

## Chapter 1 : What are Some Social Problems? (with pictures)

*Each human personality lives hedged in between the two mysteries of the past and the future, the whence and the whither. If this personality is but a passing manifestation of physical energy between a sleep and a sleep, neither the one mystery nor the other is of any importance to us. If, again, it.*

What are the Problems? Ellen Clarke and Samir Okasha Why do we sometimes have trouble deciding whether something is an individual organism? Or how many species of, say, birds, there are in a particular genus? Intuition will be on her side, because both concepts—that of an organism and of a species—are among the most well-entrenched in our folk-scientific repertoire. We do not tend to have much trouble, on a day-to-day basis, differentiating between organisms and non-organisms. We know that dogs are organisms, while their tails are not. Surely, then, any attempt to claim that species and organism are problematic notions, calling out for the attention of philosophers, is just an example of professionals making work for themselves? The truth, as we will see, is that scientists really do encounter these problems, and the apparent obviousness of the intuitive concepts just makes our opening questions all the more pressing. The notion of a species and the notion of an individual organism are fundamental to modern evolutionary biology. Yet both are the object of ongoing conceptual and philosophical disagreement. It is relatively unusual in a mature, successful science—as evolutionary biology certainly is—to have such a lack of clarity about the fundamental concepts of that science. We do not find chemists unable to agree on what a molecule is, or cosmologists unable to agree on what a black hole is, or economists unable to agree on what a market is. Why, then, in evolutionary biology do we find such disagreements concerning the notions of species, and of individual? What makes these notions so problematic? It is striking that despite the extensive literature on both problems, there remains a lack of clarity, in both cases, about what exactly the problem is and where it stems from. We argue that in both the species case and the individual organism case, the literature contains two rather different characterizations of what the problem is meant to be, which are often not clearly distinguished from each other. On the second characterization, the problem is one of multiple criteria—biologists have proposed several defining criteria of both a species and an individual organism, which usually but do not always coincide in extension. In what follows, we illustrate how this dual characterization is at work in the literature on both problems, examine the relation between the rival characterizations, and propose a reconciliation. Everyone is familiar with the idea that organisms come in different kinds. There are tigers and lions and dogs, as well as oaks and fruit flies. The intuitive idea is that these kinds partition the set of all living things into non-overlapping groups in an objective way, where the members of each group share some set of properties in common. These properties allow us to tell the members of different species apart. For example, tigers are not the same as lions, despite both being large cats, because tigers are stripey and live in Asia, whereas lions have plain yellow fur and live in Africa. The properties of tigers, like many species taxa, are by and large projectable; we are confident in making many inductive inferences about the properties of unobserved tigers. In conservation science, we count species in order to measure biodiversity. Veterinarians learn species-specific animal medicine. Museums and zoos keep specimens that are taken to be exemplars of their type. The species concept even has legal implications, as a consequence of laws concerning endangered species. That is, we need to be able to say of any organism which species it belongs to. But as is well known, in some cases we cannot do this. No ornithologist can tell us definitively whether a finch he spots on the Hawaiian island of Nihoa is a *Telespiza cantans* or a *Telespiza ultima*. It's not that it is difficult to tell the difference between the two, but rather that different ornithologists have had different opinions about whether or not the differences between the two forms warrant treating them as separate species. Similarly, there is no consensus among scientists as to just how many species of Black-backed Gull circle the Arctic Mayr, nor how to assign many bacteria to species. There are various different respects in which the task of assigning organisms to species is difficult, which is why it is perhaps more accurate to think of the species problem as a problematic, a cluster of closely related issues, rather than a single one. Much of the modern species debate is about whether the species category itself is a natural kind,<sup>3</sup> and if so what is the essential nature that all

species taxa have in common. It seems natural to think that it is a natural kind; however, one reason to doubt this is that biologists use a multiplicity of distinct definitions of a species, as we will see. In addition to the lack of consensus about how to define the species category, there is disagreement about whether the species category should be viewed as just another taxonomic rank alongside 84 genus, family, order, and so forth, or whether it has some privileged status in the hierarchy. Finally, note that the species problematic has both a synchronic and a diachronic dimension. For practical purposes, the most pressing issue is how to assign extant organisms to species; this is the issue on which most of the biological literature focuses. But in principle, an ideal taxonomic system should be able to assign all organisms, extant and extinct, to species groups. We revisit the distinction between synchronic and diachronic formulations of the species problem below.

**The Organism Problem** The problem of what an organism, or biological individual, is, is perhaps less well known at the present time, although it too has a remarkably ancient pedigree. Biological individuals are indispensable items in our everyday ontology, as well as in our biological theories. We encounter living matter not as a homogeneous soup, but as a collection of discrete objects. The concept of the individual organism plays a pivotal role in evolutionary biology as the bearer of fitness and as the demographic unit. We need organisms in order to make predictions about the outcomes of selective processes. Our capacity to understand evolution depends on interpreting them as causal loci of selection, as interfaces between genes and the environment, whose births and deaths are significant events in the story of life. Biological individuals play equally pivotal, though slightly less obvious, roles as the unit of physiological study, of ecological interaction and of immunological response. Consider the cellular slime-mold *Dictyostelium discoideum*. Most of the time *Dictyostelium* exists in the form of single-celled amoebae, invisible to the naked eye, crawling around in dirt looking for bacteria to eat, and reproducing clonally. In times of famine, they send out chemical signals which attract other amoebae, and coalesce. The slug responds to light and climbs to the surface of leaf litter, where it starts to differentiate—the cells assuming different morphologies. Some of them form a stalk, which others climb up to form a spore at the top. The spores then catch a breeze and sail off to better food sources before hatching into baby amoebae. Are the cells organisms? We could view slug formation as a social strategy that is undertaken by individuals who are undergoing extreme circumstances. Conversely, we could treat the slug as an organism, whose parts undergo a clonal proliferation phase analogous to the growth of a multicellular organism, only without remaining physically attached to one another. There is no obvious choice between these alternative views. Many other lineages include examples of living things that behave, divide, or grow in ways that make it ambiguous whether there is one entity in play or many. In fact, most creatures on this earth fail to live up to the intuitively individuated standard set by furry or feathered metazoans. As with the species case, there is a cluster of associated problems here. In order to play the theoretical role we demand of it in biology, the concept of the organism must be such that we can count individual organisms. This means that we must always be able to distinguish organisms from mere parts, and also from groups or colonies, as well as to distinguish reproduction from growth. At least thirteen different definitions of the individual or organism are in active use in the biological literature, and each one divides the fauna and flora into a subtly different parade of individuals.

