But how, then, to avoid Kant's commitment to a special, nonnatural intuition that yields synthetic a priori truths? Briefly, the LEs' solution, anticipating Kuhn's paradigms by several decades, was to disambiguate Kant's necessary a priori from the constitutive a priori of framework principles and to regard the latter as based on human convention rather than Kantian intuition. For example, Reichenbach's analysis of space-time theory bifurcated it into two components: a purely conventional component of "coordinating definitions" that define the meaning of measurement operations (and that we could change if it proved convenient to do so), plus a purely empirical component expressing the substantive content of the theory relative to the constitutive framework.Stated in another way, the LEs' problem was how to wed empiricism to logic and mathematics. As Kant had emphasized, raw experience is not the sort of thing that can enter into logical relations with statements, providing justificatory reasons or evidence. And analytic claims need their own special warrant. Carnap, the most influential LE, later widened the above approach to include logic itself. The axioms of a logical system are not self-evident to reason, he said, for there is no such thing as a special faculty of rational intuition. It is not even a question of epistemic correctness; rather, it is a question of human linguistic conventionchoice of language. The choice is pragmatic, not epistemic. We may freely choose any formal system we like and explore its consequences, keeping those systems that produce the most fruitful consequences for our purposes. Thus we arrive at the mature LE view that all and only empirical statements are synthetic and all and only a priori statements are analytic (in the pragmatically grounded sense). On this view, the a prioria posteriori distinction coincides with the analytic-synthetic distinction. There is no synthetic a priori.Where does philosophy fit into this scheme? For Carnap its task is purely analyticWissenschaftslogik, the logical analysis of the language of science using the tools of symbolic logic. Scientific philosophers clarify the logical structure of empirical science but do not do empirical science. Thus was born both mature analytic philosophy and philosophy of science as a specialty.Logical Empiricist Themesand Their ReceptionWhat follows is a list of several interlocking theses and projects and their outcomes, several of which were controversial among the LEs themselves.1. The verifiability theory of meaning.A sentence is empirically meaningful if and only if it is verifiable in principle and (roughly) its meaning is given by the method of its verification. The LEs quickly rejected full verifiability in favor of weaker forms of testability. However, they were never able to formulate an adequate formal criterion of meaning or justify the equation of meaning with empirical evidence. It was this "verificationism" that backed the LEs' anthropomorphic claim that all genuine problems are empirical and therefore humanly solvable and their dismissal of all metaphysical problems as pseudoproblems. Since competing metaphysical positions, by definition, have no empirical consequences, they cannot differ in meaning; so there can be no meaningful problem of choosing between them.2. The attack on metaphysics as meaningless.The LEs agreed that an enlightened society has no room for metaphysics; however, they sometimes disagreed over what counts as metaphysics.3. A sharp fact-value distinction and emotive ethics.Ethical and aesthetic utterances are emotional reactions. Since they are not empirically testable, they have no cognitive meaning and cannot be true or false. Nonetheless, the early LEs took a strong normative stance on social and political issues.4. The observational-theoretical distinction.The project to distinguish epistemically unproblematic observational terms and sentences from the theoretical ones and legitimize the latter in terms of their logical relations to the former ran into similar difficulties despite important progress such as Carnap's treatment of dispositional terms. N. R. Hanson, Popper, Kuhn, Paul Feyerabend, and Putnam noted that scientific observational language is "theory laden" and that there is no context-free, linear gradation of theoreticity.5. The analytic-synthetic distinction.Quine's influential critique of this pillar of LE (and of much else), in "Two Dogmas of Empiricism" and other writings, and his return to a pragmatic naturalism were heavy blows. The second dogma was "radical reductionism," the idea that each sentence in isolation can be correlated with a range of experience.6. Application of the resources of the new symbolic logic and the third dogma.The LEs (especially Carnap) developed and applied the new symbolic logic in ingenious ways, mainly in terms of purely syntactic rules; but later critiques by Quine, Hempel, Nelson Goodman, and others showed that semantic and pragmatic considerations are unavoidable, effectively dooming Carnap's project to produce objective, ahistorical, context-free languages of science. By the 1950s and 1960s, philosophers increasingly felt that the LEs had exhausted the resources of deductive logic without adequately capturing the richness of scientific reasoning. Static logical relations seemed especially incapable of modeling scientific theories and deep conceptual change, for example, scientific revolutions. Commitment to deductive logic by the LEs and Popper has been called the third dogma of empiricism. (Others, following Donald Davidson, give this label to the so-called scheme-content distinction.) Reichenbach all along had urged a probabilistic approach (a theme continued by his student, Salmon), although he and Carnap had developed probability theory in roughly opposite ways.7. Logical analysis of scientific confirmation, explanation, and theory structure.The LEs admirably articulatedold and new ideas here in terms of detailed models. Their work set the standard for ongoing research in these areas. Hempel's extension of "covering law" explanation to history, psychology, and the social sciences was especially controversial since it challenged old ideas about human freedom and spontaneity and the need for sympathetic understanding. Yet it also failed to capture the force of causal explanation.8. The unity of science.Pitting the sciences against the rest of culture, some LEs defended the unity of science on three fronts: conceptual, doctrinal, and methodological. Conceptual unity means that there is one universal language of science; doctrinal unity, that more complex disciplines such as biology are ultimately reducible to more basic disciplines such as chemistry and physics; methodological unity states that there is one general method of science, that all legitimate theories, all explanations, and so on possess the same logical structure. All of these projects produced interesting results, but have since been abandoned. In the antireductionist, more pragmatic atmosphere of the early twenty-first century, the emphasis is on diversity, on teasing out the differences among the various sciences rather than on trying to model all of them on physics; and physics itself turns out to be internally diverse. Most experts reject the existence of a unique scientific method as a fiction of textbooks and school administrators.9. The fall and rise of naturalistic epistemology.Prominent LEs followed Gottlob Frege in sharply distinguishing logic and epistemology from psychology; "psychologism" was the fallacy of confusing them. It was on this point that the positivists differed most obviously from the American pragmatists. (As usual, the most important exception was Neurath, who promoted a naturalistic epistemology.) But the LEs' own critique of Kant's transcendental epistemology could be viewed as a step toward a naturalistic epistemology. Quine took the next step and urged a return to a naturalistic pragmatism, contending that epistemology should become a branch of behavioral psychology. Historical case studies by Kuhn, Feyerabend, and their followers showed that the failure of LE and Popperian methodologies to fit actual history was so great as to raise the question whether anything recognizable as science could fit the old rules of method. Since (as Kant said) "ought" implies "can," the critics thereby showed that empirical information is relevant to and can in a sense "refute" a methodology despite its normative character.This surprising turn does fit Quine's pronouncement that "no statement is immune to revision," come what maynot a conventional or "analytic" statement or even a normative one. The critics increasingly perceived some problems in the philosophy of science as artifacts of the LE approach and hence as pseudoproblems with respect to real science. Kuhn famously distinguished normal science under a paradigm (a quasi-Kantian categorical scheme that made normal science possible and intelligible) from revolutionary science, neither of which fit the tenets of either LE or Popperianism. In "the battle of the big systems" (initially among the LEs, Popper, Kuhn, Feyerabend, Imre Lakatos, and Stephen Toulmin), many considered Kuhn the winner, although many philosophers severely criticized his work. And yet Carnap, who increasingly thought in terms of free, pragmatic choices among available linguistic frameworks, welcomed Kuhn's contribution as making a similar point. The work of Kuhn and Feyerabend brought all the above-mentioned difficulties of LE to a focus, which hastened its demise as the generally accepted account of science. No similarly grand consensus has replaced it.10. The discovery-justification distinction.This distinction was an LE bulwark against psychologism. The basic idea is that it does not matter how or why a theory or problem solution pops into someone's head; what matters is how the claim is tested. There is a psychology of discovery but no logic of discovery, only a logic of justification. Philosophy is concerned only with the logically reconstructed products and not the processes of science. The LEs' applications of the discovery-justification distinction drew philosophy of science closer to philosophical problems of logic and epistemology and away from the study of science as practiced by communities of scientists. Since the new historical case studies were precisely the study of the process of investigation, they challenged these applications.11. The emergence of science studies.As scientific insiders, the original LEs relied on their own knowledge and intuitions about how science works (or should work) and, qua analytic philosophers, saw no need for careful empirical studies of the sciences themselves. The Kuhnian revolution changed that. Their sharpest critics noted the irony that the logical empiricists urged everyone else to be empiricists but themselves! But while post-Kuhnian philosophers began to take the history of science seriously, they did not study in detail the scientific practices of contemporary science. They thereby left an opening for the new empirical sociology of scientific knowledge that has since grown into a multidisciplinary "science studies," often defined to exclude philosophy.12. Realism versus social constructionism and "the science wars."As strong empiricists, early LEs tended