

Popularizing Auto-Dialectics in Scientific Endeavour: A Potentially Productive Tool in the Interests of Better and Higher-Quality Science

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Abstract:- We begin this paper by defining the antecedents of the English term dialectics, and then proceed to trace and summarize its entire history in a nutshell. We also then explain how great Greek thinkers such as Socrates, Plato and Aristotle understood the term, and also contributed in no small measure, to dialectical thought. We then proceed to examine the contributions made by other great European thinkers, particularly the Germans to this entire philosophy and school of thought. We also review the contributions of other “non-orthodox” cultures to dialectics including the Indian school of thought. We also evaluate the Marxian school of material dialectical thought, and examine some of its weaknesses and shortcomings. We also review and summarize all other different schools of thought associated with dialectics, and the potential downstream uses and implications of dialectics. We also present and review some limitations of dialectics, and their common criticisms. We also review our core philosophy of neo-centrism and the position of “Reflective equilibrium through role swapping” (or RERS) advocated by us several years ago, and then build upon the core and key concepts and tenets of this approach to formulate what we call auto-dialectics. We also propose and evaluate some key benefits and downstream benefits and implications of this technique, and explain how it can lead to better quality science.

Keywords:- *Progressive, Anti-Dogmatic Science is Critical – Criticism is its Very Life. - Karl Popper.*

I. INTRODUCTION

The English word “Dialectic” is not so widely used in daily life; at least not as widely as it perhaps should be. The term is said to be derived from the two Greek terms ‘dia’ and ‘logos’ which when taken together, mean dialogue or a conversation between two persons, or “the art of conversation”. The term “Dialectics” can be traced back to the Ancient Greeks, and to pre-Socratic philosophy, and some aspects of it to the Greek philosopher Plato and Aristotle to whom many core concepts associated with the term may be attributed. Both Socrates and Plato lived around the fourth century before Christ. Socrates’ method is also known as Socrates’ method, or Socrates’ irony. It is also known as method of elenchus, which means scrutiny, and questioning an individual to test the consistency, cogency, and credibility of what that individual has said. Sometimes, enthymemes are used. Enthymemes, in logic, refer to syllogistic arguments

that are incompletely stated, or lack holistic epistemology as their foundational basis. According to British philosopher Simon Blackburn’s definition of Plato’s Dialectic Method in his work Gorgias, dialectical methods is “The process of eliciting the truth by means of questions aimed at opening out what is already implicitly known, or at exposing the contradictions and muddles of an opponent’s position”. Aristotle divided the possible types of reasoning into four kinds, of which dialectical proposition is the second one. The Eleatics represented by Parmenides and Melissus rejected the validity of sense experience, and defined deeper standards to pursue truth. The Sophists were secular atheists, and were skeptical about religious beliefs and religious traditions.

Neo-Platonism is a term used to describe a later period of Platonic philosophy which was religious in nature, and this school also contributed to dialectical techniques and methods. According to Ryan Patrick Canney, dialectical method requires the equal status and participation of all the members. It also requires intensive debate so as to bring out the truth. Zeno of Elea, another Greek philosopher also contributed heavily to dialectical thought. Heraclitus also contributed greatly to positive dialectics, as did Gautama Buddha, the great Indian thinker, and founder of Buddhism. The term has however been used by many different philosophers in different epochs and periods of philosophical thought albeit with many different meanings. Therefore, the meaning of the term “dialectics” tends to vary somewhat based on usage. Through the practical usage of this technique, meaningful dialogue, discussions, and confabulations are exchanged by people holding different ideas or points of view, in order to arrive at the truth through a process of healthy reconciliation of ideas, by reasoned argument, and by weeding out all the improbable factors. Subjective elements, must also, as far as possible, be excluded from the discussion. This approach would also naturally change the quality of truth as well, and bring out realistic truth propositions at the same time.