These are events during which formerly free-living entities aggregate to form new higher-level individuals. They have occurred many times in the history of life—examples include the origin of eukaryotic cells, the formation of multicellular organisms, and the appearance of social insect societies. This new dimension adds a diachronic challenge to this problematic—the concept should allow us to judge which collectives have completed an evolutionary transition, and so deserve to be called organisms in their own right rather than a group of smaller organisms. To summarize, there is confusion about whether or not some entities are species or organisms. Given the ubiquitous and familiar natures of those concepts, and their deep roles in important scientific theories, this is surprising. So we want to ask where that confusion comes from. Why do we have trouble deciding whether things are species or organisms? What is the underlying source of the problem? Perhaps surprisingly, the literature does not contain an unequivocal answer to this question. We propose that in both cases, two alternative characterizations of the underlying problem can be found in the literature, at times not sharply distinguished from one another. This account holds that there are

particular cases which resist determinate classification as falling either inside or outside of the category in question. These borderline cases reveal that the biological predicates "species and biological individual" are vague. For this reason, we cannot achieve consensus about the boundaries of the categories; they will always resist precise definition. For example, there is no fact of the matter as to whether a particular finch is a *Telespiza cantans* rather than a *Telespiza ultima* because there is no determinate boundary between these groups. Species shade into each other just as cloud shades into non-cloud. Therefore any attempt to group all living things, past and present, into sharply defined groups, between which no intermediates exist, is foredoomed to failure. Though these two theses are distinct as a matter of logic, there is arguably a close relation between them. If it is indeterminate whether some organism belongs to *Canis familiaris*, for example, then there must be some populations of organisms such that it is indeterminate whether they constitute species. Conversely, if every organism can be determinately assigned to a species, it is hard to see how there can be any population whose status as species is vague. Turning to the organism problem, vagueness also provides a plausible characterization of the root of this problem. This is particularly clear in relation to major evolutionary transitions, during which organisms change from being bona fide individuals to being mere parts in new higher-level wholes. Transitions are driven by selection, and so they take time; they cannot happen overnight. This means that intermediate cases are always going to occur along the way. A lineage of unicellulars becomes a lineage of multicellulars gradually, without crossing any sharp threshold. At intermediate stages of any transition, there is a group that has some properties of an individual and some of a colony. *Dictyostelium*, for example, may have taken some but not all of the steps on the way to higher-level individuality, which leaves us uneasy about whether to call the cells organisms or not. The vagueness account fits with J. In both the species case and the organism case, one might think that vagueness can only be a partial account of the source of these problems, just because vagueness is not a distinctively biological problem. But we can supplement this characterization with the observation that the borderline cases exist because of the gradualness of the Darwinian process Okasha. Similarly, the gradualness of the major evolutionary transitions means that at a particular point in time, entities may exist for which it is indeterminate whether they are individual organisms or mere parts in a larger organism. On this characterization, borderline cases are to be expected and are theoretically interesting, in that they teach us about the underlying dynamical process. Nor does the further facet "that the underlying dynamical process is such as to lead to borderline cases. So the supplementation makes this a more interesting point, and not just an example of the general phenomenon of vagueness. This correlation " between accepting punctuated equilibrium and regarding species as real and not as conventional entities " fits naturally with a characterization of the species problem as resulting from the existence of borderline cases, which themselves result from gradual evolution. For punctuated equilibrium theorists held precisely that evolution was not gradual, and that borderline or transitional cases were rare.

Chapter 2 : Full text of "Some problems of existence"

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Learn about the 10 biggest problems with public schools today, both from the perspective of the administrators and the teachers. Few would argue that the state of our education system has plenty of room for improvement. However, developing a plan to take schools in the right direction is easier said than done. The first challenge lies in identifying underlying problems keeping students from learning today. This challenge, in part, is due to the fact that the problems may change considerably depending on who is labeling them, whether it is students, parents, educators or lawmakers. Consider this list of 10 major challenges currently facing public schools, based on the perspective of many involved in the world of education today.

**Classroom Size** Many areas of the country are facing classrooms that are literally busting out at the seams. A report at NEA Today two years ago discussed how schools in Georgia, in the midst of major funding cuts for schools, had no choice but to lift all class size limits to accommodate students with the faculty the school system could still afford to keep. More recently, Fairfax County in Virginia has been looking into a proposal to increase classroom sizes in the face of significant budget cuts. The Board of Education in South Carolina is also weighing their options in this area. When money gets tight, classroom numbers are often impacted. Yet, most teachers agree that they cannot effectively teach every student in a classroom, if the class size exceeds about 25. Their statements are backed up by research. Class Size Matters cites a study performed by the Tennessee Star that found classes of students in grades K-3 provided both long and short-term benefits to both the students and the teachers in those classrooms. Minority students, those living in poverty and male students appeared to benefit from smaller classroom sizes the most. Poverty Technorati reported last fall that 22 percent of the children in the U. American Graduate also cites a report from the Southern Education Foundation, which shows in 17 states across the U. Students living at or below poverty level tend to have the highest dropout rates. Studies show that students who do not get enough food or sleep are less likely to perform at their full academic potential. Schools know these truths first-hand, and despite efforts to provide students with basic essentials, teachers, administrators and lawmakers know there is simply not enough to go around. Divorce, single parents, poverty, violence and many other issues are all challenges a student brings to school every day. While some teachers and administrators try to work with children in less than ideal family environments, they can only do so much – especially when parents are often not willing to partner with the schools to provide for the children. Technology Kids Health Guide reports that students are more technologically advanced than many teachers today, putting instructors at a decided disadvantage in the classroom. Technology needs to come into the classroom to keep up with the learning demands of the 21st century. Schools that are already cash-strapped may find an unsurmountable challenge in coming up with the funding to bring computers and other forms of technology into their classes. The website also suggests negotiating prices on technology when possible and allowing student to bring their own from home. Technology has given bullies even more avenues to torment their victims – through social networking, texting and other virtual interactions. Cyberbullying has become a major issue for schools, as evidenced by the number of suicides that can be directly traced to bullying events. The fact that laws are still fuzzy regarding cyberbullying adds to the challenge – since parents, teachers and administrators are unsure of how to legally handle such issues.

**Student Attitudes and Behaviors** Many public school teachers also cite student attitudes, such as apathy and disrespect for teachers, as a major problem facing schools today. A poll from the National Center for Education Statistics cited that problems like apathy, tardiness, disrespect and absenteeism posed significant challenges for teachers. These issues were seen more frequently at the secondary school level, rather than the primary grades. Although the current Obama Administration is working to reform NCLB policies, the focus in education on both the national and state level continues to be on the testing process. Do we use the data to remediate those who do not measure up? Parent Involvement Often teachers find there is no happy medium when it comes to parental involvement, according to the Kids Health Guide. Others never seem to go away, hovering over the child and teacher and interfering with the education process. Student Health Obesity has reached epidemic proportions

in the U. According to the website , the U. Department of Agriculture released new guidelines in to boost the nutritional quality of the meals students get at school. Exercise programs are also coming to schools across the country to promote more physical activity among students of all ages. However, it seems the country as a whole still has a long way to go to get on the road to better health on a large scale. Funding Budget cuts have created huge problems for most public schools in recent years. Less funding means smaller staffs, fewer resources and a lower number of services for students. There are many problems in public schools today, but identifying those issues is half the battle. With a laundry list of challenges to face, now is the time for educators, parents and lawmakers to come together and begin to find solutions “ for the benefit of all students in public schools today. Contact us on Twitter.

