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Chapter 1 : Analogical Reasoning

An analogy is a comparison between two objects, or systems of objects, that highlights respects in which they are thought to be calendrierdelascience.comical reasoning is any type of thinking that relies upon an analogy.

Although inductive inferences never guarantee the truth of their conclusions, as valid deductive inferences do, we can evaluate them by considering how each could be made stronger or weaker by the addition of further information. Not every analogy is an argument; we frequently use such comparisons simply to explain or illustrate what we mean. But arguments by analogy are common, too. Suppose, for example, that I am thinking about buying a new car. If I discover that three of my friends have recently bought Geo Prizms from Burg and that all three have been delighted with their purchases, then I will conclude by analogy that if I buy a Geo Prizm from Burg, I will be delighted, too. Evaluating Analogies Of course, this argument is not deductively valid; it is always possible that my new car may turn out to be an exception. But there are several considerations that clearly matter in determining the relative strength or weakness of my inductive inference: If five friends instead of three report their satisfaction with the model I intend to buy, that tends to make it even more likely that I will be satisfied, too. In general, more instances strengthen an analogy; fewer weaken it. If my three friends bought their Prizms from three different dealers but were all delighted, then my conclusion is somewhat more likely to be true, no matter where I decide to buy mine. In general, the more variety there is among the instances, the stronger the analogical argument becomes. If my new purchase is not only the same make and model from the same dealer but also has the same engine, then my conclusion is more likely to be true. In general, the more similarities there are between the instances and my conclusion, the better for the analogical argument. But relevance is not something about which we can be terribly precise; it is always possible in principle to tell a story in the context of which anything may turn out to be relevant. So we just have to use our best judgment in deciding whether or not some respect deserves to be considered. If my friends all bought Geos with automatic transmissions and I plan to buy a Geo with a standard transmission, then the conclusion that I will be delighted with my purchase is a little less likely to be true. In general, the fewer dissimilarities between instances and conclusion, the better an analogical argument is. If all three of my friends were delighted with their auto purchases but I conclude only that I will be satisfied with mine, then this relatively modest conclusion is more likely to be true. In general, arguments by analogy are improved when their conclusions are modest with respect to their premises. Posted by Via Syl at.

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Chapter 2 : Analogy - Verbal Reasoning Questions and Answers

Comparison with deductive reasoning[edit] Argument terminology Unlike deductive arguments, inductive reasoning allows for the possibility that the conclusion is false, even if all of the premises are true. An example of induction would be "B, C, and D are observed to be true therefore A might be true". A is a reasonable explanation for B, C, and D being true. A large enough asteroid impact would create a very large crater and cause a severe impact winter that could drive the non-avian dinosaurs to extinction. We observe that there is a very large crater in the Gulf of Mexico dating to very near the time of the extinction of the non-avian dinosaurs Therefore it is possible that this impact could explain why the non-avian dinosaurs became extinct. Note however that this is not necessarily the case. Other events with the potential to affect global climate also coincide with the extinction of the non-avian dinosaurs. For example, the release of volcanic gases particularly sulfur dioxide during the formation of the Deccan Traps in India. A classical example of an incorrect inductive argument was presented by John Vickers: All of the swans we have seen are white. Therefore, we know that all swans are white. The correct conclusion would be, "We expect that all swans are white". The definition of inductive reasoning described in this article excludes mathematical induction , which is a form of deductive reasoning that is used to strictly prove properties of recursively defined sets. Both mathematical induction and proof by exhaustion are examples of complete induction. Complete induction is a type of masked deductive reasoning. An argument is deductive when the conclusion is necessary given the premises. That is, the conclusion cannot be false if the premises are true. If a deductive conclusion follows duly from its premises it is valid; otherwise it is invalid that an argument is invalid is not to say it is false. It may have a true conclusion, just not on account of the premises. An examination of the above examples will show that the relationship between premises and conclusion is such that the truth of the conclusion is already implicit in the premises. Bachelors are unmarried because we say they are; we have defined them so. Socrates is mortal because we have included him in a set of beings that are mortal. Any single assertion will answer to one of these two criteria. There is also modal logic , which deals with the distinction between the necessary and the possible in a way not concerned with probabilities among things deemed possible. Rather, the premises of an inductive logical argument indicate some degree of support inductive probability for the conclusion but do not entail it; that is, they suggest truth but do not ensure it. In this manner, there is the possibility of moving from general statements to individual instances for example, statistical syllogisms, discussed below. Kant sorted statements into two types. Reasoning that the mind must contain its own categories organizing sense data , making experience of space and time possible, Kant concluded uniformity of nature a priori. Late modern philosophy[edit] Developed by Saint-Simon , and promulgated in the s by his former student Comte was positivism , the first late modern philosophy of science. According to Comte, scientific method frames predictions, confirms them, and states lawsâ€”positive statementsâ€”irrefutable by theology or by metaphysics. During the s and s, while Comte and Mill were the leading philosophers of science, William Whewell found enumerative induction not nearly so simple, but, amid the dominance of inductivism, described "superinduction". Having once had the phenomena bound together in their minds in virtue of the Conception, men can no longer easily restore them back to detached and incoherent condition in which they were before they were thus combined". Perhaps to accommodate prevailing view of science as inductivist method, Whewell devoted several chapters to "methods of induction" and sometimes said "logic of induction"â€”and yet stressed it lacks rules and cannot be trained. The principle of induction, as applied to causation, says that, if A has been found very often accompanied or followed by B, then it is probable that on the next occasion on which A is observed, it will be accompanied or followed by B. If the principle is to be adequate, a sufficient number of instances must make the probability not far short of certainty. If this