Logic was also taught in several medieval universities as a part of liberal arts, and this naturally included dialectics as well. Among the medieval thinkers and philosophers who worked on, or contributed to dialectics, were the Roman philosopher Anicius Manlius T S Boethius, the French philosopher Peter Abelard, the English philosopher William of Sherwood, early medieval logician, astronomer, and mathematician of the eleventh-century school of Liege, Garlandus Compotista or Garland the Computist, the English scholastic philosopher and logician Walter Burley, English

logician, and natural philosopher Roger Swyneshed, English philosopher William of Ockham, and Italian priest Thomas Aquinas. Many centuries later, important German thinkers of the idealist school such as Immanuel Kant, Johann Gottlieb Fichte, Friedrich Wilhelm Joseph Schelling and Georg Wilhelm Friedrich Hegel (The author of the work “Phenomenology of spirit”, which is an overview of human thought, and the originator of the idea “Science of logic”) also made a widespread use of this method mostly through apperceptive techniques, and as techniques of self-contradiction. Hegelian dialectics was not fully on a material plane, Marxian dialectics was. According to this line of thinking, arguments are known as theses, and counterarguments are known as antitheses, a reconciliation of which, leads to synthesis. This observation was first made by the German philosopher Heinrich Moritz Chalybaus who lived in the nineteenth century. This form of dialectics is also related to the idea of sublation which means overcoming. The three when taken together, constitute a triode. Thus, as per this technique, person A presents an idea, person B responds to the idea, and person C counter responds to B. Another commonly used and employed variant of dialectics is negative dialectics; this technique rejects the idea of a final synthesis or reconciliation, and presupposes the importance of maintaining discord and non-harmony between contradictory elements without subsuming nitty-gritties under overarching and totalizing concepts.

The term “Transcendental Dialectic” argues that knowledge is not complete, and there are realities that cannot be understood. Over the centuries, several logicians have attempted to formalize the key and the core concepts of dialectics. Living as he did in the eighth century after Christ, the Hindu philosopher and reformer Adi Shankara is also thought to have contributed to dialectical approaches. Dialecticalism however, falls outside the realm of classical logic by most counts, and case where this technique is used to investigate spiritual elements, dialectics largely plays only an ontological and metaphysical role. There are a few different types of dialectics. According to one type of dialectics known as phenomenal dialectics or dialectics related to phenomenon, dialectics is theory of knowledge or a method of understanding to explain a specific phenomenon as a unity of opposites. This approach and techniques to dialectics was espoused by Heraclitus. According to another type of dialectics, dialectics is put forth as a method of logical discourse which tries to derive truth from debate and discussion, mostly oral and spoken. At times, written

dialectical approaches may also be framed and adopted, and this may be judiciously and effectively combined with our approach of discourse analysis.^{1 2 3 4 5}

By the middle of the nineteenth century, Hegelian dialectic was completely recast and redeveloped by the famous and somewhat controversial German philosopher Karl Marx and his collaborator Friedrich Engels and oriented in what may be considered a highly materialistic way. This new technique was based on Marx’s criticism of Hegel’s technique, which he claimed was too abstract and idealistic. The new technique, he believed, could be seen in direct contrast to Hegel’s own method. This approach and techniques later came to be known as dialectical materialism. Marxist dialectic or dialectical materialism may be summarized as a form of Hegelian dialectic which is also used to study historical materialism, examine historical process in relation to class struggle, and examine social and economic behaviors as well. This technique is generally accompanied by continuous mutual relationships, mutual interactions, and formal and structured processes concerning all aspects of nature, society, and human thought. This approach and technique, according to many Marxists, primarily analyzed class struggle, and this could lead to both development and negation, by creating new conditions for material development, and accelerating the pace and tempo of social and cultural change. It would also lead to what Marx called, hierarchical inversions.^{6 7 8}

➤ *Dialectical Naturalism*

The term “Dialectical naturalism” is attributed to the American philosopher Murray Bookchin which he used to describe the philosophical basis of social ecology. Social ecology is a field which strives to create a society where humans live in complete harmony with nature. Dialectical naturalism therefore, seeks to explore the complex and multifaceted interrelationships between social problems, and the consequences they may have on the ecology, and on the environment.