to advocate a minimalist stance toward theories and the entities that they appeared to postulate. Some regarded theories as instruments for calculation rather than as attempts truly to describe underlying reality. Carnap himself used Russell's maxim as a motto: "Wherever possible logical constructions are to be substituted for inferred entities." This is a logical constructionist position. Most science studies practitioners are also constructionists, but social constructionists. They deny that science is a special, epistemically privileged institution and regard its results as negotiated social constructions. In reaction, many philosophers now take a "realist" position that affirms objective, scientific progress toward truth and vigorously denies the cultural relativity of scientific results. As heirs of the Enlightenment, they reject the centrifugal tendencies of postmodernism and defend the special place of the sciences in human culture. This heated debate among philosophers, science studies practitioners, culture theorists, and scientists themselves is commonly known as "the science wars." If the postmodernist critics are right, Comte's law of three stages stopped at least one stage too soon!13. The linguistic turn and the rise and fall of narrowly analytic philosophy.With G. E. Moore, Russell, and the early Wittgenstein as precursors, the LEs, and especiallyCarnap, were the primary developers of analytic philosophy. After World War II, a wider sort of linguistic philosophy, "ordinary language philosophy," flourished at Oxford. Both movements construed philosophy itself as a metadiscipline concerned to analyze language rather than to address substantive questions about the world and human activity. But since the 1960s, Anglo-American philosophy has become more liberal in its interests and methods. Philosophers once again vigorously discuss the metaphysical issues rejected by the LEs as pseudoproblems, and there is even something of a rapprochement with the so-called Continental philosophy of Heidegger and his successors. Carnap dominated the American phase and the received view of LE; but at the turn of the twenty-first century, many experts were examining Neurath's position in greater detail and finding it more defensible.See also Analytical Philosophy ; Empiricism ; Falsifiability ; Linguistic Turn ; Paradigm .bibliographyAyer, A. J. Language, Truth, and Logic. New York: Oxford University Press, 1936., ed. Logical Positivism. Glencoe, Ill.: Free Press, 1959.Cartwright, Nancy, et al., eds. 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Cambridge, Mass.: Harvard University Press, 1953.Russell, Bertrand, and Alfred North Whitehead. Principia Mathematica. 3 vols. Cambridge, U.K.: Cambridge University Press, 19101913.Sarkar, Sahotra, ed. and introductions. The Legacy of the Vienna Circle: Modern Reappraisals. New York: Garland, 1996.Simon, Walter Michael. European Positivism in the Nineteenth Century, an Essay in Intellectual History. Ithaca, N.Y.: Cornell University Press, 1963.Wittgenstein, Ludwig. Tractatus Logico-Philosophicus. Translated from the 1921 German edition by C. K. Ogden. London: Routledge and Kegan Paul, 1922.Thomas Nickles views updated May 21 2018Philosophy and metaphysicsLogic and mathematicsTheory of knowledgePositivist ethicsThe influence of positivismBIBLIOGRAPHYThere are two positivisms: that of the nineteenth century and that of the twentieth. Common to both is a continuation of the eighteenth-century philosophy of the Enlightenment. Metaphysics and theology are again brought before the bar of reason, with the insistence that the institutions appealing to them for justification be reformed or replaced. Science is claimed to provide the standards applied in this critique. The name positivism derives from the emphasis on the positive sciencesthat is, on tested and systematized experience rather than on undisciplined speculation.The older positivism of Auguste Comte viewed human history as progressing through three stages: the religious, the metaphysical, and the scientific. His positivism was presented as articulating and systematizing the principles underlying this last (and best) stage. Law, morality, politics, and religion were all to be reconstituted on the new scientific basis. Traditional religion, for instance, was to be replaced by a religion of humanity and reason, with rituals and symbols appropriate to the new doctrine (Simon 1963). Comtes evolutionary and scientistic perspectives were shared by such men as Herbert Spencer and Thomas Huxley, but contemporary movements of thought have been very little influenced by the older positivism.Twentieth-century positivism came to be known as logical positivism, to distinguish it from the older philosophy. (The movement itself preferred the name logical empiricism.) The adjective points to the importance of the rationalist component in the modern view, which owes as much to Leibniz, inventor of the differential calculus and one of the pioneers of mathematical logic, as to Hume and the later British empiricists, like John Stuart Mill.Twentieth-century positivism. Modern positivism began in the early 1920s with the establishment of the so-called Vienna circle by Moritz Schlick in association with Rudolf Carnap, Otto Neurath, Herbert Feigl, and a number of mathematicians and scientists. A few years later Hans Reichenbach and others in Berlin developed closely related ideas. In the late 1930s the center of the movement shifted to Chicago, where Carnap accepted an appointment. There, under the influence of C. W. Morris, the contributions of American pragmatism made themselves felt. The movement came increasingly to be called scientific empiricism, which reflected its broader outlook; an International Encyclopedia of Unified Science was published, as well as a short-lived Journal of Unified Science. Positivism as such lasted into the 1940s, but continued to be indirectly influential by way of its impact on British analytic philosophers, especially Gilbert Ryle and A. J. Ayer.Among the movements contributing to the rise of logical positivism, three are especially worthy of notice. First, around the turn of the century, a number of scientistsKarl Pearson in England, Pierre Duhem in France, Ernst Mach in Austria, and otherswere directing attention to the logical structure of scientific theory, proposing, and to some extent carrying out, a reconstruction of science on a strictly empiricist and even phenomenalist basis and looking to the replacement of pictorial models by axiomization. This line of thought reached its culmination in Einsteins special theory of relativity, which positivists later widely adduced as illustrating the intimate connection between meaning and verification, apropos of the conception and measurement of space and time. A few years later Bertrand Russell embarked on a program of reducing mathematics to logic, along lines previously followed by Gottlob Frege. In collaboration with A. N. Whitehead he wrote the monumental Principia mathematica (Whitehead & Russell 19101913), which provided a comprehensive symbolic logic that was to become the language of the new philosophy. In the early 1920s his pupil Ludwig Wittgenstein published the superlative and important Tractatus logico-philosophicus (1921), which laid out the philosophical implications of the new logic in concise and often cryptic form. Finally, the political situation in central Europe after World War i helped to shape logical positivism in the spirit of the Marxist critique of ideology; also, anticlericalism gave particular relevance to a philosophy that denied meaning to even the questions posed by theology.Philosophy and metaphysicsThe positivist conception of the nature of philosophy marked a radical departure from the prevailing view. Philosophy is not a doctrine embodying wisdomit is an activity; it is neither a theory nor a way of life but rather a way of analyzing what is said in the course of living or in theorizing about life. The business of philosophy is not to arrive at a certain set of propositions embodying a suprascientific truth; its business is to make propositions clear. Schlick looked forward to the day when there would be no more books on philosophy but all books would be philosophically written.As a distinctive activity, philosophy consists in analysis. While the synthetic method, as practiced by mathematics and science, builds up conclusions from initial assumptions or data, analysis, as Russell in particular emphasized, digs down to the foundations. It looks to presuppositions rather than to outcomes; it aims at laying bare the logical atoms out of which our complex ideas are compounded. (The synthetic aspect of thought was later provided for in the positivist ideal of a unified science.) The name logical positivism calls attention to both the form and the matter of the new philosophy: its method is logical analysis, and its subject matter is the positive sciences. The later, so-called analytic philosophy, especially as it developed in England (in such journals as Analysis and Mind), differs in both respects from the logical positivism by which it was so deeply influenced: its method is more linguistic than logical, and its subject matter is provided as much by the discourse of law, morality, and everyday life as by what positivism calls the language of science.Clarity and meaningThe governing ideal of the activity of analysis is clarity. Russell, taking science and mathematics as his exemplar, insisted that it is better to be clearly wrong than vaguely right. Knowledge grows by disproof as well as by confirmation, but intimations and adumbrations of the truth are of no great cognitive value. Opposition to the positivist movement in recent years has crystallized in the slogan Clarity is not enough; whether because of the intrinsic nature of philosophic problems or because of the limitations of the resources we bring to bear on their solution, the ideal of clarity is not just unattainable but misguided. According to this view, the great questions of human nature and destiny will not yield to exact treatment. To give up muddleheadedness for simple-mindedness is a worthless exchange.From the outset, however, logical positivism rejected these great questions as meaningless. The problems taken to be most characteristically philosophicalthose of metaphysicsare in fact pseudoproblems, which are incapable of solution not because of their profundity but because they pose nothing to be solved. The questions asked have the form of questions but are lacking in content. Philosophy need not decide between alternative answers, since all are equally uncalled for. Thus, for instance, agnosticism is as much to be rejected as is theism or atheism, because the agnostic, in maintaining that the answer is unknown, acknowledges the genuineness of the question. To the categories of truth and falsehood, into which statements were previously classified, the positivist added a third category: nonsense. It is indeed this third classification that is the distinctive concern of philosophy; to decide whether statements are true or false is the business of science. What philosophy does is to show, by logical analysis, which statements are eligible for scientific consideration and how they are to be considered.To do this work, philosophy needs what Karl