principle, or any other from which it can be deduced, is true, then the casual inferences which Hume rejects are valid, not indeed as giving certainty, but as giving a sufficient probability for practical purposes. The principle itself cannot, of course, without circularity, be inferred from observed uniformities, since it is required to justify any such inference. It must therefore be, or be deduced from, an independent principle not based on experience. To this extent, Hume has proved that pure empiricism is not a sufficient basis for science. But if this one principle is admitted, everything else can proceed in accordance with the theory that all our knowledge is based on experience. It must be granted that this is a serious departure from pure empiricism, and that those who are not empiricists may ask why, if one departure is allowed, others are forbidden. What these arguments proveâ€”and I do not think the proof can be controvertedâ€”is that the induction is an independent logical principle, incapable of being inferred either from experience or from other logical principles, and that without this principle, science is impossible". Problem of induction Inductive reasoning has been criticized by thinkers as far back as Sextus Empiricus. Recognizing this, Hume highlighted the fact that our mind draws uncertain conclusions from relatively limited experiences. In deduction, the truth value of the conclusion is based on the truth of the premise. In induction, however, the dependence on the premise is always uncertain. However, the assumption becomes inconsistent with the fact that there are white ravens. Therefore, the general rule of "all ravens are black" is inconsistent with the existence of the white raven. Hume further argued that it is impossible to justify inductive reasoning: So instead of a position of severe skepticism , Hume advocated a practical skepticism based on common sense , where the inevitability of induction is accepted. It is neither a psychological fact, nor a fact of ordinary life, nor one of scientific procedure". Examples of these biases include the availability heuristic , confirmation bias , and the predictable-world bias The availability heuristic causes the reasoner to depend primarily upon information that is readily available to them. People have a tendency to rely on information that is easily accessible in the world around them. For example, in surveys, when people are asked to estimate the percentage of people who died from various causes, most respondents would choose the causes that have been most prevalent in the media such as terrorism, and murders, and airplane accidents rather than causes such as disease and traffic accidents, which have been technically "less accessible" to the individual since they are not emphasized as heavily in the world around them. The confirmation bias is based on the natural tendency to confirm rather than to deny a current hypothesis. Research has demonstrated that people are inclined to seek solutions to problems that are more consistent with known hypotheses rather than attempt to refute those hypotheses. Often, in experiments, subjects will ask questions that seek answers that fit established hypotheses, thus confirming these hypotheses. For example, if it is hypothesized that Sally is a sociable individual, subjects will naturally seek to confirm the premise by asking questions that would produce answers confirming that Sally is in fact a sociable individual. The predictable-world bias revolves around the inclination to perceive order where it has not been proved to exist, either at all or at a particular level of abstraction. Gambling, for example, is one of the most popular examples of predictable-world bias. Gamblers often begin to think that they see simple and obvious patterns in the outcomes and, therefore, believe that they are able to predict outcomes based upon what they have witnessed. In reality, however, the outcomes of these games are difficult to predict and highly complex in nature. However, in general, people tend to seek some type of simplistic order to explain or justify their beliefs and experiences, and it is often difficult for them to realise that their perceptions of order may be entirely different from the truth. Notice that while similar, each has a different form. An inductive argument is strong in proportion to the probability that its conclusion is correct. We may call an inductive argument plausible, probable, reasonable, justified or strong, but never certain or necessary. Logic affords no bridge from the probable to the certain. The futility of attaining certainty through some critical mass of probability can be illustrated with a coin-toss exercise. Suppose someone shows me a coin and says the coin is either a fair one or two-headed. He flips it ten times, and ten times it comes up heads. At this point there is strong reason to believe it is two-headed. After all, the chance of ten heads in a row is. Then, after flips, still every toss has come up heads. Still, one can neither logically or empirically rule out that the