➤ *Theological Dialectics*

Theological dialectics, also sometimes known as dialectical theology, is an approach to theology in Protestantism that was developed sometime after the First World War. It aims to achieve and accomplish a more positive reevaluation of the teachings of the Reformation, which had been largely lost sight of, by this time. Two Swiss intellectuals, Karl Barth and Emil

¹ McTaggart, J. M. E. (1964). *A commentary on Hegel's logic*. New York: Russell & Russell

² Reale, Giovanni (1990). *History of Ancient Philosophy*. Vol. 2. Translated by Catan, John R. Albany: State University of New York.

³ Blackburn, Simon (1996). *The Oxford Dictionary of Philosophy*. Oxford: Oxford University Press.

⁴ Abelson, P. (1965). *The seven liberal arts; a study in mediæval culture*. New York: Russell & Russell.

⁵ Hyman, A., & Walsh, J. J. (1983). *Philosophy in the Middle Ages: the Christian, Islamic, and Jewish traditions*. Indianapolis: Hackett Pub. Co.

⁶ Berlin, Isaiah. *Karl Marx: His Life and Environment* (Oxford University Press, 1963) ISBN 0-19-520052-7

⁷ Gemkow, Heinrich. *Karl Marx: A Biography*. Dresden: Verlag Zeit im Bild. 1968.

⁸ Blackledge, Paul (2019). *Friedrich Engels and Modern Social and Political Theory*. New York: SUNY Press. ISBN 978-1438476872.

Brunner greatly contributed to this school. The natural dichotomy occurring between man and God is also sought to be bridged using this method.

II. CRITICISMS OF DIALECTICAL METHOD

Dialectical approaches and dialectical techniques are of great value in research activity. Many philosophers and thinkers have however, offered different criticisms and critiques of dialectical method and technique, many of which may be valid. Many of the critics state that, in Dialectics, the emphasis is not on harmony and unity; the emphasis mostly shifts to only tensions, disharmony, paradoxes and contradictions. Arthur Schopenhauer was a strident and harsh critic of Hegel's dialectics; he argued that the selection of theses and antitheses could be highly misleading and highly subjective. He argues that the entire process may be rigorous only in a few cases, and it could be rhetorical or illogical in most other cases. Karl Popper also criticized Hegelian dialectics heavily, and argued that it could even be held to justify irrationalism. According to the German thinker Friedrich Nietzsche, dialectics may often impose various artificial boundaries on thinking processes, and suppress the richness and diversity of reality. The famous and eminent philosopher of science and physicist Mario Bunge also criticized Hegelian and Marxian dialectics, and believed they were "fuzzy and remote from science." Marx's dialectics is also viewed as being highly material, and reductionist. They were also often being accused of being intolerant of peripheral ideas. In some cases, it is argued that there can never be a central position of a central dogmatic truth, and that there will always be a lasting unity of opposites.

A. Reflective Equilibrium

The term "Reflective equilibrium" refers to a state of balance, harmony or coherence among a set of beliefs that is arrived at through a mutual adjustment of various ideas and principles. This concept was popularized either directly or indirectly, by John Rawls, (It was Rawls, who coined the term "reflective equilibrium" in his seminal work, "A theory of justice") Nelson Goodman, and others. Goodman's approach later came to be known as Goodman's method. This is a philosophical inquiry into inductive or deductive inference through a process of mutual adjustment. Over the years, many derivatives of reflective equilibrium have been spawned and birthed, as observed by Dietmar Hubner and others. All these however involve balancing and mutual adjustment between points of view, judgments, theoretical assessments, ethical conceptions or divergent moral statements, and intuitive assessments. This approach, according to Rawls, would also bring out a sense of justice, fairness, and impartiality. Another approach and technique is that of wide reflective

equilibrium. This technique comprises and consists of a mutual agreement between revisable a wide range of concepts, principles, techniques, arguments, justificatory devices, and theories. (Daniels 1996).^{9 10}