**Chapter 3 : Some Problems in Proving the Existence of the Universal Common Ancestor of Life on Earth**

*A completely new paradigm might be needed to finally solve the problem which Theobald challenged. Notwithstanding these problems in proving the existence of UCA by statistical testing, it is true that there is strong circumstantial evidence for its existence.*

Social problems develop from human social phenomena, which can be described as the rules and norms we develop to outline our actions around others. Social problems develop out of a necessity to maintain these "norms. Alcoholics certainly existed, but alcoholism would not have been considered a social problem. They should be very careful when making such posts about the commentaries others have posted here. This kind of behavior is a clear case of a lack of respect about others feelings and ideas. They say that it is not about individuals, but society and how it was made or the way it arose. The real thing is that if we as individuals are not willing to change where we are , our society will not change even if we truly want it to change. Any the problem could be the single individual is able to change even for himself. And as a group we may turn things for the better. I do have so many other things to say But I do not want to write an article. This was just my humble opinion. They reflect the lack of critical thinking ability and the short-sightedness of people, especially Westerners. By their very definition social problems are social; they are not about "good or evil" or selfishness on an individual level. They are about the way societies are structured and the fallout from those structures. Who wins and who loses? What is actually a problem? If you are wealthy, you are unlikely to view wealth inequality as a problem, however for the vast majority of us who are not wealthy, it is generally viewed as problem. This is not about individuals, but about how society has been built and how that structure has led to such inequalities and potential harm to a significant segment of society. Read the article before commenting. There is a difference between informed and uninformed opinions. So people need to compete and fight in order to survive. What shall we do in order to solve that? And the mere issue poses a lot of threats to the society. Causes of multiple social problems have common causes and knowing the causes can minimize the effects of the problems. For instance, pick-pocketing on streets and prostitution are caused by the need to fend for oneself on a daily basis. The rich family and poor class family are not facing any problems. Only the middle class families are facing a lot of problems. It is very elastic in definition. It encompasses economic, cultural, ethnic and human life. I think this creates severe social problems.

*THE PROBLEM RECENT work on the existence of an equilibrium has been concerned with a world without money while all work in monetary theory has ignored the 'existence' question. In this paper I propose to investigate some of the problems of rectifying this omission.*

Etymology[ edit ] The word "existence" comes from the Latin word *existere* meaning "to appear", "to arise", "to become", or "to be", but literally, it means "to stand out" *ex-* being the Latin prefix for "out" added to the causative of the verb *stare*, meaning "to stand". Aristotle developed a comprehensive theory of being, according to which only individual things, called substances, fully have to be, but other things such as relations, quantity, time, and place called the categories have a derivative kind of being, dependent on individual things. The Neo-Platonists and some early Christian philosophers argued about whether existence had any reality except in the mind of God. The medieval philosopher Thomas Aquinas argued that God is pure being, and that in God essence and existence are the same. Arnauld thought that a proposition or judgment consists of taking two different ideas and either putting them together or rejecting them: After conceiving things by our ideas, we compare these ideas and, finding that some belong together and others do not, we unite or separate them. This is called affirming or denying, and in general judging. This judgment is also called a proposition, and it is easy to see that it must have two terms. One term, of which one affirms or denies something, is called the subject ; the other term, which is affirmed or denied, is called the attribute or *Praedicatum*. Buroker in , *Logic*, II. Thus every proposition has three components: Even when the proposition has only two words, the three terms are still there. For example, "God loves humanity", really means "God is a lover of humanity", "God exists" means "God is a thing". This theory of judgment dominated logic for centuries, but it has some obvious difficulties: It does not allow propositions of the form "Some A are B", a form logicians call existential. David Hume argued that the claim that a thing exists, when added to our notion of a thing, does not add anything to the concept. For example, if we form a complete notion of Moses, and superadd to that notion the claim that Moses existed, we are not adding anything to the notion of Moses. Kant also argued that existence is not a "real" predicate, but gave no explanation of how this is possible. Brentano argued that we can join the concept represented by a noun phrase "an A" to the concept represented by an adjective "B" to give the concept represented by the noun phrase "a B-A". For example, we can join "a man" to "wise" to give "a wise man". But the noun phrase "a wise man" is not a sentence, whereas "some man is wise" is a sentence. Hence the copula must do more than merely join or separate concepts. Furthermore, adding "exists" to "a wise man", to give the complete sentence "a wise man exists" has the same effect as joining "some man" to "wise" using the copula. So the copula has the same effect as "exists". Brentano argued that every categorical proposition can be translated into an existential one without change in meaning and that the "exists" and "does not exist" of the existential proposition take the place of the copula. He showed this by the following examples: The categorical proposition "Some man is sick" has the same meaning as the existential proposition "A sick man exists" or "There is a sick man. The categorical proposition "All men are mortal" has the same meaning as the existential proposition "An immortal man does not exist" or "there is no immortal man". The categorical proposition "Some man is not learned" has the same meaning as the existential proposition "A non-learned man exists" or "there is a non-learned man".

Semantics[ edit ] In mathematical logic , there are two quantifiers, "some" and "all", though as Brentano *â€* pointed out, we can make do with just one quantifier and negation. The first of these quantifiers, "some", is also expressed as "there exists". Thus, in the sentence "There exists a man", the term "man" is asserted to be part of existence. But we can also assert, "There exists a triangle. Do abstractions such as goodness, blindness, and virtue exist in the same sense that chairs, tables, and houses exist? What categories , or kinds of thing, can be the subject or the predicate of a proposition? Worse, does "existence" exist? The statement "A bridge crosses the Thames at Hammersmith" cannot just be about a bridge, the Thames, and Hammersmith. It must be about "existence" as well. On the other hand, the statement "A bridge crosses the Styx at Limbo" has the same form, but while in the first case we understand a real bridge in the real world made of stone or brick, what "existence" would