Popper has called (while repudiating this use) a criterion of demarcationa way to distinguish meaningful from meaningless statements. Such a criterion positivism found in the so-called verifiability theory of meaning. (Whether it is indeed a theory, or rather a rule or stipulation, was a matter of controversy within the movement, as well as with its critics.) The verifiability principle allows meaning only to statements capable of verification, and it allows only so much meaning as is verifiable (unless they are statements of pure logic or mathematics). A way of testing whether a statement is true or false is necessary to the statements having meaning, and as the slogan had it, its meaning lies in its method of verification. By this last formulation, positivism is closely linked with operationism (Bridgman 1927).A satisfactory formulation of the criterion occupied much of the attention of the positivist movement (Hempel 1950), but none was universally accepted, even within the movement. If, like Ockhams razor, with which the principle was often compared, it is to free us from surplus meanings, the problem is how to shave close without cutting into the flesh. The difficulties are twofold. On the one hand, the criterion must be made loose enough to allow entry to the whole of science. Thus, falsification is as acceptable as verification; for Popper (1934) it is the fundamental requirement. Some degree of confirmation or disconfirmation is all that can be asked for (Carnap 19361937), and the possibility of verification may be either a technical, physical, or merely logical possibility (Reichenbach 1938). On the other hand, a criterion liberal enough to allow for statements containing theoretical terms, whose verification may be extremely remote and indirect, may readmit ideologies, myths, and ultimately metaphysics.Logic and mathematicsA major concern of modern positivism, which is central to both its method and its content, is the nature of language. Philosophy does not analyze things, as science does, but rather our ideas of thingsor, more precisely, the language in which our ideas are expressed. The object of any philosophical inquiry is accordingly known as the object language; the language in which the inquiry itself is formulated is the metalanguage. In particular cases the two languages may coincide, in whole or in part; but one must always distinguish between using a word and mentioning itthat is, saying something about the word itself. Statements that purport to be about objects but that can be analyzed as (or replaced by) statements about language were called pseudo-object sentences by Carnap; many characteristic statements of metaphysics were taken to be of this kind. Thus, Wittgensteins assertion The world is the totality of facts, not of things (1921) might well be rendered as Science is the totality of true sentences, not of names or predicates. The notions of a statements being about something and of one statements being replaceable by another later became the focal points of much analysis and discussion, under the rubrics designation and synonymy.Following Charles Peirce, the nineteenth-century American philosopher, later thinkers classified language under sign processes in general; Morris (1938) formulated a widely used theory of signs, which was largely a codification of distinctions rather than a theory in the strict sense. Signs may be analyzed in three dimensions, or aspects, of their working: in relation to other signs (which is the province of syntactics or logical syntax); in relation to what they signify (semantics); and in relation to their users (pragmatics). In its early years positivism was preoccupied with syntax; later, semantics became the chief concern. Comparatively little was done in pragmatics before the positivist movement as such came to a close [seeSemantics and semiotics].Logic and scientific purposeLogic was identified as the syntax of the language of science and later broadened to comprise its semantics also. Thereby, logic was taken to be definitively freed from both psychology and ontology. The laws of logic are neither principles of reason nor truths of being but are rules of language or the consequences of those rules. These, however, are logical consequences, so that the analysis of any given logic presupposes a logic used in the analysis; but this regression was not regarded as a vicious one. For every language there are rules of formation, by which its signs can be combined into sentences, and rules of transformation, by which, given certain sentences, certain others can be asserted. The rule of modus ponens, for instance, allows us to assert the sentence B, given the sentences A and If A then B. Because of this rule, the sentence A, and A implies B, together imply B is a logical truth, and the second implication is a logical implication.The rules may also allow certain sentences to be asserted regardless of what others are given. These sentences are then known as postulates of the system; if they can be so interpreted that their truth, and not merely their assertibility, is guaranteed by the rules of the language, then these sentences, together with their consequences, are logical truths. Which rules are adopted for a language is a matter of convention; it is not the business of philosophy to prohibit certain modes of expression or inference (Carnaps principle of tolerance). Thus, there are many systems of logic and many languages proposed as the language of science. The question is always whether a language of a given structure is adequate for the purposes of science (or for some other special purpose). In particular, positivism promulgated the thesis that everything can be said in an extensional language, that is, one in which the truth of compound sentences is determined solely by the truth of their components and in which predicates designate classes rather than properties. But whether a certain language is judged to be adequate for the purposes of science depends on ones convictions as to what there is to be said. On this score, the issues dividing positivism from its critics remained unresolved and, indeed, largely unformulated.Foundations of mathematicsThe logic of positivism is not merely a symbolic but a mathematical logic. Symbols have been used in logic since Aristotle, but only as abbreviations or auxiliaries. In the new logic everything hinges on the rules for the use of the notation. It is the focus on the combination and transformation of symbols that makes the logic mathematical. Mathematics, according to the positivist view, is itself a language. It does not tell us anything about the world, but it allows us to transform given statements into others and explores the possibilities of such transformations.By the turn of the century, mathematics had been put into postulational form. Questions then arose as to the nature of the postulates and the justification of the rules associated with them. These questions of the foundations of mathematics occupied much of the attention of the positivist movement. Russell held that mathematics is reducible to logic by defining numbers as certain classes of classes and by defining arithmetical operations on numbers as certain logical operations on classes. Thus, Principia (Whitehead & Russell 19101913) begins with purely logical postulates (such as q implies p or q); eventually it presents a proof of 1 + 1 = 2. In opposition to this logicist school, the intuitionists, led by L. E. J. Brouwer, looked at mathematics from the standpoint of pragmatics rather than semantics: mathematics is essentially a human activity; we cannot meaningfully speak of the existence of a mathematical entity without being able to construct it. A third school, the formalist, following David Hilbert, was concerned only with syntaxthe occurrence of mathematical symbols in certain combinationswithout regard to how the symbols are interpreted or used.Each of these approaches involved serious difficulties. The logicist view encountered certain paradoxes, especially in relation to class membership (Is the class of all classes that are not members of themselves a member of itself?). The intuitionist must make special provision for the infinite processes that are fundamental to large parts of mathematicsfor instance, in connection with limits and continuity. Especially important results were achieved that set absolute limits to the formalist program. Gdel (1931) proved that any formalism sufficiently rich to allow for the formulation of arithmetic also allowed for the occurrence of statements which, although true, could not be proved to be true within that formalism.Out of these various endeavors a whole new discipline of metamathematics emerged, in which questions about the nature of various mathematical statements and proofs are themselves treated in a rigorous mathematical way (Tarski 1956). Through the so-called new mathematics in elementary education, the elements of logic (set theory) are now becoming known to every schoolboy.Theory of knowledgeFundamental to any question about the scope and validity of human knowledge is some conception of the nature of truth. The positivist emphasis on the analysis of the language of science was sometimes suggestive of the coherence theory of truth: a statement is accepted as true because of its relation to other statements that provide evidence or arguments for it. In the main, however, the positivist position was that ultimately certain statements (protocol sentences) are accepted on the basis of direct experience that is not itself verbalized. Truth is correspondence with fact, as disclosed by experience. This view, which goes back to Aristotle, was refined by Russell and Wittgenstein, who analyzed the correspondence in logical terms. A proposition is true if it has the same structure as the fact it asserts. However, it is only the logical structure of the proposition that is involved, not the grammatical structure of the sentence formulating the proposition. Thus, the present king of France is not a logical constituent of the statement The present king of France is bald, but only its grammatical subject. Yet, how exactly to determine logical structure, whether of propositions or of facts, remained to some extent obscure and at any rate controversial (Ryle 1932; Hampshire 1948).Analytic and synthetic truthsOf special interest to positivism was the development by Tarski (1944) and others of the so-called semantic conception of truth. Here, also, truth is a matter of correspondence, but interest is focused on the way in which the truth of complex statements is definable by the truth of other, simpler expressions. The procedure is applicable, however, only to exact languages.Basic to the positivist theory of knowledge is the difference beween logical and factual truth. In positivism this difference reduces to that between analytic and synthetic statements. For Kant, analytic statements were those whose predicates were contained in their subjects (Every effect has a cause). Positivists regarded analytic statements as fundamentally either definitions or tautologies: compound statements which remain true for all possible combinations of truth-values of their constituents (Either it will rain or it will not rain). However, a satisfactory definition of analytic remained elusive, and in later