Methods of Analysis
Logical Analysis
Stephen Petrina (2018)

> The business of philosophy, as I conceive it, is essentially that of logical analysis, followed by logical synthesis.
> (Russell, 1924/1972, p. 147)

Logical analysis, as Russell (1924/1972) defines it, "consists in criticizing and clarifying notions which are apt to be regarded as fundamental and accepted uncritically" (p. 147). He notes that fundamental concepts, or affiliated claims, grounds, and warrants and, such as mind, consciousness, knowledge, and experience are quite often "inexact and approximate, essentially infected with vagueness." Logical analysis prioritizes parts and particulars in the longstanding question of whether one ought to work from wholes to parts or parts to wholes (e.g., Kant, 1781/1881, pp. 376-377). The priority is a discovery of "simples" that compose a "complex." Of course, the direction is a matter of one's perspective and disciplinary norms. Analytic philosophy, says Russell (1915), "starting from data which are common knowledge, seeks to purify and generalise them [i.e., data, properties, propostions, etc.] into the simplest statements of abstract form that can be obtained from them by logical analysis" (p. 186). Logical analysis was immensely important in emphases on evolution, free thought, and the secularization of knowledge throughout the nineteenth century (Pearson, 1883).

Logic is more concerned with "thought as a product rather than with thinking as a process" (Ward, 1919, p. 258). What is thought a product of? If "logic safeguards the pursuit of truth and provides a measure of protection against specious forms of reasoning" (Elliston, 1985, p. 333) then logical analysis identifies patterns or structures of language ["set of symbols"] that produce or underlie the reasoning (Black, 1932, p. 238). For instance, technical language reduces variation of interpretation. How and why does it do this? Through what patterns are technical language and actions produced? Is nontechnical language, the "lexicon of lived experience," comparatively more communicable (Witkin, 1997, p. 207)?

Precision of terminology and reduction of concepts to defensible propositions and judgments are important but some logical analysts (e.g., Russell), caution against the complication of natural language (by coding, ostentation, etc.). Another criticism is that focuses on language or linguistics diverge from real problems. For example, logical analysis is often stereotyped as reducing moral language to logic instead of entering debates over what is good for humans. "The analysts' cold, abstract, formal, and some would say trivial approach to ethics is often contrasted unfavourably with the warm, concrete, vital and personalistic approach of the existentialists in their novels, plays and philosophical prose works" (McNiven, 1970, p. 1). Russell (1914) defends the method as "the substitution of piecemeal, detailed, and verifiable results for large untested generalities recommended only by a certain appeal to imagination" (p. 4).
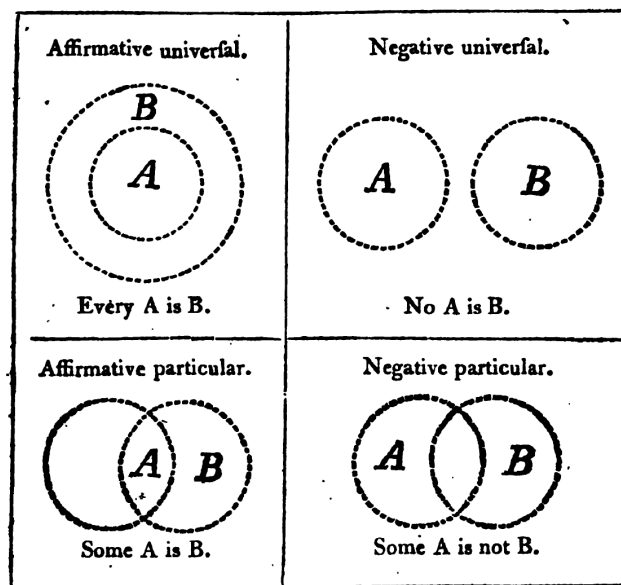
Although the emphasis is on minute logic of everyday language, logical analysis also attends to prodigious practices, processes, or properties extending over time and space. The "logic of technology" (or "rationality of technology), for example, refers to a perceptible and imperceptible structure (e.g., attributes, properties, qualities, etc.). How and why we sense that one or another technology has a unique momentum and rationality or is deterministic are for some a matter of logical analysis while for others a matter of metaphysical analysis.