next toss will produce tails. No matter how many times in a row it comes up heads this remains the case. If one programed a machine to flip a coin over and over continuously, at some point the result would be a string of heads. In the fullness of time all combinations will appear. As for the slim prospect of getting ten out of ten heads from a fair coin - the outcome that made the coin appear biased - many may be surprised to learn that the chance of any combination of heads or tails is equally unlikely e. That means all results for ten tosses have the same probability as getting ten out of ten heads, which is. If one records the heads-tails series, for whatever result, that exact series had a chance of. The conclusion for a valid deductive argument is already contained in the premises since because its truth is strictly a matter of logical relations. It cannot say more than its premises. Inductive premises, on the other hand, draw their substance from fact and evidence, and the conclusion accordingly makes a factual claim or prediction. Its reliability varies proportionally with the evidence. Induction wants to reveal something new about the world. One could say that inductive wants to say more than is contained in the premises. To better see the difference between inductive and deductive arguments, consider that it would not make sense to say, "All rectangles so far examined have four right angles, so the next one I see will have four right angles. Likewise, speaking deductively we may permissibly say. A faulty inductive argument might take the form, "All Swans so far observed were white, therefore it is settled that all swans white. Inductive reasoning is inherently uncertain. It only deals in degrees to which, given the premises, the conclusion is credible according to some theory of evidence. Unlike deductive reasoning, it does not rely on universals holding over a closed domain of discourse to draw conclusions, so it can be applicable even in cases of epistemic uncertainty technical issues with this may arise however; for example, the second axiom of probability is a closed-world assumption. All biological life forms that we know of depend on liquid water to exist. Therefore, if we discover a new biological life form it will probably depend on liquid water to exist. This argument could have been made every time a new biological life form was found, and would have been correct every time; however, it is still possible that in the future a biological life form not requiring liquid water could be discovered. As a result, the argument may be stated less formally as: All biological life probably depends on liquid water to exist. Generalization[edit] A generalization more accurately, an inductive generalization proceeds from a premise about a sample to a conclusion about the population. The proportion Q of the sample has attribute A.

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Chapter 3 : analogy | LOGIC BLOG

This week, we'll be looking at law, focusing on three important aspects of legal reasoning which connect to broader themes in logical and critical thinking-- reasoning by analogy, law's distinctive attitude to arguments from authority, and the burden of proof.