years serious doubts were raised as to whether even the sharp distinction between logical and factual is tenable (Quine 1953; see, however, Grice & Strawson 1956).A fundamental tenet of positivism is that only analytic truths can be known a priori. Metaphysics is rejected because, as Kant saw, it lays claim to synthetic a priori knowledge. However, analytic and a priori were often defined, in effect, in terms of one another. If this is not done, some critics held, counterexamples to the positivist position can be provided.The problem of induction. The most important of these putative instances is some form of the so-called principle of induction. As Hume saw, this principle is not analytic and therefore is not knowable a priori, yet it cannot be inductively grounded, a posteriori, without vicious circularity. Some positivists (such as Wittgenstein and Schlick) held that induction is not a matter of a principle but only of a rule, so that the question of its truth does not arise. But even a rule calls for justification. In the main, positivists approached the question in terms of a more general concern with the nature and foundations of inductive logic.Inductive logic, it was widely agreed, is fundamentally a matter of probability. But how probability is to be interpreted raised important issues even within the positivist movement. Mathematics provides a probability calculus by which given probabilities allow for the calculation of others sought for. The question is what exactly we are given and whether this same calculus allows us to attach a determinate probability to, for example, a scientific hypothesis. Reichenbach (1935) defended the view that probabilities are essentially frequencies in the long run and that the frequency interpretation can be applied throughout. Carnap (1950), while acknowledging the importance of the frequency interpretation for certain cases, developed a conception of logical probability to be employed in the logic of confirmation. Each position faces acknowledged difficulties, some of which have in the meantime been bypassed by the development of a third conceptionthat of subjective or personal probability (Savage 1954).Operationism and the unity of scienceWhatever the logic of induction, positivists agreed that inductive knowledge of extralogical truths can only be empirical. From Hume and Mach, positivism acquired a strong phenomenalistic bent: all knowledge can be cast in the form of statements about immediate experience (Carnap 1928). Alternatively, it can be formulated on a realistic basis (the thing-language). Most important is the claim the thesis of physicalismthat everything can be said, in principle, in the language of physics. Closely connected with this thesis is the positivist thesis of the unity of science, which holds that there is no fundamental cleavage between Geisteswissenschaft and Naturwissenschaft. Science has but one method; it is unified as to terms, in the sense of physicalism; and there is, again in principle, a unity of scientific laws, all of which can be derived from some single, comprehensive theory. The thesis of the unity of science, however, was of incomparably greater significance as a program than as an established philosophical doctrine.It was with respect to the unity of terms that most progress was made. Operationism, which was positivistic in spirit if not in origin, formulated conditions for the introduction of any term into the language of science: the specification of operations for measurement or verification. It appears, however, that the meaning of a term cannot be identified or even univocally associated with these operations, for it is characteristic of science that there may be several quite different ways of measuring the same magnitude or of verifying the same hypothesis. A greater difficulty is that certain terms are connected with observations, not directly, but only by way of their relation to other terms; symbolic operations are thus called for. But once such operations are admitted, much of the force of the operationist requirement is dissipated.In the positivist movement, this difficulty centered on the status of theoretical terms. Theory, according to the positivist view, is significant primarily as an intermediary between observations (or experiments). What is required is a specification of how theoretical terms can be brought into relation with observables. To this end Carnap (19361937) developed a theory of reduction sentences, which are partial definitions, as it were; no theoretical term is capable of being completely defined by way of observables. This is not to say, however, that theory posits an ontological domain other than what can be observed. To be sure, theory not only describes observable facts but also explains them. But explanation is essentially a matter of prediction: to explain a fact is to adduce a law from which, together with appropriate initial conditions, the fact can be deducedthat is, predicted (Hempel & Oppenheim 1948). Here, too, problems of detail persisted, and some recent philosophers of science have tended to separate explanation from prediction and to emphasize the part played in explanation by unifying patterns.Positivist ethicsAs to ethics, some of the logical positivists (e.g., Schlick 1930) espoused a naturalistic hedonism, akin to the liberal utilitarianism of nineteenth-century thought. But the distinctively positivistic view (Ayer 1936; Reichenbach 1951) applied the criterion of verifiability to moral judgments and concluded that these are strictly devoid of meaning. More accurately, a distinction was introduced between two kinds of meaning, which came to be known as cognitive and emotive. The former is characteristic of scientific discourse, is expressed in declarative sentences, and is capable of being true or false; the latter is characteristic of the discourse of politics, religion, morality, and art, and is expressed in imperatives or exclamations. The first conveys beliefs, whereas the second conveys attitudes (Stevenson 1944). Ethical statements do not embody propositions, but rather constitute commands, exhortations, and the like.Much of the severe criticism directed against this position begged the question of whether it robs morality of any foundation, although attitudes may be as firmly grounded in character and as effective on action as are beliefs. More philosophic objections were addressed to the workability of the distinction between the two sorts of meaning and to the question of whether the positivist analysis applies to moral judgments rather than only to expressions of moral sentiment. The later development of the positivist view gave rise to various deontic logics, the precise postulational treatment of ascriptions of rights and dutiesand related notionsin ways connected with the tradition of analytic jurisprudence, on the one hand, and with the utility theory of modern economics, on the other.The influence of positivismThe persistence of identifiable schools of philosophy, each engaged in continuing polemic with other, opposing schools, seems more characteristic of the European scene than the American. At any rate, the dispersal of European scholars at the outbreak of World War II marked the beginning of the end of logical positivism as a movement. The increasing diversity of viewpoints within the movement, as well as more widespread misunderstanding of its claims, made for increasing reluctance to identify with it. Moreover, as time passed there was a progressive softening of what had been taken to be its distinctive doctrines. The verifiability criterion was broadened; semantics and even pragmatics assumed more importance, as compared with syntax; and principles became programs to be espoused rather than theses to be defended. The revolutionary and even utopian impulse in some of the early positivists (for instance, Neurath) became dissipated.In philosophy, positivism had a marked impact on analytic philosophy, which is in a way its heir, and positivism is largely responsible for the central position in philosophic training accorded to mathematical logic almost everywhere. But its influence was much greater on science, and on the borders between science and philosophy, than on philosophy itself. On its empirical side, positivism addedespecially in psychology and sociologyto the growing emphasis on observation and data, as against the theoretical and even speculative bent of the preceding generation or two. Positivism may also have contributed to the emergence of behavioral science as something more than an alternative designation for the more traditional disciplines. It must be noted, however, that the positivists were not, on the whole, inclined toward a strict behaviorism: both Carnap and Reichenbach were quite sympathetic to psychoanalytic ideas, for instance. The positivist interest in the logic of measurement and in the nature of probability at least coincided with, if it did not directly contribute to, the growth of such disciplines as psychometrics and sociometrics.It is on its logical side, however, that positivism exerted its most unmistakable and distinctive influence. The increasing interest during the last several decades in the application to empirical materials of various logical and even mathematical systems is clearly indebted to the positivistic philosophy of science. In mathematics itselfespecially in foundation studiesa strong claim can be made for the value of postulational and even formal approaches. More dubious is the fruitfulness of their application in the physical and biological sciences (Reichenbach 1944; Woodger 1952). In the social sciences the influence of positivism can be recognized in the concern with miniature systems and model building. It may be too early to assess the value of this tendency. One recognizable danger may be identified as the semantic myth: that if concepts are introduced by the explicit operational definition of terms and if assum