1. Two questions are herein begged: What is analysis? and What is logic?
   a. Analysis
      i. Leavis (1948, p. 70): Analysis is not a dissection of something that is already and passively there. What we call analysis is, of course, a constructive or creative process.... It is a re-creation in which, by a considering attentiveness, we ensure a more than ordinary faithfulness and completeness.
      ii. Ryle (1954, p. 129): What is often, though not very helpfully, described as 'the analysis of concepts', is rather an operation— if you like a 'synoptic' operation— of working out the parities and the disparities of reasoning between arguments hinging on the concepts of one conceptual apparatus and arguments hinging on those of another. The need to undertake such operations first makes itself felt only when some dilemma shows its horns.
2. Analytic Philosophy & Logic
   a. Kant's Second Antinomy
      i. Kant (1781/1881, pp. 376-377):
         1. Thesis. Every compound substance in the world consists of simple parts, and nothing exists anywhere but the simple, or what is composed of it.
         2. Antithesis. No compound thing in the world consists of simple parts, and there exists nowhere in the world anything simple.
      ii. See Russell (1915, pp. 157-158)
   b. Russell (1910/1917, p. 77): The fact is that symbolism is useful because it makes things difficult.... Now, in the beginnings, everything is self-evident; and it is very hard to see whether one self-evident proposition follows from another or not. Obviousness is always the enemy of correctness. Hence we invent some new and difficult symbolism, in which nothing seems obvious. Then we set up certain rules for operating on the symbols, and the whole thing becomes mechanical. In this way we find out what must be taken as premise and what can be demonstrated or defined.
   c. Russell (1915, p. 185): Every subject-matter, it would seem, can give rise to philosophical investigations as well as to the appropriate science, the difference between the two treatments being in the direction of movement and in the kind of truths which it is sought to establish. In the special sciences, when they have become fully developed, the movement is forward and synthetic, from the simpler to the more complex. But in philosophy we follow the inverse direction: from the complex and relatively concrete we proceed towards the simple and abstract by means of analysis, seeking, in the process, to eliminate the particularity of the original subject-matter, and to confine our attention entirely to the logical *form* of the facts concerned.
   d. Russell (1915, p. 186): Between philosophy and pure mathematics there is a certain affinity, in the fact that both are general and *a priori*.... Mathematics and philosophy differ, however, in their manner of treating the general properties in which all possible worlds agree; for while mathematics, starting from comparatively simple propositions, seeks to build up more and more complex results by deductive synthesis, philosophy, starting from data which are common knowledge, seeks to purify and generalise them into the simplest statements of abstract form that can be obtained from them by logical analysis.

e. Russell (1915, p. 211): The nature of philosophic analysis, as illustrated in our previous lectures, can now be stated in general terms. We start from a body of common knowledge, which constitutes our data. On examination, the data are found to be complex, rather vague, and largely interdependent logically. By analysis we reduce them to propositions which are as nearly as possible simple and precise, and we arrange them in deductive chains, in which a certain number of initial propositions form a logical guarantee for all the rest. These initial propositions are *premisses* for the body of knowledge in question. Premisses are thus quite different from data— they are simpler, more precise, and less infected with logical redundancy.

f. Russell (1924/1972, p. 147): The business of philosophy, as I conceive it, is essentially that of logical analysis, followed by logical synthesis.

g. Wisdom (1933/1954, pp. 4, 8): If you stimulate a philosopher in a suitable way he [she or they] will begin to philosophize. To philosophize is to analyse.... The philosopher's intention is increased clearness in the apprehension of the ultimate structure of facts.

h. Nagel (1936, p. 13): In philosophic analysis, as distinct from other kinds, we pass from one level of abstraction to a level at least one degree lower, aiming finally at reference to bare particulars and the explicit mode of their configuration. Philosophic analysis therefore has a direction; its intent is to reveal the structure of facts, expressed by sentences referring to them indirectly, by exhibiting directly their component elements and their interrelations. It is, consequently, an acknowledged presupposition of the whole procedure that there should be "basic" or "ultimate" facts, i.e., facts which are absolutely specific and simple, not containing any elements which are themselves complexes of other elements.

i. Dummett (1975/1978, p. 458): Only with Frege [and his work on symbolic logic in the 1870s and 1880s] was the proper object of philosophy finally established: first, that the goal of philosophy is the analysis of the structure of *thought*; secondly, that the study of *thought* is to be sharply distinguished from the study of the psychological process of *thinking*; and, finally, that the only proper method for analysing thought consists in the analysis of *language*.

j. Dummett (1994, p. 4): What distinguishes analytical philosophy, in its diverse manifestations, from other schools is the belief, first, that a philosophical account of thought can be attained through a philosophical account of language, and, secondly, that a comprehensive account can only be so attained.

