



Argumentation by Analogy. A Systematic Analytical Study of an Argument Scheme

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– A Systematic Analytical Study of an Argument Scheme

Summary

Argumentation by analogy is fundamental both to philosophical and scientific reasoning as well as to everyday communication, because it is basic to human thinking as such. It is therefore of critical importance to attain a deep understanding of this type of argumentation. This dissertation employs the pragma-dialectical theory of argumentation for its theoretical framework, and is a systematic analytical study of the analogical argument scheme, proposing improved methods of interpretation, reconstruction, and evaluation of argumentation by analogy. I also aim to provide a general framework for argumentation that explains the concepts of validity and inference in a unified way. I focus on how analogical argumentation fits into that framework in a way that is consistent with the pragma-dialectical understanding of argument schemes and argument structures.

The present work starts by providing a comprehensive overview over the various subtypes of analogical arguments already established in the literature. There is little agreement on what subtypes of analogical arguments there are, nor on how to distinguish them. Different criteria may be combined in order to make up various subtypes of analogy argumentation, and the same criterion can be used several times in the same type of argument. However, each specific type of argument sets boundaries for what criteria can be applied for making further subtypes.

It is understood that the adequacy of a classification depends on what purpose that classification has in a certain context. From the perspective of argumentation theory, the purpose of classification should be to assist the interpretation, analysis, reconstruction, and evaluation of the argumentation. It is not possible to properly evaluate an argumentation unless one first knows what type of argument scheme it employs. The epistemic criterion for classification should be “difference in testing procedure”, since this distinction makes a real difference in attaining the purpose of facilitating the interpretation, analysis, reconstruction, and evaluation of argumentation. If it does not make sense to apply a certain testing procedure to an argumentation, it should be identified as a different type of argumentation. The testing procedures differ because different types of argument differ with regards to inferential principle, while testing procedures for subtypes differ because there is contrasting specification of the inferential principle. If a type of argumentation can be divided into two arguments because it has contrasting modifications in the testing procedure, then this is a reason to interpret the arguments as two contrasting subtypes. Identifying what type or subtype an argument belongs to, allows the analyst to know how to evaluate the argument and by which standards to do so. This conclusion is completely consistent with the pragma-dialectical theory of what criterion should be used to distinguish various types of argumentation.

Argumentation by analogy can, in the pragma-dialectical theory of argumentation, be defined as argumentation whose argument scheme operates by means of a comparison between two or more objects; the transference of acceptability from the “argument” to the standpoint is enabled by a comparison expressed by the linking premise of the argumentation to the standpoint. The standard representation of this argument scheme is:

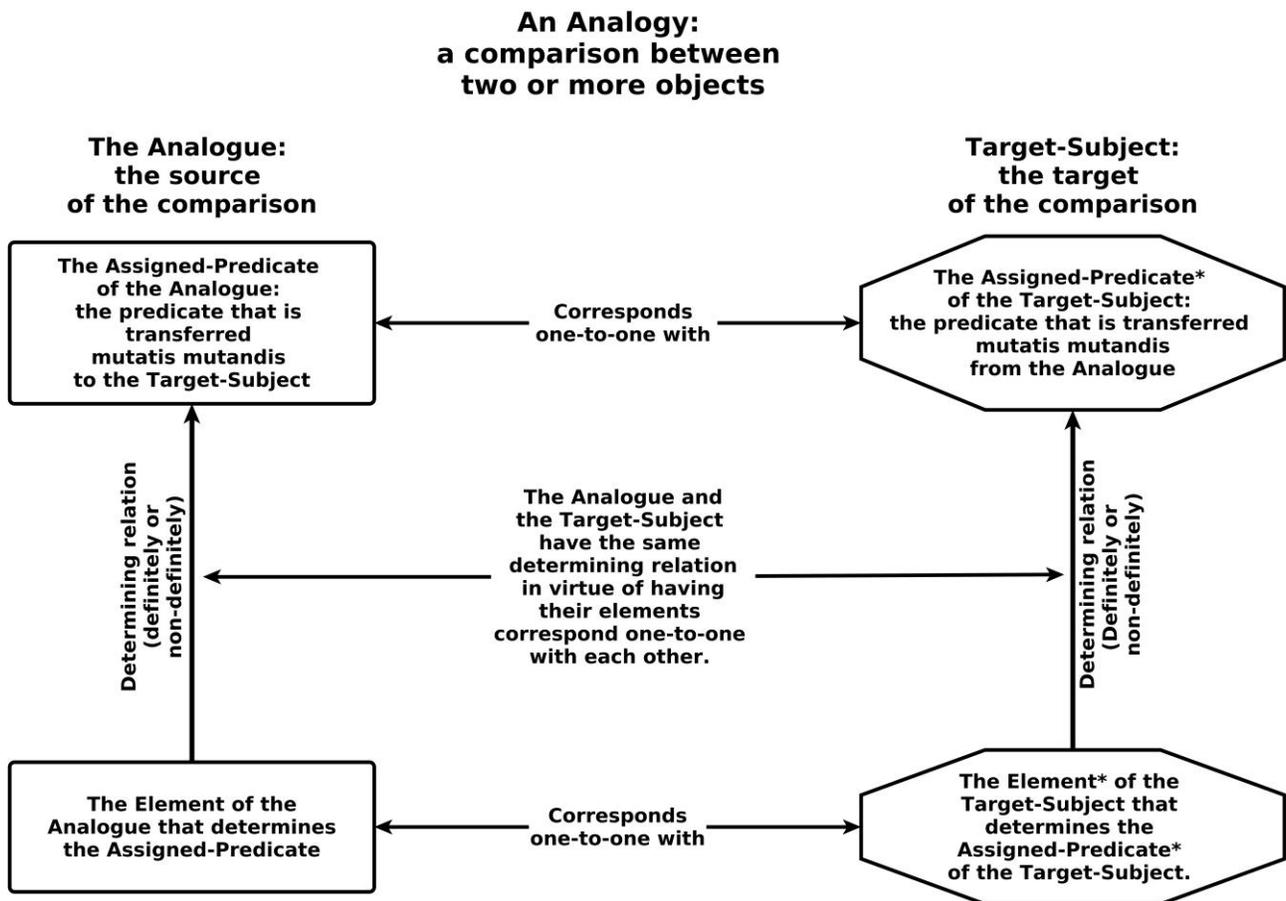
- 1. Y is true of X [Standpoint]
- because: 1.1 Y is true of Z [“Argument”]
- and: 1.1' Z is comparable to X [linking premise]