B. Constructivism

In the words of the American philosopher Kai Nielsen, "philosophers who are defenders of reflective equilibrium are also constructivists". The term "Constructivism" refers to a commonly held view in the philosophy of science which states that scientific knowledge is constructed by scientists by measuring and constructing complex and complete models of the natural world. These normally and typically refer to physical constructs; however, mental constructs may also sometimes be adopted as and when justified or necessary. This means that reflective equilibrium need not always deal with abstract philosophical ideas and ideals. It can be used constructively and purposefully in science to build new models, or build upon ideas purposefully.^{11 12}

C. Neo-Centrism

We had also introduced, defined and explained the concept and the principle of 'Neo-Centrism' (which may also be simply, be known as Centrist – This merely represents a handy moniker, and a short form) several years ago, and we deem it fit to reiterate the core components of this technique and philosophy here for the benefit of the readers. The term "Neo-Centrism" as we see and understand it, may be defined as a neutral and an ideology-free approach to all topics, issues, matters and affairs pertaining to a study of diverse societies, cultures and customs, social and cultural studies, historiography and historical constructs, economics and various other fields, (from our perspective, this approach and technique has widespread potential applicability, and ramifications). It is therefore an ideal "go in-between approach" to the approaches recommended by the left (including the near and far left, and left-leaning persons) and the right (including the near and far right, and right-leaning persons) on a wide range of practical issues. We provide a brief précis and a summary here. For a much more detailed analysis of the entire philosophy, please read our paper "Articulating comprehensive frameworks on socio-cultural change: Perceptions of social and cultural change in contemporary Twenty-first century Anthropology from a 'Neo-centrist' perspective" which was published by us in the year 2017, as well as our multiple papers on historiography, socio-cultural change, and identity formation published over the years, and as required.

⁹ Daniels, Norman (May 1979). "Wide reflective equilibrium and theory acceptance in ethics". *The Journal of Philosophy*. 76 (5): 256–282

¹⁰ Nielsen, Kai (January 1982). "Grounding rights and a method of reflective equilibrium". *Inquiry: An Interdisciplinary Journal of Philosophy*. 25 (3): 277–306

¹¹ Anderson, John R.; Reder, Lynne M.; Simon, Herbert A.; Ericsson, K. Anders; Glaser, Robert (1998). "Radical

Constructivism and Cognitive Psychology". *Brookings Papers on Education Policy* (1): 227–278.

¹² Clark, R. C.; Zuckerman, P. (1999). "Multimedia Learning Systems: Design Principles". In Stolovitch, H. D.; Keeps, E. J. (eds.). *Handbook of Human Performance Technology* (2nd ed.). San Francisco: Pfeiffer. pp. 564–588

This approach also naturally has a long-term orientation, and is tied and bound inexorably with our principles of “aeternitism”, (long-range orientation and objective) ”omnimodism”, (long-range orientation and objective, plus a diversified objective) and “isopedology”, which means to bring unequals as far as practically possible, on an equal footing. We had also proposed, way back in 2017, that dialectics form the bedrock of neo-centrism. Of course, our old stand on this issue remains unchanged. This technique should not become dogmatic or unrestricted under any circumstances; it can, and should, bring pristine and novel ideas into its fold, and without hesitation, as long as they are backed up by epistemology. Neo-Centrist approaches therefore always actively seek out, and attempt to reconcile a wide range of divergent viewpoints (except perhaps ideologically determined ones) by encompassing or taking into consideration the views of as many researchers as possible from diverse cultural, social, ethnic, political, or scientific backgrounds and with as many divergent viewpoints as possible.^{13 14}

It must be stated at the very outset here, that the term Neo-Centrism already exists in reference to a political ideology advocated by an organization named “the Neo-Centrist International”, and some other minor and peripheral organizations, in the twin realms of politics and foreign policy. However, we believe that this concept must be extended both ontologically and politically as required to fields, such as economic philosophy, political thought, and applied linguistics. In purely political and ideological terms, it would refer to a rejection of right-wing, left-wing and all other forms of ideologically-driven interpretations of issues as long as they are anti-science and anti-truth. Therefore, ultimate and ideal solutions may incorporate elements from ‘left-wing’ and ‘right-wing’ recommendations in diverse areas, fields and topics of study, but attempt an honest reconciliation, nonetheless by resolving all kinds of paradoxes and inconsistencies. We also hope, on an optimistic note, that neo-centrism can become one of the biggest movements of the twenty-first century.