3. Conceptual History

a. Perkins (1876, p. 41): Which is of the more importance: the logical analysis of language, or its etymology and syntax? They go hand in hand to a large extent, but I should say that a pupil would make better progress without a knowledge of the terms used in logical analysis, than without a knowledge of etymology and syntax.

b. Kries & Neurath (1929/1972, pp. 306-307): It is the method of logical analysis that essentially distinguishes recent empiricism and positivism from the earlier version that was more biological-psychological units orientation. If someone asserts "there is a God", "the primary basis of the world is the unconscious", "there is an entelechy which is the leading principle in the living organism", we do not say to him: "what you say is false"; but we ask him: "what do you mean by these statements?" Then it appears that there is a sharp boundary between two

kinds of statements. To one belong statements as they are made by empirical science; their meaning can be determined by logical analysis or, more precisely, through reduction to the simplest statements about the empirically given. The other statements, to which belong those cited above, reveal themselves as empty of meaning if one takes them in the way that metaphysicians intend. One can, of course, often re-interpret them as empirical statements; but then they lose the content of feeling which is usually essential to the metaphysician. The metaphysician and the theologian believe, thereby misunderstanding themselves, that their statements say something, or that they denote a state of affairs. Analysis, however, shows that these statements say nothing but merely express a certain mood and spirit.

    c. Wienpahl (1959, p. 60): In 1931 Rudolph Carnap, one of a group of philosophers often called logical positivists, published in *Erkenntnis* an essay entitled "*Überwindung der Metaphysik durch logische Analyse der Sprache*" (Conquest of Metaphysics by Logical Analysis of Language). The essay was written in connection with the positivists' program for the elimination of metaphysics from philosophy and science. The attempt resulted from the view that philosophy is nothing more than the clarification of scientific and other concepts by means of logical analysis, and was based upon the conviction that metaphysical concepts and propositions are meaningless.

    d. O'Farrell (1970, p. 156): What passes for philosophy in many of the Anglo Saxon universities: linguistic analysis, is not and cannot be concerned with the truth of the real. From an analysis of the elements of the use of language one can never reach what speech is, anymore than one can reach, as we have seen, the whole from the addition of partial aspects.

4. Techniques of Logic

    a. Euler or Venn Diagrams

        i. Euler, "Of Syllogisms, and Their Different Forms, when the First Proposition is Universal" (1761/1802, p. 398):

Affirmative univerfal.	Negative univerfal.
B / A	A B
Every A is B.	No A is B.
Affirmative particular.	Negative particular.
A B	A B
Some A is B.	Some A is not B.

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    ii. Venn, "On the Diagrammatic and Mechanical Representation of Propositions and Reasonings" (1880):

        1. (p. 1): Schemes of diagrammatic representation have been so familiarly introduced into logical treatises during the last century or so, that many readers, even of those who have made no professional study of logic, may be supposed to be acquainted with the general nature and object of such devices. Of these schemes one only, viz. that commonly called "Eulerian circles," has met with any general acceptance.

        2. (pp. 15-16): It will be easily seen that such methods as those here described readily lend themselves to mechanical performance.... it does not seem to me that any contrivances at present known or likely to be discovered really deserve the name of logical machines. It is but a very small part of the entire process which goes to form a piece of reasoning which they are capable of performing. For, if we begin from the beginning, that process would involve four tolerably distinct steps. There is, first, the statement of our data in accurate logical language. This step deserves to be reckoned, since the variations of popular language are so multitudinous, and often so vague and ambiguous, that they may need careful consideration before they can be reduced to form. Then, secondly, we have to throw these statements into a form fit for the engine to work with— in this case the reduction of each proposition to its elementary denials.

        3. (p. 3): the proposition " Some X is not Z" needs *three* other diagrams:
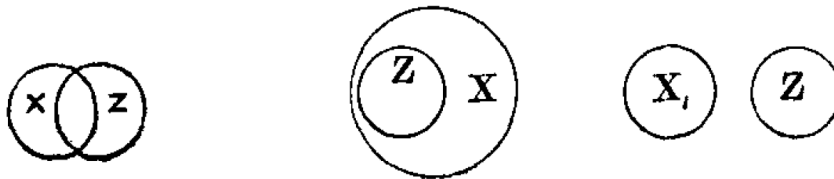
  b. Truth Tables

5. Techno-Logic

    a. Veblen

      i. Veblen (1906, p. 598): In the modem culture, industry, industrial processes, and industrial products have progressively gained upon humanity, until these creations of man's [and woman's] ingenuity have latterly come to take the dominant place in the cultural scheme; and it is not too much to say that they have become the chief force in shaping men's [and women's] daily life, and therefore the chief factor in shaping men's [and women's] habits of thought. Hence men [and women] have learned to think in the terms in which the technological processes act. This is particularly true of those men [and women] who by virtue of a peculiarly strong susceptibility in this direction become addicted to that habit of matter-of-fact inquiry that constitutes scientific research.

      ii. Veblen (1914, p. 241): In this modern machine technology the ruling norm is the highly impersonal, not to say brutal, concept of mechanical process,

blind and irresponsible. The logic of this technology, accordingly, is the logic of the machine process,— a logic of masses, velocities, strains and thrusts, not of personal dexterity, tact, training, and routine. In the degree in which the information that comes to hand comes encumbered with a teleological bias, a connotation of personal bent, it is unavailable or refractory under this logic.

b. Weber (1920/2001, p. 158): Now evidently the capitalism specific to the modern West has been strongly influenced above all by advances in the realm of *technology*. The nature of the rationality of modern Western capitalism is today determined by the calculability of factors that are technically decisive. Indeed, these factors are the foundation for all more exact calculation. In turn this calculability is rooted fundamentally in the characteristic uniqueness of Western science, and especially in the natural sciences grounded in the exactness of mathematics and the controlled experiment.

c. Meadows (1948, p. 175): It has been the machine-tooled art of a practical people who appreciated and prized the logic of machine technology. That logic is one which puts a premium on the flow of goods and services in greater abundance and at lower costs.

d. Critique of Techno-Logic & Techno-Rationality

    i. Marcuse (1941, p. 418): Veblen was among the first to derive the new matter-of-factness from the machine process, from which it spread over the whole society.

    ii. Marcuse (1941, pp. 422-423): As the laws and mechanisms of technological' rationality spread over the whole society, they develop a set of truth values of their own which hold good for the functioning of the apparatus-and for that alone. Propositions concerning competitive or collusive behavior, business methods, principles of effective organization and control, fair play, the use of science and technics are true or false in terms of this value system, that is to say, in terms of instrumentalities that dictate their own ends. These truth values are tested and perpetuated by experience and must guide the thoughts and actions of all who wish to survive. Rationality here calls for unconditional compliance and coordination, and consequently, the truth values related to this rationality imply the subordination of thought to pregiven external standards. We may call this set of truth values the technological truth, technological in the twofold sense that it is an instrument of expediency rather than an end in itself, and that it follows the pattern of technological behavior.

    iii. Taubes, "For Max Horkheimer on his sixtieth birthday 1955" (1956, pp. 12, 14): In the technological frame of reference the universality of reason has become purely formal: one element can be substituted by another element. Even men [and women] become interchangeable parts. Individuals are stripped of their individuality not by external compulsion but by the very rationality under which they live and act. The point is that today the apparatus to which individuals are to adjust and to adapt themselves is so "rational" that individual protest and liberation appear not only as hopeless, but as utterly irrational... In the technological language, however, the critical function of reason is eclipsed and reason becomes an instrument for the optimum adaption of means to ends. Thus the pursuit of

reason becomes an energy-conserving operation. This eclipse of hope, the eclipse of the critical function of reason, seems the *trahison des philosophes* in our age.