mean in the second case is less clear. The nominalist approach is to argue that certain noun phrases can be "eliminated" by rewriting a sentence in a form that has the same meaning but does not contain the noun phrase. Thus Ockham argued that "Socrates has wisdom", which apparently asserts the existence of a reference for "wisdom", can be rewritten as "Socrates is wise", which contains only the referring phrase "Socrates". However, this argument may be inverted by realists in arguing that since the sentence "Socrates is wise" can be rewritten as "Socrates has wisdom", this proves the existence of a hidden referent for "wise". A further problem is that human beings seem to process information about fictional characters in much the same way that they process information about real people. For example, in the United States presidential election, a politician and actor named Fred Thompson ran for the Republican Party nomination. In polls, potential voters identified Fred Thompson as a "law and order" candidate. Thompson plays a fictional character on the television series Law and Order. The people who make the comment are aware that Law and Order is fiction, but at some level, they may process fiction as if it were fact, a process included in what is called the Paradox of Fiction[ dubious â€” discuss ] [11] Another example of this is the common experience of actresses who play the villain in a soap opera being accosted in public as if they are to blame for the actions of the characters they play. A scientist might make a clear distinction between objects that exist, and assert that all objects that exist are made up of either matter or energy. Thus if we reason from the statement "Pegasus flies" to the statement "Pegasus exists", we are not asserting that Pegasus is made up of atoms, but rather that Pegasus exists in the worldview of classical myth. When a mathematician reasons from the statement "ABC is a triangle" to the statement "triangles exist", she is not asserting that triangles are made up of atoms but rather that triangles exist within a particular mathematical model. The problem with this view is that there appears to be no such scope distinction in the case of proper names. The sentences "Socrates is not bald" and "it is not the case that Socrates is bald" both appear to have the same meaning, and they both appear to assert or presuppose the existence of someone Socrates who is not bald, so that negation takes a narrow scope. It is not the case that there existed a philosopher of Greece who was bald. In the narrow scope, it would read the Philosopher of Greece was not bald. According to the direct-reference view, an early version of which was originally proposed by Bertrand Russell, and perhaps earlier by Gottlob Frege, a proper name strictly has no meaning when there is no object to which it refers. This view relies on the argument that the semantic function of a proper name is to tell us which object bears the name, and thus to identify some object. But no object can be identified if none exists. Thus, a proper name must have a bearer if it is to be meaningful. Existence in the wide and narrow senses[ edit ] This section does not cite any sources. Please help improve this section by adding citations to reliable sources. Unsourced material may be challenged and removed. August Learn how and when to remove this template message According to the "two sense" view of existence, which derives from Alexius Meinong, existential statements fall into two classes. Those asserting existence in a wide sense. Those asserting existence in a narrow sense. These are typical of the form "N exists" or "Ss exist". The problem is then evaded as follows. But it does not imply existence in the narrow sense, for we deny existence in this sense by saying that Pegasus does not exist. In effect, the world of all things divides, on this view, into those like Socrates, the planet Venus, and New York City that have existed in the narrow sense, and those like Sherlock Holmes, the goddess Venus, and Minas Tirith that do not. However, common sense suggests the non-existence of such things as fictional characters or places. This section does not cite any sources.

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In art, essentialism is the idea that each medium has its own particular strengths and weaknesses, contingent on its mode of communication. A chase scene , for example, may be appropriate for motion pictures , but poorly realized in poetry , because the essential components of the poetic medium are ill suited to convey the information of a chase scene. Essentialism is attractive to artists, because it not only delineates the role of art and media, but also prescribes a method for evaluating art quality correlates to the degree of organic form. However, considerable criticism has been leveled at essentialism, which has been unable to formally define organic form or for that matter, medium. What, after all, is the medium of poetry? If it is language, how is this distinct from the medium of prose fiction? Is the distinction really a distinction in medium or genre? Questions about organic form, its definition, and its role in art remain controversial. Generally, working artists accept some form of the concept of organic form, whereas philosophers have tended to regard it as vague and irrelevant. This section needs additional citations for verification. Please help improve this article by adding citations to reliable sources. June Learn how and when to remove this template message

This problem originally arose from the practice rather than theory of art. Marcel Duchamp , in the 20th century, challenged conventional notions of what "art" is, placing ordinary objects in galleries to prove that the context rather than content of an art piece determines what art is. While it is easy to dismiss these assertions, further investigation[ who? For example, if a pianist plays a Chopin etude , but his finger slips missing one note, is it still the Chopin etude or a new piece of music entirely? Most people would agree that it is still a Chopin etude albeit with a missing note , which brings into play the Sorites paradox , mentioned below. If one accepts that this is not a fundamentally changed work of music, however, is one implicitly agreeing with Cage that it is merely the duration and context of musical performance, rather than the precise content, which determines what music is? Hence, the question is what the criteria for art objects are and whether these criteria are entirely context-dependent. Philosophy of language[ edit ] Main article: Counterfactual conditional A counterfactual statement is a conditional statement with a false antecedent. For example, the statement "If Joseph Swan had not invented the modern incandescent light bulb , then someone else would have invented it anyway" is a counterfactual, because in fact, Joseph Swan invented the modern incandescent light bulb. The most immediate task concerning counterfactuals is that of explaining their truth-conditions. As a start, one might assert that background information is assumed when stating and interpreting counterfactual conditionals and that this background information is just every true statement about the world as it is pre-counterfactual. In the case of the Swan statement, we have certain trends in the history of technology, the utility of artificial light, the discovery of electricity, and so on. We quickly encounter an error with this initial account: Epistemology[ edit ] Epistemological problems are concerned with the nature, scope and limitations of knowledge. Epistemology may also be described as the study of knowledge. Gettier problem Plato suggests, in his Theaetetus a and Meno 97aâ€”98b , that "knowledge" may be defined as justified true belief. For over two millennia, this definition of knowledge has been reinforced and accepted by subsequent philosophers. In , Edmund Gettier published an article in the journal " Analysis ", a peer reviewed academic journal of philosophy, entitled "Is Justified True Belief Knowledge? Finally, if infallibilism is true, that would seem to definitively solve the Gettier problem for good--the idea is that knowledge requires certainty, such that, certainty is what serves to bridge the gap so that we arrive at knowledge, which means we would have an adequate definition of knowledge. Problem of the criterion[ edit ] Main article: Problem of the criterion Overlooking for a moment the complications posed by Gettier problems, philosophy has essentially continued to operate on the principle that knowledge is justified true belief. One must therefore provide a

justification for the justification. That justification itself requires justification, and the questioning continues interminably. The conclusion is that no one can truly have knowledge of anything, since it is, due to this infinite regression, impossible to satisfy the justification element. In practice, this has caused little concern to philosophers, since the demarcation between a reasonably exhaustive investigation and superfluous investigation is usually clear. Others argue for forms of coherentist systems, e. Recent work by Peter D. Klein [1] views knowledge as essentially defeasible. Therefore, an infinite regress is unproblematic, since any known fact may be overthrown on sufficiently in-depth investigation. The problem raises fundamental issues in epistemology and the philosophy of mind , and was widely discussed after Locke included it in the second edition of his *Essay Concerning Human Understanding*. His version of the problem, however, dealt mainly with colors rather than shapes. The resolution of this problem is in some sense provided by the study of human subjects who gain vision after extended congenital blindness. In one such study, subjects were unable to immediately link objects known by touch to their visual appearance, and only gradually developed the ability to do so over a period of days or months. According to this argument, the proof of any theory rests either on circular reasoning , infinite regress, or unproven axioms.