We had also proposed some newer approaches earlier on, which we had called the CRCDE or the “Continuous reconciliation of Contradictory data or evidence”, the key principles of which could be summarized as follows: (a) contradictory data or evidence must be insistently and uncompromisingly sought out, with the firm conviction that such data or evidence is nothing to be really afraid of (b) if contradictory data or contradictory evidence still exists and is not reconciled, we can safely and confidently say with a great

deal of conviction that the approach or model is over simplified (c) A reconciliation of contradictory data will always necessarily move us to a higher level and a higher state of understanding (d) if contradictory data is left out from an analysis in an extreme or an isolated case, a justification may be required. Contradictory viewpoints may however still be chosen to be left out, if not adequately backed up by data, or if the methodology used by the other scholars has been convincingly or comprehensively refuted by the scholar in question.

In case of Reflective Equilibrium through role-swapping (RERS), another idea that we had mooted at around the same time, several years ago, the scholar tries to, or learns to put himself in the shoes of all the other pre-identified different stakeholders, but only one stakeholder at a time. He then tries to look at all presented and identified issues from the other party’s point of view or understanding, and evaluate how he might assess or evaluate it using that party’s ideological affiliations, political, economic or cultural dispensations, historical antecedents or other relevant and available information as a basis. Pseudo-scientific approaches must also be identified through APSA (analysis of pseudoscientific approaches), and QEPIS (quantification of ideologically driven approaches). A formal table of contradictions may also be prepared as a result of this analysis. The scholar’s own point of view must then be modified as a result of this analysis. This approach would then save time, effort and energy, and can be used along with other different forms of analysis as well. We had also discussed concepts such as ‘Next higher state’, and ‘ideal state’, previously. Reflective Equilibrium through role-swapping (RERS), that we had propositioned way back then, is then formalized, concretized, and crystallized into auto-dialectics in this paper. Auto-dialectics is therefore a logical extension, and a logical culmination of the aforesaid Reflective Equilibrium through role-swapping (RERS) technique, and takes the entire effort to a logical end state. It is also a much more formal technique than RERS, and has a definition process and form.¹⁵

III. STEPS IN AUTO-DIALECTICAL TECHNIQUE

The following are therefore the different steps and stages involved in an auto-dialectical technique. This list only identifies the core stages in summary and in brief, and other stages may be added on, by different individual researchers to this basic core list of steps.

¹³ Enunciating the Core principles of Twenty-first Century Historiography: Some additional extrapolations and inferences from our studies and observations on Historiography Sujay Rao Mandavilli ELK Asia Pacific Journal of Social Science (ISSN: 2394-9392) in Volume 2, Issue 4 July to September 2016

¹⁴ Articulating comprehensive frameworks on socio-cultural change: Perceptions of social and cultural change in

contemporary Twenty-first century Anthropology from a ‘Neo-centrist’ perspective

¹⁵ Articulating comprehensive frameworks on socio-cultural change: Perceptions of social and cultural change in contemporary Twenty-first century Anthropology from a ‘Neo-centrist’ perspective Published in ELK Asia Pacific Journal of Social Sciences Volume 3, Number 4 (July 2017 – September 2017) Sujay Rao Mandavilli

- Make a list of all your opponents: The first step in the entire process would be to make out a list of all the “opponents”. The term “opponent” may be somewhat misleading here; it only refers to, and represents the list of individuals whose ideas and ideals do not concur, match or tally with the ideas and ideas of the individual in question. While, carrying out this exercise, a complete list of such individuals must be made, and no one must be consciously or subconsciously left out from the list. This list must be fairly comprehensive and wide-ranging, and at best, some minor, peripheral, and non-representative points of view can be left out.
- Make a list of all their points of view: A complete list of all their points of view (and their stances on a wide variety of issues) must be prepared. A note must also be prepared as to how and why these points of view differ, or mismatch with the researchers own view. A root cause analysis for the divergence must also be prepared.
- Understand why different parties are saying what they are saying – Understand the complete epistemology, and prepare a traceability matrix.
- Understand the other parties underlying thought worlds, worldviews, urges, proclivities, and mental makeup. Understand their cultural frame of reference as well. Their scientific ideology if we may so call it, must also be thoroughly grasped, and understood. There may be different types of scientific ideologies at work, and these may be determined by the scholar’s own predispositions, and cultural affiliations.
- The researcher in question must put himself fully in their shoes, and immerse themselves in their ideologies and points of view to understand them better. This is of course, a part and parcel of our aforementioned “Reflective equilibrium through role swapping” technique. A “Chain of thought analysis” may also be prepared as required.
- Vow to (at least, for the duration of this exercise), get rid of all biases, ideologies and prejudices – There must be no scientific ideologies such as Eurocentrism, Indocentrism, etc. These can also be identified through discourse analysis, another technique that we had mooted in a previous paper, published earlier this year.
- Address all concerns and criticisms: The researcher must then address all concerns and criticisms emanating from the entire exercise. All outstanding issues must be satisfactorily resolved and fixed, and this bears the natural potential to move us to a higher level.
- Perform a complete and comprehensive reconciliation: A complete and comprehensive reconciliation of all issues must be carried out, and new solutions mooted as necessary.
- Develop new frameworks and paradigms: New frameworks and paradigms must also be developed as necessary, as a logical outcome of the exercise.
- This approach may also be combined with discourse analysis. We also need a formal mechanism both for new scientific work, and for peer-reviews and non peer-reviews of new scientific research and new scientific publications.

All said and done, this is a much cheaper, and a more cost effective exercise than traditional dialectics, while retaining all the core benefits of traditional dialectics, as long as the entire exercise is carried out in true letter and spirit. It is also far less cumbersome, and far less time-consuming. It can therefore stand science in very good stead, and greatly improve the quality, and reliability of science, and aid in the consistency of scientific output. It is for this very reason that it must be highly recommended for different types of scientific activity.

IV. CONCLUSION

We had begun this paper by defining the antecedents of the not so commonly used English term dialectics, and then proceeded to trace and summarize its entire history briefly and in a nutshell. We had also then explained how great Greek thinkers such as Socrates, Plato and Aristotle understood the term, and also contributed substantively, to dialectical thought. We then proceeded to examine the contributions made by other great European thinkers, particularly the Germans to the entire philosophy and school of thought of formal dialectics. We also then reviewed the contributions of other “non-orthodox” cultures to dialectics including the Indian school of thought represented by thinkers such as Buddha and Adi Shankracharya. We also had evaluated the Marxian school of material dialectical thought, and examined some of its weaknesses and shortcomings. We had also reviewed and summarized all other different schools of thought associated with dialectics, and the potential downstream uses and implications of dialects. We had also presented and reviewed some limitations of dialectics, and had addressed their common criticisms. We also reviewed our core philosophy of neo-centrism and the position of “Reflective equilibrium through role swapping” (or RERS) advocated by us several years ago, (between the years 2015 and 2017, particularly) and then build upon the core and key concepts and tenets of this approach to formulate what we can now call auto-dialectics. We also propose and evaluate some key benefits and downstream benefits and implications of this technique, and explain how it can lead to better quality and reliable science without requiring a huge array and battalion of resources. It can also greatly increase institutional coherentism, and reduce or bring down the latency time for the gestation of new scientific ideas. It can also lead to better cross-cultural dialogue and augment cross-cultural scientific output by thawing misunderstandings, and allowing key for rapprochements to take place. This then, will lead to what we have always called scientific progress at the speed of light.