rather than observed, positivists feel that the consent required for law to exist on the basis of explicit rules does not exist. Furthermore, in specific applications, motives matter in order to assure that the community of nations agrees. Because motives are difficult to know, the presumption of positivists is that consent for actions against prevailing interpretations of legal doctrine must be unambiguous for law to deviate from claimed fundamental principles. Opposition to what is clearly the intent of positive law as expressed in texts is normally a sign of illegality.Sociological positivists did not follow exactly the same course in the Latin American countries. Positivism was most influential in Brazil, whose elites studied French and visited Paris, where they came to admire everything French. By the end of the nineteenth century these elites wanted to import or copy everything they associated with France. At the time, positivism became particularly important in Brazils technical schools and military academies, where many middle-class children studied. Comtes emphasis on progress through gradual change appealed to Brazils new elite, who saw positivism as a way of incorporating themselves into the national elite without threatening the social order on which the old elite depended. They were attracted by the idea of using military and government officials to plan economic development for progress and industrialization. They believed that by expanding economic opportunities and education, they could incorporate the disenfranchised into society without the need for widespread social or political change. Furthermore, in positivism they saw the possibility of ending foreign economic domination and colonialism in Brazil.MAIN PHILOSOPHICAL TENETS OF JURISPRUDENTIAL POSITIVISMJurisprudential positivism, following a line of jurisprudence that has included the theories of Vattel, Zouche, Kelsen, and Hart, emphasizes legal rules and consent in the relations of states. Rights and obligations about rules and principles are based primarily on the words in treaties. Based on the empiricism of Locke and Hume, positivists in international law, such as Humphrey, the principal author of the Universal Declaration of Human Rights, Schachter and Henkin among lawyers and Donnelly among political scientists, have argued that rules take precedence over claimed principles or unprecedented customs of states. Without observable experience or consent, validating customs after the fact betrays self-serving, perverse incentives besides nullifying the original intent of primary rules.Jurisprudential positivists cite three UN Charter articles that make humanitarian intervention presumptively illegal. First, Article 39 of Chapter VII limits coercion sanctioned by the United Nations Security Council (UNSC), whether by the UN or by the armies of member states, in three situations: a threat to the peace, breach of the peace, or act of aggression. Taken literally, Article 39 (and the title of Chapter VII) does not apply to a country that is killing its own citizens but not threatening or attacking other countries. Second, positivists might also argue that unilateral humanitarian intervention would usually be illegal because of Article 2(4), except either when the UNSC finds an Article 39 situation, as indicated above, or for individual or collective self-defense to armed attack under Article 51. Article 2(4) names only three situations in which a state may not threaten or use force: (1) against the territorial integrity, or (2) political independence of any state, or (3) in any manner inconsistent with the purposes of the United Nations.Jurisprudential positivists define a violation of territorial integrity as an armed attack on another state and a violation of political independence as a de facto partition or loss of sovereignty over part of a country. Donnelly calls for positive non-intervention to respect UN Charter Article 2(7)s intervention prohibition and encourage uninhibited criticism. Nonintervention means only the renunciation of intervention, in the strict sense of coercive interference. International human rights, however, are an appropriate subject for the exercise of international influence. Inaction in the face of human rights violations is not only morally inappropriate, it is in no way required by international law.Some positivists, such as Schachter, would permit armed humanitarian intervention for great emergencies and with a consensus among the five permanent members of the Security Council. In commenting on UNSC Resolution 688 regarding northern Iraq, he notes that the council could invoke the Chapter VII enforcement procedures, at least if there is some threat to international peace as well. Others, such as Henkin, might be willing to forgo UNSC authorization to authorize force to stop mass murder, but not in the face of a likely veto. Positivists might be divided on whether to insist upon a consistent standard for legal humanitarian intervention or to permit it where it is politically possible. As Henkin (1991, p. 41) suggests, The Charter does not prohibit humanitarian intervention by use of force strictly limited to what is necessary to save lives. He would presumably not accept humanitarian intervention if a UNSC consensus was absent or if a unilateral intervention were to change national boundaries or replace a government: It has not been accepted, however that a state has a right to intervene by force to topple a government or occupy its territory even if that were necessary to terminate atrocities or to liberate detainees. Henkin also opposes using force to promote democracy, as do his ideological opposites, Franck and the Reagan administration.SEE ALSO Comte, Auguste; Economics; Empiricism; Friedman, Milton; Hume, David; Imperialism; Jurisprudence; Locke, John; Logic; Methodology; Naturalism; Philosophy of Science; Realist Theory; Religion; Social Science; SociologyBIBLIOGRAPHYDamrosch, Lori Fisler. 1991. Commentary on Collective Military Intervention to Enforce Human Rights. In Law and Force in the New International Order, ed. Lori Fisler Damrosch and David J. Scheffer, 215223. Boulder, CO: Westview.Donnelly, Jack. 1992. 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For the most important 20th-century version of positivism, see logical positivism; few contemporary philosophers, however, call themselves "positivists": they prefer the name "logical empiricists," mainly in order to suggest their opposition to the narrow verificationism of the Vienna Circle. In what follows, consideration is given to the background of Comte's doctrine; then those elements of Comte's doctrine that continue to have importance are discussed, some later developments are reviewed, and finally a brief evaluation is made.Historical Background. The history of positivistic views extends over the 3 centuries of the modern period, in which the progressive expansion of modern science has taken place. What struck many thinkers, perhaps most notably I. kant, was the contrast between the status of science and that of philosophy: progress in the former, stagnation and deadlock in the latter. A necessary condition of growth in established knowledge appeared to them to be the application of the techniques of science to phy itself was increasingly considered to be no longer the handmaid of theology, but rather the handmaid of science. Resistance from the "metaphysicians" who, the positivists said, claimed to have information about what lies beyond experience, aroused a progressively strong antimetaphysical reaction, a scornful and dogmatic reaction that reached its full strength in the late 19th and early 20th centuries. Anti-metaphysical bias tends to be the most striking property separating those in the positivist tradition from others who give full credit to the achievements of science.Forerunners. It is impossible to do justice in a few words to the forerunners of 19th-century positivism, for given the fact that positivism can be seen as a variety of empiricism (which, as opposed to rationalism or its variant, idealism, emphasizes the role of experience and minimizes the role of reason), any of those who contributed to the development of empiricism can be considered as having contributed to the development of positivism. And if one speaks, rather vaguely, of "positivistically inclined thinkers" or of positivism as a "temper of mind," one might range all the way from the sophists of the Greek Enlightenment through the philosophes of 18th-century France to the American pragmatists of the early 20th centuryand even include, along the way, men such as duns scotus, who is called a "moral positivist" because of his teaching that a thing is good (or bad) simply because God wills it to be good (or bad). Nevertheless it seems fairly clear that full-blown positivism had its day in the 19th century when the distinctive intellectual influence in the modern world, the natural sciences, had reached the high tide of their domination of the philosophical world.As contributing to the development of 19th-century positivism, one might first mention Francis bacon, the "trumpeter" of the new sciences detached from philosophy in the 16th and 17th centuries. Bacon characterized past philosophy as mere childish prattling and expressed his utter confidence in the brilliant future of the natural sciences and of humanity under their guidance. (In his New Atlantis he gives a vivid picture of a mankind served and guided no longer by traditional aristocracies but by the new aristocracy of science.) Another important precursor of Comte in the field of social and legal philosophy was Thomas hobbes, whose opposition to traditional "natural-law" positions clearly puts him in the ranks of the major forerunners of self-conscious positivists.Major Influences. Certainly, however, the two major influences on Comte and other early positivists are those of D. hume and Kant. The very notion of science as the study of the invariable relations of coexistence and succession observed to hold between elements of experience, the notion of scientific knowledge as relative and tentative, the notion of unknown and unknowable noumena, the notion of metaphysics as a surrogate of science that offers a total (but false because characterized by a sort of mathematical necessity) explanation of the universe, the suggestion that perhaps the methods of science might be adapted to the solution of philosophical problemsall these themes had Humean or Kantian sources.The most immediate and direct influences on Comte were those of J. d' Alembert, J. L. Lagrange (who first stated the principles of mechanics without any reference to ultimate cause or hidden forces, merely describing the laws by which phenomena were connected), condorcet, Turgot, and, most important of all, saint-simon, whom Comte served as secretary.Comte's Doctrines. The most influential doctrines of Comte were three: the "Law of Three States," the hierarchy of sciences, and his notion of sociology and the social sciences.Three States. According to Comte, the structure of the human mind is such that all thought has followed a law of progress, the Law of Three States. There is first a primitive stage in which explanations of puzzling phenomena are theological, changes being attributed to the will of the gods, conceived of as very powerful human beings. The intermediate stage is that in which metaphysical explanations predominate, when forces or powers having abstract names take the place of superhuman agents. The third and final stage is that in which not explanation but pure description of phenomena takes the place of discarded powers or agents. Thus, for example, gravitation was first explained theologically as effected by divine beings attracting or repelling one another from their seats in the stars or planets; later, gravitation was explained anthropomorphically as a force or a power assumed to cause the movement of bodies; and only in the positive stage was a mathematical equation given that describes "how" but not "why" movement occurs. The positive method is well summarized by J. S. mill: "We have no knowledge of anything but phenomena; and our knowledge of phenomena is relative, not absolute. We know not the essence nor the real mode of production of any fact, but only its relations of other facts in the way of succession and similitude. These relations are constant, i.e., always the same in the same circumstances. The constant resemblances which link phenomena together, and the constant sequences which unite them as antecedent and consequent, are termed their laws. All phenomena without exception are governed by invariable laws, with which no volitions, either natural or