**Chapter 6 : The Problems of the World Today**

*Note: Larger/Darker text within each node indicates a higher relevance of the materials to the taxonomic classification.*

Existentialism, true to its roots in Kierkegaard and Nietzsche, was oriented toward two major themes: Thus, its chief theoretical energies were devoted to ontology and decision. Nature of existentialist thought and manner According to existentialism: With respect to the first point, that existence is particular, existentialism is opposed to any doctrine that views human beings as the manifestation of an absolute or of an infinite substance. It is thus opposed to most forms of idealism, such as those that stress Consciousness, Spirit, Reason, Idea, or Oversoul. Second, it is opposed to any doctrine that sees in human beings some given and complete reality that must be resolved into its elements in order to be known or contemplated. It is thus opposed to any form of objectivism or scientism, since those approaches stress the crass reality of external fact. Third, existentialism is opposed to any form of necessitarianism; for existence is constituted by possibilities from among which the individual may choose and through which he can project himself. And, finally, with respect to the fourth point, existentialism is opposed to any solipsism holding that I alone exist or any epistemological idealism holding that the objects of knowledge are mental, because existence, which is the relationship with other beings, always extends beyond itself, toward the being of those entities; it is, so to speak, transcendence. Starting from such bases, existentialism can take diverse and contrasting directions. It can insist on the transcendence of Being with respect to existence, and, by holding that transcendence to be the origin or foundation of existence, it can thus assume a theistic form. On the other hand, it can hold that human existence, posing itself as a problem, projects itself with absolute freedom, creating itself by itself, thus assuming to itself the function of God. As such, existentialism presents itself as a radical atheism. Or it may insist on the finitude of human existence. As such, existentialism presents itself as a humanism. From on, with the diffusion of existentialism through continental Europe, its directions developed in keeping with the diversity of the interests to which they were subject: That diversity was rooted, at least in part, in the diversity of sources on which existentialism draws. One such source is the subjectivism of the 4th-5th-century theologian St. Augustine, who exhorted others not to go outside themselves in the quest for truth, for it is within them that truth abides. Still another source is the nihilism of the Russian author Fyodor Dostoyevsky, who, in his novels, presented human beings as continually defeated as a result of their choices and as continually placed before the insoluble enigma of themselves. As a consequence of the diversity of such sources, existentialist doctrines focus on several aspects of existence. They focus, first, on the problematic character of the human situation, through which the individual is continually confronted with diverse possibilities or alternatives, among which he may choose and on the basis of which he can project his life. Third, the doctrines focus on the intersubjectivity that is inherent in existence and is understood either as a personal relationship between two individuals, I and thou, such that the thou may be another person or God, or as an impersonal relationship between the anonymous mass and the individual self deprived of any authentic communication with others. Fourth, existentialism focuses on ontology, on some doctrine of the general meaning of Being, which can be approached in any of a number of ways: There is, in the fifth place, the therapeutic value of existential analysis that permits, on the one hand, the liberating of human existence from the beguilements or debasements to which it is subject in daily life and, on the other, the directing of human existence toward its authenticity. The various forms of existentialism may also be distinguished on the basis of language, which is an indication of the cultural traditions to which they belong and which often explains the differences in terminology among various authors. The linguistic differences, however, are not decisive for a determination of philosophical affinities. Historical survey of existentialism Many of the theses that existentialists defend or illustrate in their analyses are drawn from the wider philosophical tradition. But our whole groundwork cracks, and the earth opens to abysses. In early 19th-century French philosophy, it was defended by a reformed ideologue of the French Revolution, Marie Maine de Biran, who wrote: I was already led by instinct to look within myself in order to know how it was possible that I could be alive and be myself. The theme of the irreducibility of existence to reason, common to many existentialists, was also

defended by the German idealist F. Understanding, according to Dilthey, consists in the reliving and reproducing of the experience of others. Hence, it is also a feeling together with others and a sympathetic participation in their emotions. Understanding, therefore, accomplishes a unity between the knowing object and the object known. Immediate background and founders The theses of existentialism found a particular relevance during World War II, when Europe found itself threatened alternately by material and spiritual destruction. Under those circumstances of uncertainty, the optimism of Romantic inspiration, by which the destiny of humankind is infallibly guaranteed by an infinite force such as Reason, the Absolute, or Mind and propelled by it toward an ineluctable progress, appeared to be untenable. The negative aspects of existence, such as pain, frustration, sickness, and death—which 19th-century optimism refused to take seriously because they do not touch the infinite principle that those optimists believed to be manifest in humans—became for existentialism the essential features of human reality. The thinkers who, by virtue of the negative character of their philosophy, constituted the exception to 19th-century Romanticism thus became the acknowledged masters of the existentialists. Against Hegelian necessitarianism, Kierkegaard interpreted existence in terms of possibility: Emergence as a movement Modern existentialism reproduced such ideas and combined them in more or less coherent ways. Human existence is, for all the forms of existentialism, the projection of the future on the basis of the possibilities that constitute it. For others such as Sartre, the possibilities that are offered to existential choice are infinite and equivalent, such that the choice between them is indifferent; and for still others Abbagnano and Merleau-Ponty, the existential possibilities are limited by the situation, but they neither determine the choice nor render it indifferent. The issue is one of individuating, in every concrete situation and by means of a specific inquiry, the real possibilities offered to humans. For all the existentialists, however, the choice among possibilities. Among the risks, the most serious is the descent into inauthenticity or alienation, the degradation from being a person into being a thing. Against that risk, for the theological forms of existentialism e. Existentialism has had ramifications in various areas of contemporary culture. Kafka, FranzFranz Kafka, c. From Jaspers and Binswanger, the existentialist current became diffused and variously stated in contemporary psychiatry. On the other hand, there was the requirement to demythologize the religious content of faith, particularly of the Christian faith, in order to allow the message of the eschatological event of salvation to emerge from among human existential possibilities. Methodological issues in existentialism The methods that existentialists employ in their interpretations have a presupposition in common: The two terms coincide in existence: That common ground notwithstanding, each existentialist thinker has defended and worked out his own method for the interpretation of existence. Phenomenology is thus capable of disclosing the structure of Being and hence is an ontology of which the point of departure is the being of the one who poses the question about Being, namely, the human being. Reason is possible existence. Thus, when the impossibility of its achievement is recognized, it is changed into faith, into the recognition of transcendence as providing the only possibility of its final achievement. According to Sartre, the foremost philosopher of mid-20th-century France, the method of philosophy is existential psychoanalysis. Roger-Viollet Finally, according to humanistic existentialism, as represented by Abbagnano and Merleau-Ponty, the method of philosophy consists of the analysis and the determination by employing all available techniques, including those of science of the structures that constitute existence. Page 1 of 3.