In the pragma-dialectical theory of argumentation, comparability is understood in terms of relevant similarity. In this dissertation I argue that relevant similarity should be understood in terms of two crucial relations, namely that relevance is reduced to a determining relation, and similarity is reduced to a one-to-one correspondence between elements that stand in a determining relation to each other. Every single argumentation by analogy consists of four parts and two crucial relations. The Target-Subject_{TS} ('X'), is the object to which a new predicate—the Assigned-Predicate_{AP}, ('Y')—is assigned by virtue of the Analogue_A, 'Z', the object of comparison, which is the source to the Assigned-Predicate_{AP}. Within the Analogue ('Z'), there is an element—the element_ε—that “determines” that the Analogue ('Z') has the Assigned-Predicate_{AP} ('Y'). The first crucial relation is this determining relation between the element_ε and the Assigned-Predicate_{AP} ('Y') of the Analogue. This determination may vary with respect to its nature (causal, correlation, supervenience, inferential, etc.) and with respect to its strength (definite vs. non-definite). The second crucial relation is the relation of one-to-one correspondence between the element_ε to a counterpart element_ε^{*} in the Target-Subject, which means that the counterpart element_ε^{*} has the same determining relation to a one-to-one corresponding *mutatis mutandis* Assigned-Predicate^{*} in the domain of the Target-Subject. Thus, the resemblance is analyzed as a one-to-one correspondence between elements in two different objects—the Analogue and the Target-Subject—which enables the determining relation to be transferred to the Target-Subject between a counterpart element_ε^{*} and a counterpart Assigned-Predicate^{*}. The comparison can be reduced to a sameness of relations between elements in two contrasting objects. This means that a comparison is not based simply on the Analogue having a first-level similarity with the Target-Subject, as a one-to-one correspondence may obtain between different elements. With this analysis of the pragma-dialectical concepts of “comparable” and “relevant similarity”, the argument scheme is refined in this way:

- 1. The Target-Subject_{TS} has the Assigned-Predicate_{AP}^{*}
- 1.1 The element_ε of the Analogue_A element determines the Analogue_A's Assigned-Predicate_{AP}
- 1.1' The element_ε of the Analogue_A corresponds one-to-one with element_ε^{*} of the Target-

Subjects

The inference can be seen in the figure below.



Analogical arguments employ an argument scheme with a unique type of inferential principle that is irreducible to any other type. Argumentation that has been interpreted as using another type of scheme—including deductive arguments—should sometimes be reinterpreted as analogical arguments, which gives a different outcome to the critical discussion. The inference of analogical argumentation is a material inference and belongs to a category of schemes that should be labeled substantial argument schemes, because a material content is essential to the operation of the inference of such a scheme.

Arguments by analogy are materially “valid” because of a determining relation and a relation of one-to-one correspondence in the objects of comparison. Four different subtypes of analogy argumentation can be distinguished from this basic generic conception of analogy argumentation, by the criteria *mode of inference* and *domain constraint*. The one-to-one correspondence of any type of analogy argumentation is always the same, but the determining relation can be definite or non-definite. If an argumentation by analogy has a definite determining relation then it is an argumentation by conclusive analogy. If an argumentation by analogy has a non-definite determining relation then it is an argumentation by inconclusive analogy. The difference between these subtypes is that although analogical inference is always defeasible, an argumentation by conclusive analogy will guarantee support for the standpoint if its premises are undefeated, while an argumentation by

inconclusive analogy will only with likelihood lend support for the standpoint, even if its premises are undefeated. Argumentation by analogy can also vary with respect to whether the comparison operates across different domains or remains within the same domain. Thus, there can be argumentation by same-domain conclusive analogy, same-domain inconclusive analogy, different-domain conclusive analogy, and different-domain inconclusive analogy. It is also argued that the analogical scheme developed in this study is sufficiently flexible and sophisticated to adequately represent complicated comparisons which currently suggested schemes of analogy argumentation cannot satisfactorily accommodate.