supernatural, interfere. The essential nature of phenomena and their ultimate causes, whether efficient or final, are unknown and inscrutable to us" (A System of Logic, bk. 2). One might note that there was a general consensus in the 19th century, shared, as mile Meyerson (an important critic of positivist anti-ontologism) has shown, even by G. W. F. hegel, that empirical science must be purely descriptive, confined to establishing the regularities of observed phenomena; Hegel did not, of course, like Comte, deny value to explanation, for his idealistic philosophy of nature provided the grounds of all explanation.Hierarchy of Sciences. A second key Comtean doctrine was his conception of the "positive hierarchy" of the sciences. The fundamental sciences were said to fall into a logical order (one depends on another for certain of its principles), a single linear order of decreasing generality and increasing complexity; and this is also the historical order in which they developed: mathematics, physics, chemistry, biologyand finally, with Comte's own work, sociology. Psychology, that "last transformation of theology," was denied a special role in his hierarchy because Comte denied the possibility of knowledge through introspection (it is impossible to observe one's own mental processes without at the same time destroying them). In the positive stage one will limit himself to a consideration of the organic conditions on which various psychic functions depend: as A. Bain put it, "psychologus nemo nisi physiologicus." The International Encyclopedia of Unified Science (Chicago 1938) is a contemporary answer to Comte's demand for a coherent synthesis of all science.Sociology. The third important area of Comte's significance and influence is that of the social sciences or of sociology. Comte thought of himself as first and foremost a social reformer. He believed that satisfactory social organization could be achieved only after the spiritual foundationthe reorganization of all knowledge along "positive" lineshad been laid: institutions rest on morals, morals on beliefs; and once a stable and unified body of beliefs is available, social beatitude is possible. Of course, implied in Comte's notion of the hierarchy of science is the basing of social science on physical science, thus making it possible to treat social phenomena in purely physical, nonanthropomorphic language. A leading idea of positivist sociology was first given expression by Condorcet when he wrote that to an observer from another planet, physical and social phenomena would appear in the same light, "a stranger to our race, he would study human society as we study those of the beavers and bees."Though an archenemy of anthropomorphism and the "empathetic fallacy," Comte nevertheless thought of sociology as the study of the evolution of mankind as a sort of collective organism ("the whole of the object is here certainly much better known and more immediately accessible than the constituent parts"), conceiving of humanity as a "social being," a kind of superperson. Comte and his followers thus committed what A. N. Whitehead has named "the fallacy of misplaced concreteness." Such notions are quite consistent with the historicist orientation of 19th-century Continental social thought, an orientation best known today in the works of K. marx and F. engels.The positivist view of society as organismichumanity alone is real and the individual only an abstractionclearly has the effect of suppressing or obliterating the freedom of the individual subject to it and of sanctioning a "scientific" despotism; J. S. Mill described the resulting system as "liberticide" and as "the completest system of spiritual and temporal despotism which ever yet emanated from the human brain, unless possibly that of Ignatius Loyola." (Like his early mentor, Saint-Simon, Comte also founded a "religion" of veneration and cult of "the Great Being: Humanity," well-described by T. H. Huxley in his epigram "Catholicism without Christianity.")It is especially in treating social phenomena that Comte's practical bent most clearly shines through: "I have a supreme aversion to scientific labors whose utility, direct or remote, I do not see." For him as for so many of the 19th-century positivists, science is the handmaid of humanity (though few went quite so far as Comte in considering sidereal astronomyby contrast with the study of the solar system, in which man livesa "grave scientific aberration" serving only to satisfy vain curiosity). For Comte and many later positivists, knowing is for the sake of foreseeing and then controlling: voir pour prvoir, prvoir pour prvenir, prvenir pour pouvoir.Later Developments. Comte's influence on the later history of positivism was achieved in great part through his influence on Mill and a few other leading English thinkers. (The sixth book of Mill's Logic, which deals with the methodology of the moral sciences, is little more than an exposition of Comtean doctrine.) The writings and translations of George Lewes, Harriet Martineau, and George Eliot were important in making Comte known in Germany, where L. feuerbach became known as the founder of German positivism. Herbert spencer, though severely critical of Comte, attempted a not dissimilar task in attempting to formulate a law of progress and the development of a unified "synthetic" philosophy of science.In sociology, mile durkheim was Comte's principal disciple and, though divesting sociology of Comte's religious and politically reactionary elements, continued to emphasize the group mind as the point of reference for all human knowledge. In legal philosophy, positivism confines itself to positive law (laws actually valid at a certain time in a certain place) and strongly opposes any "higher" law. The Allgemeine Rechtslehre in Germany, analytical jurisprudence in England, H. Kelsen's "pure theory of law" (which leaves no place for an ideal of justice), and American "legal realism," though poles apart in some respects, are united in their common aversion to metaphysical theories in general and natural-law theories in particular, and so are generally known as types of legal positivism. (Legal positivism today is, however, under something of a cloud because of the ease with which a form of positivism facilitated Hitler's subversion of German law.) see positivism in jurisprudence.An important contribution to the development of contemporary philosophy was made by the left-wing positivists, the late 19th-and early 20th-century scientist-philosophers G. R. Kirchhoff (182487), E. Mach, W. K. Clifford (184579), and K. Pearson (18571936), all of whom had a phobia of the invisible and intangible and the thrust of whose thought led, not to an acceptance of the "law of three states" but to the discarding of all statements that cannot be reduced to perceptual data. The right-wing idealist, quasi-Kantian branch of positivism flowered but briefly in the writings of F. A. Lange (182875) and Hans Vaihinger (18521933), who believed that metaphysics is arrant nonsense considered as anything but poetry, though as poetry it may have a certain beauty.Evaluation. It is clear, as H. Feigl has remarked, that the issues that divided G. berkeley and Locke, Hume and Kant, Mach and H. von Helmholtz, phenomenalists, neorealists and critical realists, cannot be solved by positivistic fiat. Second, the positivist, like all other antimetaphysicians (with the possible exception of the early Greek skeptics) is, as F. H. bradley has remarked, a "brother metaphysician with a rival theory of first principles." The assumption is made that there are facts, each distinct from every other, that man can observe and then correlate; but when an attempt is made to say what "facts" are, various positivists give as widely differing answers (Bacon's "simple natures," Hume's "impressions," Comte's "special or general facts") as do self-confessed metaphysicians. Third, though positivism may well have served as a useful reminder against the dangers of a priori speculation and formed a useful counterbalance to the yeasty absolutisms of idealist metaphysics, its attempt to show, for example, that final causality has no valid use or meaning because it has no place in mechanics or in an intellectual system based on mechanics is an unwarranted limitation on the range of human experience. Finally, even in their chosen field of scientific methodology, the 19th-century positivists misconceived the role of hypothesis as a function of science (taking the relation between hypothesis and confirming evidence to be purely logical or analytic) and found no place for what science has no way of directly testing. This led them to condemn as meaningless many propositions later accepted as scientific truth, such as propositions about the chemical structure of the stars.Perhaps one might accept the analogy of R. W. Sellars as a benign expression of the general impact of early positivism; this, he suggests, "might be compared to the action of a firm of scientific accountants going over the books of that ancient firm called philosophy. It has been a healthy thing for philosophy; and it may be that the accountants have also learned something."See Also: scientism; metaphysics, validity of.Bibliography: j. a. passmore, A Hundred Years of Philosophy (New York 1957). b. magnino, Storia del positivismo (Rome 1955). g. milhaud, Le Positivisme et le progrs de l'esprit (Paris 1902). f. a. von hayek, The Counter-Revolution of Science: Studies on the Abuse of Reason (Glencoe, IL 1952). h. g. gouhier, La Jeunesse d'Auguste Comte et al formation du positivisme, 3 v. (Paris 193341). h. de lubac, The Drama of Atheist Humanism, tr. e. m. riley (New York 1949), pt. 2. r. l. hawkins, Positivism in the United States, 18531861 (Cambridge, MA 1938). r. hofstadter, Social Darwinism in American Thought (rev. ed. New York 1959). h. feigl, "The Power of Positivistic Thinking," Proc. and Addresses of the American Philosophical Assoc. 196263, 36 (Yellow Springs, OH 1963) 2141. r. w. sellars, "Positivism in Contemporary Philosophic Thought," American Sociological Review 4 (1939) 2655. h. b. acton, "Comte's Positivism and the Science of Society," Philosophy 26 (1951) 291310.[r. l. cunningham] views updated May 11 2018The concept of "positivism" was originally used to denote the scientific study of social phenomena, but today the term positivism has become vague. Most often, it is used as a pejorative smear for certain kinds of intellectual activity in the social sciences, sociology in particular. Most frequently, at least within sociology, positivism is associated with such undesirable states as "raw empiricism," "mindless quantification," "antihumanism," "legitimation of the status quo," and "scientific pretentiousness." With few exceptions (e.g., Turner 1985), sociologists are unwilling to label themselves "positivists." Yet, the titular founder of sociologyAuguste Comteused this label as a rallying cry for developing formal and abstract theory that could still be used to remake society; so, the current use of the term does not correspond to its original meaning. If anything, the term connotes almost the exact opposite of Comte's vision (18301842). It is proper, therefore, to review Comte's original conception of positivism and its use in early sociology, and then we can discover how and why the meaning of positivism changed.In Cours de philosophie positive, Comte began by asserting that "the first characteristic of Positive Philosophy is that it regards all phenomena as subject to natural Laws" (18301842, p. 5). Moreover, he emphasized that "research into what are called causes, whether first or final," is "in vain" (18301842, p. 6); and by the time he was well into Cours de philosophie positive, he stressed that a "great hindrance to the use of observation is the empiricism which is introduced into it by those who . . . would interdict the use of any theory whatever" because "no real observation of any kind of phenomena is possible, except in as far as it is first directed, and finally interpreted, by some theory" (18301842, p. 242). Rather, the goal of positivistic sociology is to "pursue an accurate discovery of . . . Laws, with a view to reducing them to the smallest possible number," and "our real business is to analyze accurately the circumstance of phenomena, to connote them by natural relations of succession and resemblance" (18301842, p. 6). Comte's exemplar for this advocacy was Newton's law of gravitation, an affirmation of his early preference to label sociology as "social physics." Moreover, such laws were to be used to reconstruct society; and while Comte went off the deep end on this point, proclaiming himself, late in his career, to be the "high priest of humanity" (Comte 18511854), it is difficult to see Comte's positivism as antihumanistic, as conservative, or as legitimating the status quo.How, then, did Comte get turned on his head? The answer to this question cannot be found in nineteenth-century sociology, for the most positivistic sociologists of this periodHerbert Spencer (18741896) and mile Durkheim ([1893] 1947; [1895] 1934)could hardly be accused of "raw" and "mindless" empiricism, nor could they in the context of their times be considered antihumanistic, conservative, and apologists for the status quo (the label "conservative" for these thinkers is imposed retrospectively, through the refraction of contemporary eyeglasses). Moreover, early American sociologistsAlbion Small, Frank Lester Ward, Robert Park, William Graham Sumner, and even the father of statistical methods and empiricism in American sociology, Franklin Giddingsall advocated Comtean and Spencerian positivism before World War I. Thus, the answer to this question is to be found in the natural sciences, particularly in a group of scientist-philosophers who are sometimes grouped under the rubric "the Vienna Circle," despite the fact that several intellectual generations of very different thinkers were part of this circle.Before the "circle" was evident, the nature of the issues was anticipated by Ernst Mach (1893), who argued that the best theory employs a minimum of variables and does not speculate on unobservable processes and forces. Mach emphasized reliance on immediate sense data, rejecting all speculation about causes and mechanisms to explain observed relations among variables. Indeed, he rejected all conceptions of the universe as being regulated by "natural laws" and insisted that theory represent mathematical descriptions of relations among observable variables. Although Mach was not a member of the Vienna Circle, his ideas framed the issues for those who are more closely identified with this group. Yet, his ideas did not dictate their resolution. Many in the Vienna Circle were concerned primarily with logic and systems of formal thought, almost to the exclusion of observation (or, at least, to the point of subordinating it to their primary concerns). A split thus developed in the Vienna Circle over the relative emphasis on empirical observation and systems of logic; a radical faction emphasized that truth can be "measured solely by logical coherence of statements" (which had been reduced to mathematics), whereas a more moderate group insisted that there is a "material truth of observation" supplementing "formal truths" (Johnston 1983, p. 189). Karl Popper, who was a somewhat marginal figure in the Vienna Circle of the 1930s, is perhaps the best-known mediator of this split, for he clearly tried to keep the two points of emphasis together. But even here the reconciliation is somewhat negative (Popper 1959, 1969): A formal theory can never be proved, only disproved; and so, data are to be used to mount assaults on abstract theories from which empirical hypotheses and predictions are formally "deduced."Why did the philosopher-scientists in the Vienna Circle have any impact on sociology, especially American sociology? In Europe, of course, sociology had always been firmly anchored in philosophy, but in American sociology during the 1920s and 1930s, the rise of quantitative sociology was accelerating as the students of Franklin Giddings assumed key positions in academia and as Comtean and Spencerian sociology became a distant memory. (It should be noted, however, that Marx, Weber, and Durkheim had yet to have much impact on American sociology in the late 1920s or early 1930s.) But American sociology was concerned with its status as science and, hence, was receptive to philosophical arguments that could legitimate its scientific aspirations (Turner and Turner 1990). Mach was appealing because his advocacy legitimated statistical analysis of empirical regularities as variables; and Popper was to win converts with his uneasy reconciliation of observation and abstract theory. Both legitimated variable analyses; and for American sociologists in the 1930s and later from the 1940s through the early 1960s, this meant sampling, scaling, statistically aggregating, and analyzing empirical "observations." Members of the Vienna circle had even developed an appealing terminology, logical positivism, to describe this relation between theory (abstract statements organized by a formal calculus) and research (quantitative data for testing hypotheses logically deduced from abstract statements). The wartime migration of key figures in the late Vienna Circle to the United States no doubt increased their impact on the social sciences in the United States (despite the fact that the "logical" part of this new label for "positivism" was redundant in Comte's original formulation). But logical positivism legitimated American empiricism in this sense: The quantitative data could be used to "test" theories, and so it was important to improve upon methods of gathering data and analyzing methodologies in order to realize this lofty goal. Along the way, the connection of theory and research was mysteriously lost, and positivism became increasingly associated with empiricism and quantification, per se.There was a brief and highly visible effort, reaching a peak in the late 1960s and early 1970s, to revive the "logical" side of positivism by explaining to sociologists the process of "theory construction." Indeed, numerous texts on theory construction were produced (e.g., Zetterberg 1965; Dubin 1969; Blalock 1969; Reynolds 1971; Gibbs 1972; Hage 1972), but the somewhat mechanical, cookbook quality of these texts won few converts, and so the empiricist connotations of positivism were never successfully reconnected to abstract theory. Even the rather odd academic alliance of functional theory with quantitative sociologyfor example, Merton and Lazarsfeld at Columbia and Parsons and Stouffer at Harvardwas unsuccessful in merging theory and research, once again leaving positivism to denote quantitative research divorced from theory.Other intellectual events, anticipated by various figures of the Vienna Circle, created a new skepticism and cynicism about the capacity to develop "objective" science, especially social science. This skepticism stressed the arbitrary nature of symbols and signs and hence their capacity to represent and denote the universe independently of the context in which such signs are produced and used. Such thinking was supplemented by Kuhn's landmark work (1970) and by the sociology of science's emphasis (e.g., Whitley 1984) on the politico-organizational dynamics distorting the idealized theory-data connection as advocated by Popper (1969). Out of all this ferment, a new label increasingly began to appear: postpositivism. This label appears to mean somewhat different things to varying audiences, but it connotes that Comte's original vision and Popper's effort to sustain the connection between empirical observations and theory are things of the pastjust as "rationalism" and "modernity" are giving away to "postmodernism." Thus, one hears about a "postpositivist" philosophy of science, which, despite the vagueness and diversity of usages for this label, is intended to signal the death of positivism. Curiously, this postpositivism is meant as an obituary for the older Comtean positivism or its resurrection as logical positivism by the Vienna Circle, where abstract logic and observation were more happily joined together.The result is that the term "positivism" no longer has a clear referent, but it is evident that, for many, being a positivist is not a good thing. It is unlikely, then, that "positivism" will ever be an unambiguous and neutral term for sociological activity revolving around the formulation and testing of theory and the use of plausible theories for social engineering (or in more muted form, for "sociological practice"). Other labels are likely to be employed in light of the negative connotations of positivism in an intellectual climate dominated by "post-isms."Despite this apparent eclipse of positivism by various post-isms, positivistic sociology remains a vibrant activity, albeit by other names. Because of the pejorative use of the label "positivism," few are willing to embrace it, but many practice positivistic sociology. What, then, are the main tenets of positivism? This question can be answered under ten general points.First, positivism assumes that there is a "real world" that can be studied scientifically. The social world is not an illusion, or a total fabrication of sociologists' imaginations. It is there; it has properties amenable to investigation.Second, positivism assumes that there are fundamental properties of the social universe that are always operative when people act, interact, and organize. While the properties can manifest themselves in a wide variety of forms in varying contexts, they nonetheless exist; and they are what drive the dynamics of the social universe. The goal of positivism is to uncover these fundamental properties, to see how they work, to develop theories on their operation, and to test these theories with systematically collected data.Third, the theories developed by positivists should strive for some degree of formality. The making of formal statements need not invoke mathematics or some other system of formal argument; rather, all that is necessary is that concepts denoting processes be explicitly defined and that relations among concepts be stated clearly. These goals can be met with ordinary language, although if they can be converted into mathematics, this is seen by most positivists as useful though not absolutely necessary.Fourth, in defining concepts formally, these definitions should denote aspects of the social universe such that what is encompassed by the concept is clear and, equally important, what is not is also explicit. In stating relations among concepts denoting fundamental properties of the social world, these relations can be stated in three basic ways. One is functional (in the mathematical sense), whereby variation in one concept is seen to be related to another (e.g., the level of differentiation in a population is a positive function of its size). A second way to state relations is through analytical models that specify the direct, indirect, and reverse causal effects among those forces of the universe that are seen as connected. A third procedure is historical in which events at earlier points in time are seen to cause directly, or in combination with other events, an outcome. A fourth, though less desirable (and at best, preliminary), procedure is to find the place of particular forces in an abstract category system that juxtaposes phenomena (e.g., the periodic table in chemistry or Parsonian four-functions analysis).Fifth, the goal of all positivistic theories statements is parsimony. Reducing theories to their simplest form is always desired, whether this be a simple equation, an analytical model, a historical sequence of cause, or even a simple set of categories.Sixth, at the same time that statements move toward parsimony, they should become ever more abstract and should seek to explain as large a portion of reality as is possible. The goal is always to explain as much of the social universe with as few principles and models as can do justice to the dynamics of the social world.Seventh, all theoretical statements must be testable, at least in principle. Some statements can be tested directly with existing methodologies; others must be transformed (e.g., from deductions to hypotheses); and still others may have to wait for new methodologies or for specific classes of events to occur. The critical criterion is that theories be testable, now or in the future. They must suggest by their formulation ways of operationalization.Eighth, theories can be tested by all relevant methods: historical, comparative, experimental, survey, observational, and even simulational. No one method identifies positivism; all are useful in assessing the plausibility of theories.Ninth, tests must always be used to assess the plausibility of theories. When tests do not support the theory, the theory must be rejected and/or revised.Tenth, theories that remain plausible constitute, for the time being, the best explanations of the social universe. And the more theories remain plausible, the more they are made parsimonious, and the more new theories are developed to explain what has not yet been explained, the more knowledge of the nature and operative dynamics of the social universe accumulates.referencesBlalock, Hubert M., Jr. 1969 Theory Construction: FromVerbal to Mathematical Formulations. Englewood Cliffs, N.J.: Prentice-Hall.Comte, Auguste 18301842 Cours de philosophie positive:Les Prliminaires gneraux et la philosophie mathmatique. Paris: Bachelier.18511854 Systme de politique: ou, traite de sociologie,instituant la religion de l'humanite. Paris: L. Mathias.Dubin, Robert 1969 Theory Building. New York: Free Press.Durkheim, Emile (1895) 1934 The Rules of the SociologicalMethod. 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Sociological Theory 3:2430.Turner, Stephen Park, and Jonathan H. Turner 1990 The Impossible Science: An Institutional Analysis of American Sociology. Newbury Park, Calif.: Sage.Whitley, Richard 1984 The Intellectual and Social Organization of the Sciences. Oxford: Clarendon Press.Zetterberg, Hans L. 1965 On Theory and Verification inSociology, 3rd ed. New York: Bedminster Press.Jonathan H. Turner views updated May 21 2018POSITIVISM, an empiricist philosophy that emerged in early nineteenth-century Europe, and whose chief exponent was Auguste Comte, the French philosopher of science. Once the secretary of utopian socialist Claude Henri de Saint-Simon (17601825), Comte articulated his own grand system in a series of lectures subsequently published as the Cours de philosophie positive (18301842). Extending the insights of Francis Bacon, David Hume, Immanuel Kant, and others, this philosophical tour de force laid out the component parts of positivism: an empiricist epistemology, an inductive method, a hierarchical classification of the sciences, and an elaborate philosophy of history. Like other empiricists, Comte restricted knowledge to data gained only through sensory perception and rejected any consideration of first or ultimate causes. In the "law of the three stages," Comte claimed to have discovered the law of historical development that revealed human society progressing from the primitive theological stage (where deities were invoked to explain natural phenomenon), to the philosophical stage (where reified ideas were employed in causal explanation), to, ultimately, the thoroughly empirical positive stage. Comte's hierarchy of the sciences built upon this "science of history"; he believed that each field of study had attained the positive level at a different time. Comte ranked mathematics first (as the most general and independent), then astronomy, physics, chemistry, biology, and, finally, sociology, the "queen of the sciences." The latter, truly a science of society, was the last to attain the positive method.Because he held that the social instability of nineteenth-century Europe was rooted in intellectual chaos, Comte developed a detailed social blueprint founded upon his empiricist philosophy in the Systme de politique positive (18511854). Comte's so-called "second system" included an institutionalized religion of humanity headed by a priestly scientific class. He believed that worship was an essential part of human nature but that religion had been mistakenly based on theology, rather than on positive science. Accordingly, Comte identified a host of secular scientific saints in his church's calendar and offered himself as the first "Supreme Pontiff of Humanity."European Followers and CriticsComparatively few European intellectuals embraced all of Comte's controversial social and religious ideas. Yet, by the 1870s, some sort of positivism was accepted by a broad spectrum of thoroughly naturalistic thinkers. At one pole stood Comte's few orthodox disciples such as Pierre La-fitte and (in England) Richard Congreve. Nearer the center of the spectrum were those who broke with the official cult but who shared many of Comte's social and political concerns and who believed that the empiricist epistemology and philosophy of history did have social ramifications. One could include in this group G. H. Lewes (and his wife, the author George Eliot) and Frederic Harrison. Finally, there emerged a more generic school of positivists at the other end of the spectrum who, like John Stuart Mill, had been profoundly influenced by the theory and method of the Cours but were repelled by the Systme, which Mill dismissed as despotic. Another generic positivist, T. H. Huxley, who combined positivist empiricism with evolutionary theory, aptly characterized Comte's religion of humanity as "Catholicism without Christianity." Still, even these critics shared Comte's thoroughly naturalistic assumptions and his hostility to theology, and, like Comte, they attempted to employ a strict empiricism in their methodology.American PositivistsAll three of these points along the positivist spectrum had representatives in Gilded Age America, although historians have often ignored the first two groups. English migr Henry Edger embraced orthodox positivism in 1854 and corresponded with Comte, who soon appointed Edger "Apostle to America." Edger settled in a small perfectionist commune on Long Island known as Modern Times. From there, he sought converts in neighboring New York City. A tiny clique of sectarian Comtists coalesced around the New York World editor David G. Croly in 1868, but it soon broke away from Edger and official Comtism and fractured further as the years passed.Arguably, the major American thinker most influenced by Comte's Cours and some of the French philosopher's social ideals was Lester Frank Ward (18411913). Indebted to the political principles of the American Whigs, Ward used Comte's ideas to articulate the first naturalistic critique of William Graham Sumner's political economy. Drawing upon Comte's interventionism, Ward stressed that the mind was a key "social factor" that laissez-faire systemslike that proposed by Sumnerhad overlooked or misunderstood. Social science, properly applied, could enable humanity to control the human environment and thereby ensure social progress; it was neither unnatural nor unscientific for the state to intervene in the private economy.The other American advocates of a more generic positivism during the late nineteenth century included John William Draper, Chauncey Wright, and Henry Adams. Draper, president of the medical faculty at New York University and a popular author, read Comte in 1856 and adopted a modified form of Comte's "law of the three stages" in his work; he had even visited Croly's New York group during the 1860s. Wright, a philosopher of science and a mathematician, was one of Mill's most important American followers; he rejected any sort of metaphysical argument and attacked Herbert Spencer as not being an authentic positivist in terms of method. Adams encountered Comte by reading Mill's influential essay Auguste Comte and Positivism. He wrote in his autobiographical Education that by the late 1860s, he had decided to become "a Comteist [sic], within the limits of evolution" (p. 926).By the 1890s, grand theorists such as Comte and Spencer and their monistic systems were decidedly out of favor both in the emerging social science disciplines and in academic philosophy. "At the end of the nineteenth century," notes Maurice Mandelbaum, "the earlier systematic form of positivism had to all intents and purposes lost its hold upon the major streams of thought. What had once seemed to be the philosophic import of the physical sciences no longer carried the same conviction" (Mandelbaum, p. 19). Although Ward finally obtained an academic appointment at Brown University in 1906, his approach had by then begun to look decidedly outmoded. Other, younger pioneering sociologists such as Albion Small at the University of Chicago and Edward A. Ross, first at Stanford and then at Wisconsin, moved away from a reductionistic explanatory method. Yet their meliorism and interest in social control also evidenced their early reading of Ward and, indirectly, the impact of Comtean assumptions. In the final pages of Social Control (1901), Ross portrayed the sociologist as a sort of priestly technocrat who would carefully guard the secret of social control but would "address himself to those who administer the moral capital of societyto teachers, clergymen, editors, lawmakers, and judges, who wield the instruments of control" (p. 441). The historian Robert Bannister describes American sociology growing into two distinct types of scientism in the early twentieth century and explains this development as a bifurcation of "the legacy of Comtean positivism: the one [branch] adopting the emphasis on quantification as the route to positive knowledge, and the other, Comte's utopian program without the mumbo jumbo of the Religion of Humanity" (Bannister, p

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