## Chapter 7 : Some Problems of Existence

*We'll explore some specific problems which exist in this category. Global Terrorism We are faced with the problem of Global Terrorism which has been called the shadow of the process of Globalization.*

We stand at the Abyss, at the steadily approaching threshold of unimaginable chaos, calamity, death and destruction. But there exists a lasting solution to these issues facing humankind. This chapter is about the problems that we, together as the human race, face in present times. It concerns some of the ominous circumstances of the current age that threaten not only the well being of collective humanity but also, perhaps, the very Environmental and Ecological systems that support life on Earth as we know it today. So what are these most significant problems of the World? I find it useful to group these very major issues into four broad categories. The first category relate to the Environmental and Ecological problems of the World. Which includes issues relating to ecological destruction, resource depletion and atmospheric change, i. I also included in this category the problem of over population which exacerbates these environmental issues though this might equally well be considered as a Social and Political problem. The second category relates to the Problems in the Social, Economic and Political Spheres of human activity. We live in a World partly characterized, unfortunately, by corruption, oppression, exploitation, conspiracy and injustice. And a world riddled with division, conflict, terrorism and mutual distrust. The third category concerns the spiritual problems of present times. This relates to the issues surrounding the process of Secularization and the reaction of Religion in the face of the rise of Scientific Rationalism, i. The fourth and final category concerns the problems of the age relating to the realm of ideas. That is the problems and puzzles which vex Scientists, Philosophers and Theologians. At first it may seem a little incongruous to consider these more academic problems in the same discussion as some of the more apparent issues mentioned earlier i. Towards the latter part of this Chapter I show how ideas, and one idea especially, have the power to potential produce a lasting solution to the problems of this World. So we shall now examine each of these problem categories in more detail..

**A Planet in Peril** It is generally acknowledged that in the World today there are potentially calamitous problems relating to environmental destruction, resource depletion, global warming and over population. The natural resources of this planet, its forests, fisheries and crop lands are already being used at such a rate that is unsustainable. We are already using the planets renewable resources faster than what the planet can replenish. This trend is related to the ongoing and accelerating process of species extinction and the destruction of natural habitats such as the tropical rainforests, whole ocean ecosystems, rivers and coastal wetlands. This gradual destruction of the earths biosphere, its animal and plant species together with their complex webs of self sustenance, is certainly set to continue as human population growth and increased economic activity imposes more pressures on the planetary ecosystem. The worlds population at an estimated 7 billion people today, is projected to grow to over 10 billion people as early as This is coupled with massive growth in economic activity lead by the surging economies of China and India and further boosted by economic growth in the rest of the World as well. If the Planet is already struggling to cope with the demands placed upon it by the human race currently, when we also factor in these other considerations, then certainly we are heading for some interesting times. Also food shortages and food price hikes that were experienced by the World in may be the shape of things to come.

**Global Warming** Another major problem that looms on the horizon and one that probably is already upon us and exerting its effects, is the phenomenon of Global Warming. This is made manifest in the melting glaciers and polar ice caps, the increase in hurricane activity with category 4 and 5 hurricanes, the most intense, doubling in frequency over the past 50 years , changing rainfall patterns and of course the actual increases in measured surface temperatures. The majority verdict of the scientific community points towards the notion that Global Warming is at least partly man made and brought about through the emissions of so called green house gases such as methane and carbon dioxide, which causes the earths atmosphere to retain more heat. Also based on computer climate models, it is projected that Global Warming will continue with potentially dire consequences for vast numbers of people living on this planet. These predictions vary with some scenarios describing temperature rises of 1 or 2 degrees centigrade coupled with

sea level rises of 80cm or so. Other models predict temperature rises of 3 to 5 degrees centigrade coupled with sea level rises of 7m! At the extreme end we find truly doomsday scenarios where the earth's atmosphere is changed to such an extent that it becomes similar to that of the planet Venus, with surface temperatures way above the boiling point of water, that is degrees celsius together with sulphuric acid rain. Though seemingly far fetched, the world renowned scientist Stephen Hawking cited this scenario as a distinct future possibility. Even without considering these future predictions we are already being affected by climate change in a way that is detrimental to human life and well-being. It is estimated that over 27,000 died as a direct result of the freak heat wave that was experienced over Western Europe. Those that died were many the very old and the very young. The deaths that have resulted from crop failures in The Third World, brought about as an indirect consequence of climate change, may number into the millions. Hurricane Katrina which a few years ago hit the Southern coastal city of New Orleans in the USA is estimated to have killed over 100,000 people. Water Scarcity A problem that is related to Global Warming concerns the availability of water resources to the world's people. It has been estimated by the United Nations that due to population growth, pollution and global warming the average person's water supply will be cut by a third over the next 20 years. Even in Australia which at the time of writing this, is in a drought that has lasted 6 years, is facing the ruin of large swathes of its agricultural industry. It has been said by strategists that in the future wars will be fought over water, this most essential of requirements for sustaining life. Peak Oil, Peak Gas and Peak Uranium A serious problem looming over the horizon is that of fuel shortages due to the peaking in production and subsequent decline in output of three of the world's most important energy sources, that is Oil, Gas and Uranium Ore. At the same time the world demand for the same commodity will either grow or remain constant thereby producing a supply shortfall, pushing up prices and producing a state of scarcity for that resource. This can lead to Political instability, Economic problems and even War when countries use force of arms to try to secure their energy supplies. The dates for these eventualities are around for Peak Oil, though some commentators think we have already got there. The estimates for the time of Peak Gas range from around 2010 to 2020 and that for Peak Uranium at around 2030. It is characterized by an integration and coming together of all the people and spheres of human activity around the world through trade, economic integration, political union and cultural exchange. This process of the coming together of humanity is facilitated by modern technologies such as the Internet, the Jumbo Jet and the other facets of the world logistical transport and communication system, which is gradually making into a single entity the entire human race. However this coming togetherness of humanity is accompanied by a host of difficulties and seemingly intractable problems that derive partly from cultural, ideological and religious differences, but also from the perceived injustices of this world, its iniquity and the exploitative nature of some international relationships. Though humanity is coming together, we still live in a world of ideological and religious differences, mutual distrust and enmity. A world of racial and ethnic disharmony and one characterized by massive disparities in wealth and availability or access to the basic resources needed to sustain human life. These are the roots that give rise to some of the problems of the Coming One World Order. This second problem category relating to the Coming One World Order really concerns all the problems of this World relating to issues of Political, Economic and Social organization and behaviour. This problem category would include problems arising from social divisions, either racial, religious or national etc. Then are general problems relating to tyranny, oppression, social injustice and inequality. It is the case that the coming One World Order or Global Village can be accurately described as a Social, Economic and Political entity; naturally therefore it would seem sensible to group these Social, Economic and Political problems of the World under a single category. Global Terrorism We are faced with the problem of Global Terrorism which has been called the shadow of the process of Globalization. As the world is becoming one place, so it is that the effects of terrorism have global effects. Also it may be understood that the causes of this global terrorism are likewise global in nature, with disaffected individuals and groups caught up in ideologies of global scope and participating in causes that transcend international and even inter-continental barriers. We see this particularly in the Muslim world, where issues in Palestine, Bosnia, Afghanistan or Iraq can mobilize people on the other side of the world to want to make interventions. This process is followed by international powers such as the United States, which in order to protect its people and economic interests, is compelled to make its