The dissertation at hand presents a unified model for understanding the inference warrant of arguments as various species of a generic conception of validity. Each scheme has its own inherent standard of validity—“scheme-specific-validity”—and formal validity is but one type of validity. An appropriate and correctly applied argument scheme means that the linking premise of the argumentation will make the “argument”—if it is accepted—into a reason *ceteris paribus* for the standpoint, whereas an incorrect or inappropriately applied argument scheme fails to accomplish that. This is the *generic* sense of “validity” from which many species of validity derive. Thus, the generic conception of validity implicates that every type of argument scheme transfers acceptability to the standpoint to the degree permitted by the intrinsic nature of the scheme’s inferential principle. For instance, a formally valid deductive argumentation will indefeasibly transfer acceptability to the standpoint to the same degree of acceptability as that of the argument, whereas a “valid” argumentation by inconclusive analogy will defeasibly transfer acceptability to a lesser degree than the argument. An argumentation by conclusive analogy will defeasibly transfer acceptability to the standpoint to the same extent to which the argument is acceptable. Various types of argumentation exist because each type of argumentation accomplishes this transference of acceptability to the standpoint by different principles and modes. Every argument scheme (including formally valid “reasoning schemes”) is a species of a generic validity generating a unified account of argument schemes, validity, and inference.

A large part of this dissertation serves to clarify how complex argumentation by analogy should be reconstructed along the lines of the proposed operation of inference configuration, which displays the critical aspects of each single analogical argument scheme. The fact that a complex argumentation by analogy consists of many single arguments by analogy, each adding an element of one-to-one correspondence, enables an analogy to vary in cogency. The work also stresses the importance of distinguishing between the logical argument structure of an argumentation and its dialectical argument structure, and how this relates to the reconstruction of argumentation by analogy. It also provides further evidence for the claim that argumentation by analogy cannot be reduced to some other type of inference.

The method of refuting arguments by applying a logical analogy—what the present work labels *refutation by parallel argumentation*—is discussed at length. Analogical argumentation has certain advantages as compared to other types of argumentation. One is that analogical arguments can be used to refute any type of argument, even *prima facie* sound deductive arguments. Another is that they appeal to our concrete intuitions.

This work contains lengthy and detailed discussion on how to evaluate analogical argumentation, and suggests additional analytical tools by introducing a model in which each type of argument scheme entails scheme-specific correctness conditions. The model suggests that the argument scheme rule implies that each scheme has its own crucial correctness conditions specified in accordance with the particular inferential principle

operating in the various schemes. These correctness conditions are generated by extracting what is constitutionally inherent in the argument schemes and to each single argumentation. The counterarguments against analogy argumentation operate by falsifying one or more of these correctness conditions. The testing procedure of argumentation by analogy should distinguish between the role of critical questions and the role of counterarguments. The role of critical questions should be viewed as pointing to the correctness conditions as crucial spots that need further support or is vulnerable to attack by counterarguments. The role of counterarguments should be viewed as the method by which critical questions are *shown* to lack satisfactory answers, by means of falsification of one or more of these scheme-specific correctness conditions. Critical questions can be viewed as the antagonist's critical reactions representing *negative reasons* for why the burden of proof remains on the protagonist of the analogy argumentation. If the antagonist attempts to answer these critical questions the result will be complex argumentation by analogy. By contrast, *counterarguments* can be viewed as the antagonist's critical reactions representing the advance of *positive reasons*—which are more difficult to neutralize—for why the analogy the protagonist puts forth in their argumentation is inaccurate. However, as a means to overcome either type of critical reaction, the result will be complex argumentation by analogy. A successful counterargument proves that an argumentation by analogy has violated the argument scheme rule by falsifying the scheme-specific correctness conditions that hold for analogical arguments. There are six such counterarguments and each type operates by falsifying one or more of the correctness conditions. They are: attacking the similarities in the abstract; advancing a counter-analogy; making the analogy self-defeat; reducing the analogy to absurdity, advancing a second-order analogy, and providing an analogous parallel to the argument scheme which is absurd (“refutation by parallel argument”). These counterarguments are essentially different types of objections that operate in different ways and which cannot be described in terms other than their own.

The model also provides a further refinement and complementary content for what it means to claim that an argument scheme is appropriate and correctly applied. According to the standard pragma-dialectical approach, an argument scheme is appropriate and correctly applied if it can satisfactorily answer all the critical questions relevant to the argument scheme. This present model suggests that the argument scheme of an argumentation is appropriate and correctly applied if, and only if, the argumentation is scheme-specifically “valid”. An argumentation is scheme-specifically “valid” if, and only if, the argumentation satisfies its scheme-specific correctness conditions. An argumentation answers its critical questions satisfactorily if, and only if, it satisfies its scheme-specific correctness conditions. Thus, the argument scheme rule, the critical questions, the scheme specific correctness conditions, and the counterargument are all closely related.