In general, judgments of plausibility are made after a claim has been formulated, but prior to rigorous testing or proof. The next sub-section provides further discussion. Note that this characterization is incomplete in a number of ways. The manner in which we list similarities and differences, the nature of the correspondences between domains: Nor does this characterization accommodate reasoning with multiple analogies i. To characterize the argument form more fully, however, is not possible without either taking a step towards a substantive theory of analogical reasoning or restricting attention to certain classes of analogical arguments. An assertion of plausibility within the context of an inquiry typically has pragmatic connotations as well: On both points, there is ambiguity as to whether an assertion of plausibility is categorical or a matter of degree. These observations point to the existence of two distinct conceptions of plausibility, probabilistic and modal, either of which may reflect the intended conclusion of an analogical argument. On the probabilistic conception, plausibility is naturally identified with rational credence rational subjective degree of belief and is typically represented as a probability. There can be no doubt that every resemblance [not known to be irrelevant] affords some degree of probability, beyond what would otherwise exist, in favour of the conclusion. The meaning, roughly speaking, is that there are sufficient initial grounds for taking p seriously, i. There is no assertion of degree. The intent is to single out p from an undifferentiated mass of ideas that remain bare epistemic possibilities. The set of epistemic possibilitiesâ€”hypotheses about electrostatic attraction compatible with knowledge of the dayâ€”was much larger. Individual analogical arguments in mathematics such as Example 7 are almost invariably directed towards prima facie plausibility. The modal conception figures importantly in some discussions of analogical reasoning. But in order that a theory may be valuable it must â€¦ display an analogy. The propositions of the hypothesis must be analogous to some known lawsâ€¦. Some analogy is essential to it; for it is only this analogy which distinguishes the theory from the multitude of othersâ€¦ which might also be proposed to explain the same laws. Possible defeaters might include internal inconsistency, inconsistency with accepted theory, or the existence of a clearly superior rival analogical argument. The point is that Campbell, following the lead of 19th century philosopher-scientists such as Herschel and Whewell, thinks that analogies can establish this sort of prima facie plausibility. Snyder provides a detailed discussion of the latter two thinkers and their earlier ideas about the role of analogies in science. In general, analogical arguments may be directed at establishing either sort of plausibility for their conclusions; they can have a probabilistic use or a modal use. Examples 7 through 9 are best interpreted as supporting modal conclusions. In those arguments, an analogy is used to show that a conjecture is worth taking seriously. To insist on putting the conclusion in probabilistic terms distracts attention from the point of the argument. The conclusion might be modeled by a Bayesian as having a certain probability value because it is deemed prima facie plausible, but not vice versa. Example 2 , perhaps, might be regarded as directed primarily towards a probabilistic conclusion. There should be connections between the two conceptions. Indeed, we might think that the same analogical argument can establish both prima facie plausibility and a degree of probability for a hypothesis. But it is difficult to translate between modal epistemic concepts and probabilities Cohen ; Douven and Williamson ; Huber ; Spohn , We cannot simply take the probabilistic notion as the primitive one. It seems wise to keep the two conceptions of plausibility separate. Further discussion of this point is found in section 5. Schema 4 is a template that represents all analogical arguments, good and bad. It is not an inference rule. Despite the confidence with which particular analogical arguments are advanced, nobody has ever formulated an acceptable rule, or set of rules, for valid analogical inferences. There is not even a plausible candidate. This situation is in marked contrast not only with deductive reasoning, but also with elementary

forms of inductive reasoning, such as induction by enumeration. Of course, it is difficult to show that no successful analogical inference rule will ever be proposed. But consider the following candidate, formulated using the concepts of schema 4 and taking us only a short step beyond that basic characterization. It is pretty clear that 5 is a non-starter. The main problem is that the rule justifies too much. The only substantive requirement introduced by 5 is that there be a nonempty positive analogy. Plainly, there are analogical arguments that satisfy this condition but establish no prima facie plausibility and no measure of support for their conclusions. Here is a simple illustration. Both relations are reflexive, symmetric, and transitive. Yet it would be absurd to find positive support from this analogy for the idea that we are likely to find congruent lines clustered in groups of two or more, just because swans of the same color are commonly found in groups. The positive analogy is antecedently known to be irrelevant to the hypothetical analogy. In such a case, the analogical inference should be utterly rejected. Yet rule 5 would wrongly assign non-zero degree of support. To generalize the difficulty: Some similarities and differences are known to be or accepted as being utterly irrelevant and should have no influence whatsoever on our probability judgments. To be viable, rule 5 would need to be supplemented with considerations of relevance, which depend upon the subject matter, historical context and logical details particular to each analogical argument. To search for a simple rule of analogical inference thus appears futile. Norton , and â€”see Other Internet Resources has argued that the project of formalizing inductive reasoning in terms of one or more simple formal schemata is doomed. His criticisms seem especially apt when applied to analogical reasoning. If analogical reasoning is required to conform only to a simple formal schema, the restriction is too permissive. Inferences are authorized that clearly should not pass musterâ€¦ The natural response has been to develop more elaborate formal templatesâ€¦ The familiar difficulty is that these embellished schema never seem to be quite embellished enough; there always seems to be some part of the analysis that must be handled intuitively without guidance from strict formal rules. These local facts are to be determined and investigated on a case by case basis. To embrace a purely formal approach to analogy and to abjure formalization entirely are two extremes in a spectrum of strategies. There are intermediate positions. Most recent analyses both philosophical and computational have been directed towards elucidating general criteria and procedures, rather than formal rules, for reasoning by analogy. The next section discusses some of these criteria and procedures. Here are some of the most important ones: G1 The more similarities between two domains , the stronger the analogy. G2 The more differences, the weaker the analogy. G3 The greater the extent of our ignorance about the two domains, the weaker the analogy. G4 The weaker the conclusion, the more plausible the analogy. G5 Analogies involving causal relations are more plausible than those not involving causal relations. G6 Structural analogies are stronger than those based on superficial similarities. G7 The relevance of the similarities and differences to the conclusion i. G8 Multiple analogies supporting the same conclusion make the argument stronger. These principles can be helpful, but are frequently too vague to provide much insight. How do we count similarities and differences in applying G1 and G2? Why are the structural and causal analogies mentioned in G5 and G6 especially important, and which structural and causal features merit attention? More generally, in connection with the all-important G7: Furthermore, what are we to say about similarities and differences that have been omitted from an analogical argument but might still be relevant? An additional problem is that the criteria can pull in different directions. Each of the above criteria apart from G7 is expressed in terms of the strength of the argument, i. The criteria thus appear to presuppose the probabilistic interpretation of plausibility. The problem is that a great many analogical arguments aim to establish prima facie plausibility rather than any degree of probability. Most of the guidelines are not directly applicable to such arguments. In his theoretical reflections on analogy and in his most judicious examples, we find a sober account that lays the foundation both for the commonsense guidelines noted above and for more sophisticated analyses. Although Aristotle employs the term analogy analogia and talks about analogical predication , he never talks about analogical reasoning or analogical arguments per se. He does, however, identify two argument forms, the argument from example paradeigma and the argument from likeness homoiotes , both closely related to what would we now recognize as an

analogical argument. The argument from example paradeigma is described in the Rhetoric and the Prior Analytics: Enthymemes based upon example are those which proceed from one or more similar cases, arrive at a general proposition, and then argue deductively to a particular inference. If then we wish to prove that to fight with the Thebans is an evil, we must assume that to fight against neighbours is an evil. Conviction of this is obtained from similar cases, e. Since then to fight against neighbours is an evil, and to fight against the Thebans is to fight against neighbours, it is clear that to fight against the Thebans is an evil. The argument from example thus amounts to single-case induction followed by deductive inference. The first inference dashed arrow is inductive; the second and third solid arrows are deductively valid. The paradeigma has an interesting feature: Instead of regarding this intermediate step as something reached by induction from a single case, we might instead regard it as a hidden presupposition. This transforms the paradeigma into a syllogistic argument with a missing or enthymematic premise, and our attention shifts to possible means for establishing that premise with single-case induction as one such means. The argument from likeness homoiotes seems to be closer than the paradeigma to our contemporary understanding of analogical arguments. The most important passage is the following.

Chapter 4 : Analogy - Wikipedia

Reasoning by analogy is a way to help others understand, to persuade, and to reason. In law, the use of analogical reasoning is using precedent, where conclusions reached in one court case are.

Analogy biology In anatomy , two anatomical structures are considered to be analogous when they serve similar functions but are not evolutionarily related, such as the legs of vertebrates and the legs of insects. Analogous structures are the result of convergent evolution and should be contrasted with homologous structures. Engineering[edit] Often a physical prototype is built to model and represent some other physical object. For example, wind tunnels are used to test scale models of wings and aircraft, which act as an analogy to full-size wings and aircraft. For example, the MONIAC an analog computer used the flow of water in its pipes as an analog to the flow of money in an economy. Cybernetics[edit] Where there is dependence and hence interaction between a pair or more of biological or physical participants communication occurs and the stresses produced describe internal models inside the participants. In normative matters[edit] Morality[edit] Analogical reasoning plays a very important part in morality. This may be in part because morality is supposed to be impartial and fair. If it is wrong to do something in a situation A, and situation B is analogous to A in all relevant features, then it is also wrong to perform that action in situation B. Moral particularism accepts analogical moral reasoning, rejecting both deduction and induction, since only the former can do without moral principles. Law[edit] In law , analogy is primarily used to resolve issues on which there is no previous authority. A distinction can be made between analogical reasoning employed in statutory law and analogical reasoning present in precedential law case law. Analogies in statutory law[edit] In statutory law analogy is used in order to fill the so-called lacunas or gaps or loopholes. First, a gap arises when a specific case or legal issue is not explicitly dealt with in written law. Then, one may try to identify a statutory provision which covers the cases that are similar to the case at hand and apply to this case this provision by analogy. Such a gap, in civil law countries, is referred to as a gap extra legem outside of the law , while analogy which liquidates it is termed analogy extra legem outside of the law. The very case at hand is named: Second, a gap comes into being when there is a statutory provision which applies to the case at hand but this provision leads in this case to an unwanted outcome. Then, upon analogy to another statutory provision that covers cases similar to the case at hand, this case is resolved upon this provision instead of the provision that applies to it directly. This gap is called a gap contra legem against the law , while analogy which fills this gap is referred to as analogy contra legem against the law. Third, a gap occurs when there is a statutory provision which regulates the case at hand, but this provision is vague or equivocal. A gap of this type is named gap intra legem within the law and analogy which deals with it is referred to as analogy intra legem within the law. The similarity upon which statutory analogy depends on may stem from the resemblance of raw facts of the cases being compared, the purpose the so-called ratio legis which is generally the will of the legislature of a statutory provision which is applied by analogy or some other sources. Statutory analogy may be also based upon more than one statutory provision or even a spirit of law. In the latter case, it is called analogy iuris from the law in general as opposed to analogy legis from a specific legal provision or provisions. In statutory law analogy is also sometimes applied in order to liquidate the so-called conflicting or logical gap i. The judge who decides the case at hand may find that the facts of this case are similar to the facts of one of precedential cases to an extent that the outcomes of these cases are justified to be the same or similar. Such use of analogy in precedential law pertains mainly to the so-called: Second, in precedential law, reasoning from dis analogy is amply employed, while a judge is distinguishing a precedent. That is, upon the discerned differences between the case at hand and the precedential case, a judge reject to decide the case upon the precedent whose ratio decidendi precedential rule embraces the case at hand. Third, there is also much room for some other usages of analogy in the province of precedential law. One of them is resort to analogical reasoning, while resolving the conflict between two or more precedents which all apply to the case at hand despite dictating different legal

outcome for that case. Analogy can also take part in ascertaining the contents of ratio decidendi, deciding upon obsolete precedents or quoting precedents form other jurisdictions. An argument from analogy employed in precedential law is called case analogy as opposed to analogy employed in statutory law which is accordingly termed statutory analogy. Then, there are compared instances to which a given rule applies with certainty with the facts of the case at hand. If the sufficient relevant similarity between them obtains, the rule is applied to the case at hand. Otherwise, the rule is deemed as inadequate for this case. Such analogy becomes a legal method. Application of legal rules through analogy is more typical of the common law legal systems, especially when one deals with the so-called holdings the denotation of a binding element of a judicial precedent in the US , being in civil law legal systems rather a proposition than an official mode of applying the law. The instances from which analogy starts here off are called: The most common instances concern criminal, administrative and tax law. Analogy should not be resorted to in criminal matters whenever its outcome would be unfavorable to the accused or suspect. Such a ban finds its footing in the very principle: Analogy should be applied with caution in the domain of tax law. The other limitations on the use of analogy in law, among many others, pertain to: In civil private law, the use of analogy is as a rule permitted or even ordered by law. But also in this branch of law there are some restrictions confining the possible scope of the use of an analogical argument. Such is, for instance, the prohibition to use analogy in relation to provisions regarding time limits or a general ban on the recourse to analogical arguments which lead to extension of those statutory provisions which envisage some obligations or burdens or which order mandate something. The other examples concern the usage of analogy in the field of property law, especially when one is going to create some new property rights by it or to extend these statutory provisions whose terms are unambiguous unequivocal and plain clear , e. The aforementioned bans on the use of analogy concern rather analogy which goes beyond the possible linguistic meaning of a statutory provision in question and do not pertain to analogy whose conclusions would remain within this meaning. It is due to several peculiar factors. First, there is the lack of possibility of verification of conclusions of legal analogy on empirical grounds, which entails the necessity of performance of a legal analogical argument both heuristic and probative function. Second, legal analogy, as the law itself, is by definition prescriptive, non-descriptive. Third, it has an obligatory character: Fourth, the use of analogy in law rather does not hinge on complex underling doctrines or theories. Fifth, serious practical consequences flow from the use of analogy in law. Sixth, the points of comparison are easily recognizable in case of legal analogy. Seventh, analogy in law becomes a vehicle for extension of authority. Eighth, how to reason by analogy is a subject of legal training and education. Ninth, legal analogy has gained enormous amount of attention and scrutiny amongst scholars. An unregulated unprovided case B possesses features X, Y, Z the second premise. Therefore, the case B should be ascribed the legal consequence G the analogical conclusion. There is a rule in force which addresses cases which features are A, B, C, D the first premise. Therefore, there should be also a rule in force which addresses cases which features are A, B, C and E or A, B, C, D and E or A, B, C and non-D that prescribes the same or similar legal consequece for these cases as the rule which addresses cases which features are A, B, C, D the analogical conclusion. Legal analogy can, however, assume also the structure of mathematical proportion, i. An analogy as used in teaching would be comparing a topic that students are already familiar with, with a new topic that is being introduced so that students can get a better understanding of the topic and relate back to previous knowledge. Shawn Glynn, a professor in the department of educational psychology and instructional technology at the University of Georgia, [42] developed a theory on teaching with analogies and developed steps to explain the process of teaching with this method. The steps for teaching with analogies are as follows: Step one is introducing the new topic that is about to be taught and giving some general knowledge on the subject. Step two is reviewing the concept that the students already know to ensure they have the proper knowledge to assess the similarities between the two concepts. Step three is finding relevant features within the analogy of the two concepts. Step four is finding similarities between the two concepts so students are able to compare and contrast them in order to understand. Step five is indicating where the analogy breaks down between the two concepts. And finally, step

six is drawing a conclusion about the analogy and comparison of the new material with the already learned material. Typically this method is used to learn topics in science. It is a method of teaching that revolves around using analogies in the classroom to better explain topics. She thought of the idea to use analogies as a part of curriculum because she was observing objects once and she said, "my mind was noting what else each object reminded me of While Glynn focuses on using analogies to teach science, The Private Eye Project can be used for any subject including writing, math, art, social studies, and invention. It is now used by thousands of schools around the country. For between creator and creature there can be noted no similarity so great that a greater dissimilarity cannot be seen between them. Such analogical and true statements would include God is, God is Love, God is a consuming fire, God is near to all who call him, or God as Trinity, where being, love, fire, distance, number must be classed as analogies that allow human cognition of what is infinitely beyond positive or negative language. The use of theological statements in syllogisms must take into account their essential analogical character, in that every analogy breaks down when stretched beyond its intended meaning. Everyday life[edit] Analogy can be used in order to find solutions for the problematic situations problems that occur in everyday life. If something works with one thing, it may also work with another thing which is similar to the former. Analogy is helpful in distribution of goods and privileges, partition of burdens and dispension of treatment of other kind people deal with in everyday life. These analogies bring to literary discourse a stock of exciting visual ideas for teaching and research

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Chapter 5 : Inductive reasoning - Wikipedia

Humans continue to develop their critical thinking skills, such as analogy, inference, inductive and deductive reasoning. By developing critical thinking abilities and a deductive reasoning approach to problem solving and decision-making, you will be able to improve your comprehension abilities and.

While studying analogies and relationships between terms, I have been considering synonyms and antonyms, and I have come to some surprising realizations. Defining Synonym and Antonym A synonym is a word that has the same meaning as another word in the same language. If you were asked to think of several words and their synonyms, you would probably not have too much difficulty: English has such an extensive vocabulary that most words have a synonym or near synonym. Some possibilities are pencil, helmet, and elbow. But it takes some careful thought. In fact, can you think of a verb or adjective that has no synonym? An antonym is a word that has the opposite meaning as another word in the same language. By its definition, it appears that antonym is the antonym of synonym. You can probably think up several antonym pairs without too much effort: But if you look around, you will see many things that have no antonym: It seems about as difficult to think of things that have no synonym as it is to think of things that do have an antonym. Antonym Profundities Synonyms say something about language and its development. But antonyms say something about the nature of the thing itself, that in someway it has a counterpart. If you develop a list of antonym pairs, they will likely be words that represent fundamental concepts. There are also different species of antonyms. In these cases there are only two options: These antonym pairs tend to be adjectives, and there are intermediate states. Then there are opposites that are a compromise of these first two types: In such pairs, one can usually not exist without the other: These are called converse antonyms. Some words have more than one antonym, depending on how you think about them. What is the antonym of father? Or is it son? On the other hand, the opposite of parent is child, and a male child is a son. Other examples are possible. Synonyms and Antonyms in Scripture Biblical authors make regular use of synonyms and antonyms. A quick glance through Proverbs will reveal this. Consider all the antonyms in this passage: For the perverse person is an abomination to the Lord, but His secret counsel is with the upright. The curse of the Lord is on the house of the wicked, but He blesses the home of the just. Surely He scorns the scornful, but gives grace to the humble. The wise shall inherit glory, but shame shall be the legacy of fools. Does not wisdom cry out, and understanding lift up her voice? She takes her stand on the top of the high hill, beside the way, where the paths meet. She cries out by the gates, at the entry of the city, at the entrance of the doors: O you simple ones, understand prudence, and you fools, be of an understanding heart. Can you identify the synonyms and antonyms in Matthew 7: Enter through the narrow gate. For wide is the gate and broad is the road that leads to destruction, and many enter through it. But small is the gate and narrow the road that leads to life, and only a few find it. How many examples of synonyms and antonyms in the Bible can you find?

Chapter 6 : C2 C Thinking: Analogy

In this course, you will learn what distinguishes inductive arguments from deductive arguments and then how to analyze and assess five common forms of inductive arguments: generalizations from samples, applications of generalizations, inference to the best explanation, arguments from analogy, and causal reasoning.

Chapter 7 : Analogy and Analogical Reasoning (Stanford Encyclopedia of Philosophy)

Critical Thinking: Understanding Inductive Arguments Inductive arguments work to apply what is known about objects or concepts to those objects and concepts that are unknown. It attempts to support the validity of its conclusions via the use of probability.

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Chapter 8 : How do I Develop Deductive Reasoning & Critical Thinking Skills? | Synonym

What Are Examples of Analogical Reasoning? One example of analogical reasoning is as follows: since the world is similar to a clock in the respect that it has complexity and a clock has a maker, the world must also have a maker. Arguments from analogy are inductive arguments. Arguments from analogy.