own global interventions to counteract perceived threats and in the process perhaps exacerbating the problems these measures were designed to remedy in the first place. Globalization and Problems of Economic Integration A major facet of globalization is the massive increases in international trade that we have witnessed in recent years. The benefits of international trade are many, i. So generally speaking international free trade is a good thing. There are however problems which accompany this increased global flow of goods, services, ideas and people. Even though international trade benefits the vast majority of people in this world overall, there will at the same time be winners and losers. In a globally competitive market place some firms, those that have the most attractive products and services, will see an increase in business. While those with products and services that are less appealing to the consumer will see decreases in demand for their output and will be forced to improve, diversify or else go bust. Also the same is true for entire nations. Countries which have established entire industries in for example coal mining, car manufacture or certain types of agricultural produce, may find these sectors of their economies under threat in a world market. Other nations may enjoy competitive advantages in these industries which allow them to produce more efficiently, more cheaply or to a higher standard, thus enabling them to win out in the market place. This competitive pressure is often cited as one of the benefits as firms and corporations focus their efforts on making their products and services better. The winner of this process is the consumer on a local, national and international level. However there are limits to how far individual firms and certain industries of specific nations are able to compete and so inevitably firms will go bankrupt and countries may have entire industrial sectors decimated. This results in painful transitions and people losing their jobs. Sometimes the effects can be severe causing mass unemployment and serious social upheaval. One of the direct results of globalization and the international market is the flow of labour around the world as people migrate to find work. This mass migration of people is made up of those people going to countries where their skills are most in demand and those people who are escaping poverty and countries with high unemployment. This is accompanied by problems of labour exploitation and difficulties arising from the integration of guest workers into foreign lands. Also friction can emerge from the competition for jobs and resources such as housing, between local populations and the migrants. There are many other problems relating to the planet wide economic integration, but it is beyond the scope of this article to go into all of these in any depth. A brief list of these issues might include things like unfair trade practices, tariffs, quotas and government subsidies. It concerns the distinct possibility that all of humanity is being brought together into an all encompassing and planet wide tyranny. This is a serious problem if the entire human race is brought under the control of a tiny self serving minority at the expense of individual freedoms and the greater good of the majority. The modern economic system is one where the rich tend to become even richer and further consolidate and extend their economic power through the exercising of political power. In a world where political power is increasingly self serving, gained through financial power and used for financial gain, then certainly it is true that economic power also buys political power. It would appear that we are perhaps heading towards a corrupt One world tyranny, headed by a dynastic elite, who may one day have total control over the Political, Judicial, Economic, Law enforcement and Military institutions of the entire World; perhaps even key Religious ones as well. This may seem the stuff of conspiracy theories but without a doubt economic and political advantage is gained through unscrupulous and devious means which have to be kept secret from the wider public. However it is true that a part of the human makeup is a certain fixation on power, influence and status. And certainly humans spend a lot of time, energy and resources to come up with ways and means to gain power over other humans. So if we take this human tendency, extrapolate it to a global scale and take it to its logical conclusion, then it is not unreasonable to conjecture that there are those who, if given the opportunity, would like to rule the World. Also given that the World is gradually becoming one economically and politically integrated unit, together with all the ingenious, corrupt and conspiratorial means through which power may be obtained, extended and consolidated; then an evil self serving world tyranny is definitely a distinct possibility. The Universal Decline of True Religion and the Rise of replacement Doctrines We turn now to consider some of the difficulties of this World relating to matters of Religion and Spirituality. Of course all through history there have always been problems associated with Religion. What makes the present situation unique are the unprecedented conditions which have come about

through the equally unprecedented rise of Scientific Rationalism over the past few centuries, accompanied by emergence of the modern technological age.

**Chapter 8 : Existence of Solutions to Boundary Value Problems for a Fourth-Order Difference Equation**

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Some Problems for the Ontological Argument: Jay Dyer c copyright The ontological argument of Anselm of Canterbury has long since captivated the minds of many philosophers and apologists. And certainly this being so truly exists that it cannot even be thought not to exist. For something can be thought to exist that cannot be thought not to exist, and this is greater than that which cannot be thought not to exist. Hence, if that-than-which-nothing-greater-can-be-thought can be thought not to exist, then that-than-which-nothing-greater-can-be-thought is not the same as that-than-which-nothing-greater-can-be-thought, which is absurd. Something-than-which-a-greater-cannot-be-thought exists so truly then, that it cannot be even thought not to exist. And you, Lord our God, are this being. God exists in the understanding, but not in reality. In Western philosophy, particularly in the medieval theological tradition, there is the familiar divide between the Platonic and Aristotelian approaches to religious philosophy. Without getting into too much of a debate which exceeds the limits of this paper, it is safe to say that Anselm continues to represent the more Platonic and patristic approach to the question of divine knowledge and ontology. Aquinas even argues that all knowledge of the divine in this life is based on analogia entis, with nothing said of the divine being said univocally. The Augustinian and Anselmian intellects, in the midst of devotional lauds and platitudes, end up attempting to encapsulate the limits of the divine being by a definition that relies purely on human conceptual capabilities, even while attempting to do precisely the opposite. One might simply respond to Anselm that the divine Being is known apophatically, as opposed to a positive, kataphatic attribution, and is not encompassed or defined by any human-derived conceptual presupposition of being at the top of a scale of being. Reformed Philosopher Cornelius Van Til comments on the traditional Western Christian biblical-based notion of God as not matching up to the conceptual scheme Anselm puts forward: We should be careful when we say that God is the being than whom nothing higher can be thought. If we talk of the highest being of which we can think, in the sense of having a concept of, and attribute to it actual existence, we do not have the biblical God. God is not the reality that corresponds to the highest conception of man, considered as an independent being, can think. Man cannot think of an absolutely self-contained being; that is, he cannot have a concept of it in the ordinary sense of the term. God is infinitely higher than the highest being of which we can form a concept. When we speak of our concept or notion of God, we should be fully aware that by that concept we have an analogical reproduction of the notion that God has of Himself. However, it is impossible to divest this argumentation from the ancient and medieval conceptions of the universe subsisting as a vast chain of being with the Supreme Deity at the top, descending down through the hierarchy of celestial angels to man, then down to animals, hell, and nothingness. This is not to say that the argument is necessarily flawed, but rather, that it relies on a vast number of presuppositions. Another problem with the formulation as given by Anselm and Plantinga is the problem of univocal predication. Anselm consistently refers to the Supreme Being as the first, and highest, most perfect, subsisting in total aseity, containing in Himself all perfections and all attributes proper to Him, etc. The assumption being, first, that all reasonable persons agree to this same idea of a first, Supreme Being. Of course, the history philosophy demonstrates quite the opposite: The arguments between Aquinas, Avicenna and Maimonides show this quite clearly. Aquinas recognized this, and that is why he thought it more consistent to argue that the concepts are analogical, not univocal, however, his scheme also requires that there be a real correlation between the created being and the Supreme Being. The biblical monotheistic conception is supposed to argue for a distinct, personal Deity. This is especially relevant when one considers the Christian emphasis on the Incarnation as central to its entire scheme. Kant was entirely correct in pointing out that what this really demonstrates if at all is a kind of deism. The reason for this approach in Anselm, as well as in his master Augustine and also later in Aquinas, is the classic Western teaching on divine simplicity. In this definition, God is viewed as purely actual, with no unrealized potentialities. God is what He has, and all of His attributes are strictly identical to His essence, as well as the

three Persons, too. All are isomorphically identified. The human mind, of course, cannot grasp this, and so must parcel out different attributes and actions, and these distinctions are strictly logical distinctions—in reality, God has no distinctions whatsoever. The problem then arises as to how this will be fleshed out in terms of epistemology. Again, though we finite humans might need to parcel these out as distinct in our minds, in reality—in the divine essence, they are all identical. When applied to the Supreme Being, love and justice and mercy must also be univocal with the human conceptions. This means that all reality, at base, if it is to match up to and be an analogue of the deity must also be like the deity—absolutely simple, and all possible cognates and predicates identical. However, Anselm knows that created being does not perfectly match up the divine, so he would likely opt for some kind of analogy, like Aquinas. The universals and forms of each thing are known through a reflected image the human has in his mind of the ideal found in the divine mind. So if one wants to make a real correspondence, one option is to say that all of created reality mirrors this, and is ultimately all one, too, with no real distinctions. But this is monistic pantheism, and is problematic for Anselm. The other option is to say, as Kant pointed out, the divine forms are unknown and nothing like the created forms, and this is deism, which is equally problematic for Anselm, and thus undercuts his entire illuminist epistemology. Creation, then, must become an emanation from the divine essence, no different than any other action of God, since, again, all the actions are identified with the uncreated divine essence. But equating generation and spiration with creating is gravely problematic for Anselm, since he is an orthodox Roman Catholic, adhering to the Nicene definitions of Jesus as the eternally begotten Son, and not a creature. The ontological argument is certainly interesting and has long intrigued thinkers, yet as a consistent argument proving its case, it falls flat. University Press, , University Press, , , The Light of the Mind: Academic Renewal Press, Summa Theologica Part Ia Qs. Readings and Analysis Phillipsburg, NJ: Westminster Press, , Prometheus Books, , Loreto Publications, ,

**Chapter 9 : List of unsolved problems in philosophy - Wikipedia**

*While some people might view abortion as the solution to this problem, other members of the society remain strongly opposed to its use. In itself, strong disagreements on how to solve problems create divides in social groups.*

Received Oct 31; Accepted Dec 8. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. This article has been cited by other articles in PMC. Abstract Although overwhelming circumstantial evidence supports the existence of the universal common ancestor of all extant life on Earth, it is still an open question whether the universal common ancestor existed or not. Theobald Nature , “ recently challenged this problem with a formal statistical test applied to aligned sequences of conservative proteins sampled from all domains of life and concluded that the universal common ancestor hypothesis holds. Introduction Data generated by genomic sequencing projects from a wide variety of species now allow for the assembly of combined protein sequence data sets to reconstruct the universal tree of life e. On the other hand, it is still an open question whether the universal common ancestor UCA of all extant life on Earth existed or not. Although molecular phylogenetic methods automatically construct a tree when a sequence data set is provided, the inferred tree does not necessarily guarantee the existence of UCA, because its existence is assumed implicitly from the beginning usually in molecular phylogenetics. The theory of UCA has enjoyed a compelling list of circumstantial evidence as given by Theobald [ 2 ]. However, there had been no attempt to test the UCA hypothesis among three domains or superkingdoms of life, that is, eubacteria Bacteria , archaeobacteria Archaea , and eukaryotes Eukarya , by using molecular sequences until Theobald [ 2 ] challenged this problem with a formal statistical test. By using the sequence data sets compiled by Brown et al. His attempt is the first step towards the goal of establishing the UCA theory with a solid statistical ground. However, his methodology contains some problems for establishing the UCA theory as discussed by us [ 4 ], and, in this communication, we will give further details of our arguments. So they a priori assumed the existence of UCA. Indeed, alignment is a procedure based on an assumption that the sequences have diverged from a common ancestral sequence. We removed poorly conserved regions in individual protein alignments. However, in proving the existence of UCA, the alignment procedure should not be used, because it gives a strong bias for the UCA hypothesis. In a previous communication [ 4 ], we provided an example from two apparently unrelated families of nucleic acid coding sequences cytb and nd2 of mitochondria for which AIC chooses a common origin hypothesis. Since alignment gives a bias for common ancestry, we did not make an alignment between cytb and nd2, but still the common origin of cytb and nd2 was preferred to the independent origins of these two genes. Probably no one will believe that this result should be regarded as evidence of the ultimate common ancestry of cytb and nd2. We used the same reading frame of the two genes, but, according to Theobald, the constraints of the genetic code are expected to induce correlations between these sequences that are not due to common ancestry. This is a good point, and in this work we will use the amino acid substitution model as well to account of this correlation. Therefore, by using several alternative substitution models of nucleotides as well as amino acids, we will study whether default settings of the alignment program, with which the data set of Theobald was made, reject the common origin hypothesis of the two apparently unrelated genes. Materials and Methods The same sequence data set as used in [ 4 ] was provided for the analyses. The independent origin hypothesis shown in left side of Figure 1 is compared with the common origin hypothesis shown in the right with the criterion of AIC [ 3 ]. Substitution models used in this work are as follows: