Methods of Analysis
Analysis

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Philosophy cultivates a form of understanding by breaking things down into components to learn how the parts fit together. What is analyzed may be ideas (conceptual analysis), words (linguistic analysis), propositions (logical analysis), experience (phenomenological analysis) or existence (existential analysis). (Elliston, 1985, p. 333)

For millennia, analysis has been a common, if not essential, practice of learning, research, teaching, and thought. Widespread as it is, it may be one of the most taken for granted knowledge production practices. Many who use analysis do not recognize it as such or call it analysis. It's taken to be a necessary step before inference and interpretation and often contrasted with synthesis. What is analysis? What is common across the proliferation of methods of analysis?

In the *Prior Analytics* and *Posterior Analytics* (ca. 380s BCE), Aristotle elaborates in detail demonstrative, inductive, syllogistic, and terminological analytics or analyses. The suggestion is that analysis can be tailored to different methodological foci. Aristotle refers to analytical method (ἀναλυτικῶν, analytics, analysis) as "methodical systematic reasoning" or logic (Cope, 1877). Analytics for Diogenes Laertius (ca. 230 CE, 5.1.28) is synonymous with logic as an organ (ὄργανον) or instrument of thought and truth (i.e., science of analysis). Aristotle's insights could be used to translate analysis (ἀνάλυσις) as repetitive dissolution and analogy (ἀνάλογον) as the measure or study of repetition or similarities.

In lieu of a better etymology, analysis (ἀνάλυσις)— to analyze (ἀνάλύειν)— means loosening up and breaking down similarities or patterns in data (image, text, and sound) or phenomena (beings and things). For example, psychoanalysis might be best defined as loosening up patterns in the psyche. Definitions of analysis tend to be similar to *Chambers's Twentieth Century Dictionary* (1903):

> resolving or separating a thing into its elements or component parts— the tracing of things to their source, and so discovering the general principles underlying individual phenomena. Its converse is *synthesis*, the explanation of certain phenomena by means of principles which are for this purpose assumed as established. Analysis as the resolution of our experience into its original elements, is an artificial separation; while synthesis is an artificial reconstruction.

Alternatively, analysis is the distribution of what one loosens up into different forms, formats, or patterns. As Leavis (1948), clarifies, analysis is not a "dissection of something that is already and passively there." "What we call analysis," he continues, "is 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" (p. 70). Analysis should not imply a loss of the whole.

Quine (1951) calls the juxtaposition of decompositional-analytic method against expository-synoptic method a common dogma— "a belief in some fundamental cleavage between truths which are *analytic*, or grounded in meanings independently of matters of fact, and truth[s] which are *synthetic*, or grounded in fact" (p. 20). Ryle (1954, p. 129) concurs, arguing that what is often

called analytic is actually synoptic. Others, such as Cassidy (1983), maintain distinctions: "In *all* disciplines of the university which have intellectual content there are practiced three kinds of activities: analysis, synthesis, and reduction to practice" (p. 389). He differentiates synthesis as "finding connections between the data made available by the analytical activity." These distinctions were problematic for nineteenth century psychology and remain so today. As James (1890) famously concluded:

> The truth is that Experience is trained by *both* association and dissociation, and that psychology must be writ *both* in synthetic and in analytic terms…. Experience, from the very first, presents us with concreted objects, vaguely continuous with the rest of the world which envelops them in space and time, and potentially divisible into inward elements and parts. These objects we break asunder and reunite. (p. 487)

Analysis is "never a merely ratiocinative, calculating process of logical deduction and inference" (Carew, 2009, p. 110) yet nor in the practice of analysis can one elude a *ratio*. "Constant comparative analysis" (Glaser, 1965), which became *de rigueur* for qualitative research, simply reiterates a key cognitive process: analysis implies repetitive comparison (i.e., comparison of similarities) or discrimination and classification (Noyes, 1940, p. 501).

To analyze and analogize is to make something conformable *and* create an analogue or resemblance— "*relevant similarity*" (Brewer, 1996, p. 950). Greimas and Courtés (1979/1981, p. 159) pick up on this as they define interpretation as paraphrase. To analyze is to paraphrase inasmuch as to interpret is to paraphrase. It is often said that inference *and* interpretation begin with analysis. The equation, and often the process, here is:

analysis ←→ analogy ←→ inference or interpretation

If, for Aristotle, analysis was a means of *judging* truth and its claims, through the nineteenth century analysis became a way of *making* truth and claims to that effect. Hall's (1894) declaration that "this is an age of synthesis," "the age of analysis is past," was obviously mistaken. Conceptual analysis and logical analysis were soon to be equated with philosophical method and psycho-analysis was verging on mass popularization. With the proliferation of about twenty additional methods of analysis through the twentieth century, subsequent commentators could rightfully claim that theirs was the age of analysis (Beran, 1983; Moody, 1963). White's (1955) observation was accurate: "the twentieth century has witnessed a great preoccupation with analysis as opposed to the large, synthetic, system-building of some other periods" (p. ix). Critics and champions of synthesis and synoptic analysis reduced this to analysism.

Analyticism, analytism, and analysism refer on one hand to a theory that knowledge derives from object divisibility and on the other to an obsession with analysis and resultant proliferation. In the 1950s, a symptom of analysism was coined "analysis paralysis," wherein one is arrested in analysis with diminishing returns and made immobile. Since the early 1800s, methods of analysis, such as logical analysis, metaphysical analysis, conceptual analysis, and experiential analysis, proliferated. Although there are commonalties to the practice of analysis over time and across objects, the practice has proven to be quite customizable. Logic, metaphysics, and existentialism or concepts, experiences, and the psychic have tailored or specialized analysis over time. Logic, for some reason, demanded logical analysis and concepts somehow demanded conceptual analysis. Where does this leave analysis, *sans* adjective or qualifier?

1. What is analysis?
    a. Cope (1877): resolving the objects of knowledge into their ultimate elements, to discover their causes.
    b. Eastwood (1919, p. 416): In order to get the full truth about anything we must regard it in relation to the whole of everything. "Isolate a thing from its relations," said Dr. Edward Caird, "and try to assert it by itself, you find it has negated itself as well as its relations." The thing in itself is nothing.... [Analysis] then, is not an effort to resolve a thing into separate parts, each of which are relatively simple, but an attempt to see the thing in all its intrinsic relations to the whole of which it forms a part.
    c. Noyes (1940, p. 501): Analysis is the process of breaking down the data into their constituent elements, which thereby become new data. The individual datum at one level becomes analyzed into a com- pound of unlike data at the next lower level…. analysis is also classification— the breaking down of the whole into classes or parts.
        i. (p. 502): If, then, analysis includes both putting likes together and separating unlikes— that is, classification— what is synthesis? If the dividing of unlikes has as its necessary obverse the grouping of likes, why use two terms for what are merely the two aspects of a single process? Evidently that is not the distinction which the names analysis and synthesis are intended to convey. We have said that analysis is the breaking down of data. By that we suggest that analysis is a matter of direction. It is starting with wholes and breaking them down into parts which are heterogeneous in some respect among themselves and homogeneous in that respect within themselves. It is classification of the broader into the narrower. In the hierarchy of classifications it works from the higher to the lower. So examined, synthesis turns out to be merely classification in the opposite direction-from the narrower to the broader, from the hierarchically lower to the higher, the combining of hitherto isolated parts into new wholes.' If analysis is dividing one into one third and two thirds, which are unlikes, synthesis is "putting two and two [likes] together."
    d. 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.
    e. 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.
    f. Stevenson (1958, p. 42): An analysis normally attempts to disclose unsuspected complexities; and for the present sense we may be tempted to say that the complexities are somehow secretly present in "the" experience that we have of a [phenomenon or] work... [An analyst] can, to be sure, attempt to tell us about the felt aspects (which are in no sense "hidden" from him [her or them], however hard they may be to name) of a complex experience; but that is not an analysis in the sense I have defined and is best referred to, in general, not as an "analysis" but rather as a "description" of experience, or as an "introspective report" about it.
    g. Levi-Strauss (1969/1983, p. 5): The study of myths raises a methodological problem, in that it cannot be carried out according to the Cartesian principle of breaking down the difficulty into as many parts as may be necessary for finding the solution. There is no real end to mythological analysis, no hidden unity to be grasped once the breaking-down process has been completed. Themes can be split up *ad infinitum*. Just when you think you have disentangled and separated them, you realize that they are knitting together again in response to the operation of unexpected affinities.
    h. Geertz (1973, p. 9): Analysis, then, is sorting out the structures of signification— what Ryle called established codes, a somewhat misleading expression, for it makes the enterprise sound

too much like that of the cipher clerk when it is much more like that of the literary critic—and determining their social ground and import.

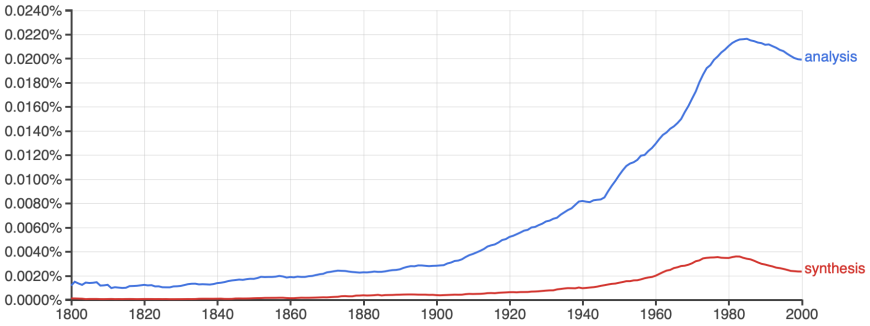
i. Cassidy (1983, p. 389): In *all* disciplines of the university which have intellectual content there are practiced three kinds of activities: analysis, synthesis, and reduction to practice. *Analysis* is the activity of gathering data, describing things as they are, collecting and recording instances, making lists, and so on. Now an intelligent person cannot go very far in this kind of activity before he begins to see patterns in his data, likenesses in his descriptions, similarities among the separate instances. As this occurs, the essentially analytical activity goes over into a synthetic one. *Synthesis* is the activity of finding connections between the data made available by the analytical activity, making hypotheses and theories, and developing laws. In short, synthetic activity is a generalizing activity. It involves abstraction, for the general statement is at a higher level of abstraction than the many single instances on which it is based.

j. Page (1985, p. 61): [In Aristotle's *Metaphysics*] the synthesis or compositeness implied by the term suggests the analysis of things into components (τά ενυπάρχοντα) or elements (τά στοιχεία).

k. Handler (1985, p. 174): [Analysis] aims to break down the complex phenomena of experience into their constituent parts in order to understand the relations between those parts, and to achieve a new and more profound understanding of the whole. There is a sense in which all interpretation involves analysis, for interpreters must take in a text as it presents itself to them, then decompose it in order to discuss what the significant units are, what they mean, how they relate to one another, and how they contribute to the whole text. Such a project is relevant to the interpretation of social 'texts' as well: presumably fieldworkers experience what seems to them to be a seamless social reality, which they ultimately must analyze into meaningful components.

l. Bong (2007, p. 267): Data analysis is at once conceptual and organisational, interpretive as well as mechanical. Coding for expedient retrieval (of categories) and theory building (relationship among categories) involves the pragmatics of breaking down or dissecting one's data into manageable and meaningful analytical units.

2. Analysis v Synthesis
   a. Google Books, Ngram, 1800-2000



3. Conceptual History
   a. Aristotle
      i. *Metaphysics*, *G*.3, *Z*.12, *Rhetoric*, 4.5/1359b10
      ii. Only rarely do translators and commentators of Aristotle render ἀναλυτικῶν (ἀναλυτικός) as anything more than analytics. Worse, some translate Aristotle's use of χἀναλυτικῶν as referring to *The Analytics* (i.e., *Prior Analytics* & *Posterior Analytics*, ca. 380s BCE). The *Liddell-Scott-Jones Greek-English Lexicon* (*LSJ*) is no help here.
      iii. In the *Vocabulary of Philosophy*, Fleming (1890) says that yes, *Τὰ Αναλυτικά* is the "title given to a portion of the *Organon*, the logical treatises of Aristotle." But he

clarifies, “it does not appear that Aristotle gave this title to the *Prior* and *Posterior Analytics* when the books were written…. The title *τὰ ἀναλυτικά* was afterwards applied to the books now bearing the name, which treat of the analysis of thought, the Prior dealing with the syllogism, the Posterior with proof and the conditions of knowledge” (p. 22). The title was given to the works much later, by the Peripatetics (322 BCE-200 CE) and others, such as Diogenes Laertius (ca. 230).

1. Nevertheless, Fleming (1890) falls into the verbatim or ‘literal translation’ trap: Twice, however, in the *Metaphysics* he uses the term *ἀναλυτικά* as applicable to the division of logic involved. Once (*Metaph*., IV. 3) he charges some philosophers with ignorance of analytics, alleging that they hold their position *δι’ ἀπαιδευσὶαν τῶν ἀναλυτικῶν*. And, more directly, referring to his own Logical Treatises, he says (*Metaph*., VII. 12) that no statement has been made concerning definition in the Analytics, *ἐφ’ ὁσον ἐν τοῖς ἀναλυτικῖς περὶ ὁρισμοῦ μὴ ἐίρηταν*.

iv. Cope's (1877) note on *Rhetoric* (4.5/1359b10) is important: ἀναλυτικῶς, opposed to λογικῶς (which is equivalent to διαλεκτικῶς, Waitz on *Anal. Post*. 82 b 35, p. 353, Poste, u. s., p. 19), properly implies scientific demonstration; and ‘analytical’ reasoning follows that method: see *Anal. Post*. I 22, 84 a 7 seq. It is there said to be exercised ἐν ταῖς ἀποδεικτικαῖς ἐπιστήμαις...ἡ μὲν γὰρ ἀπόδειξίς ἐστι τῶν ὅσα ὑπάρχει καθ᾽ αὐτὰ τοῖς πράγμασιν. On ‘Analytics’ comp. Trendel. *El. Log. Arist*. p. 47 sq. Waitz *Comm. ad Anal. Pr*. p. 366, 7. When Dialectics is here called an ‘analytical’ science, either ‘analytical’ stands for ‘logical’ in general (which is Mr Poste's view, l. c.), or else it represents and includes methodical systematic reasoning of all kinds, which proceeds by way of ‘analysis’, ‘resolving’ the objects of knowledge into their ultimate elements, to discover their causes (Trendelenburg, l. c.); and the latter is the explanation that I should prefer.

b. Descartes
   i. Reé (1975, p. 358): It is far from obvious, except in an a priori fantasy, that all analyses are going to yield the same simple elements. For one thing analysis can be applied to quite different sorts of things: matter, mental phenomena, propositions (scientific and mathematical) and problems ("*quaestiones*"). Descartes' view is at best misleading when he claims that all of these can be reduced to so-called simple natures. For confusion seems inevitable when he characterizes these sometimes as constituents ("objects"), sometimes as properties (e.g., being extended}, sometimes as Kantian-type categories (e.g., existence, unity).

c. Martineau, *Essays, Philosophical and Theological* (1883, p. 273): Experience proceeds and intellect is trained, not by Association, but by *Dissociation*, not by reduction of pluralities of impression to one, but by the opening out of one into many; and a true psychological history must expound itself in analytic rather than synthetic terms.

d. James, *Principles of Psychology* (1890, p. 487): The truth is that Experience is trained by *both* association and dissociation, and that psychology must be writ *both* in synthetic and in analytic terms…. Experience, from the very first, presents us with concreted objects, vaguely continuous with the rest of the world which envelops them in space and time, and potentially divisible into inward elements and parts. These objects we break asunder and reunite. We must treat them in both ways for our knowledge of them to grow; and it is hard to say, on the whole, which way preponderates.
   i. (p. 287): Reasoning depends on the ability of the mind to break up the totality of the phenomenon reasoned about, into parts, and to pick out from among these the particular one which, in our given emergency [or interest, etc.], may lead to the proper conclusion.

e. Lamprecht (1938, p. 75): the analysis of things into molecules, atoms and smaller particles is one of the credible conclusions of experimental science. But even if one may not deny the

reality of the entities into which physical science analyzes matter one may, indeed one must, remember the reality of the things of which that analysis is given. Nature is what we have to analyze and is not exhausted by any one method. If nature is discovered to be molecular and atomic, well and good. It is much else too.

f. Wittgenstein (1933/1958, p. 18): Our craving for generality has another main source: our preoccupation with the method of science. I mean the method of reducing the explanation of natural phenomena to the smallest possible number of primitive natural laws; and, in mathematics, of unifying the treatment of different topics by using a generalization. Philosophers constantly see the method of science before their eyes, and are irresistibly tempted to ask and answer questions in the way science does. This tendency is the real source of metaphysics, and leads the philosopher into complete darkness. I want to say here that it can ever be our job to reduce anything to anything, or to explain anything. Philosophy really is 'purely descriptive'.... Instead of "craving for generality" I could also have said "the contemptuous attitude towards the particular case". If, e.g., someone tries to explain the concept of number and tells us that such and such a definition will not do or is clumsy because it only applies to, say, finite cardinals I should answer that the mere fact that he could have given such a limited definition.

4. Psycho-analysis
    a. Luepnitz (2009, p. 974): The word 'analysis' comes from the Greek verb *ἀνάλύειν* [*analyein*], meaning to loosen or untie. Lacan writes: "Psychoanalysis alone recognizes this knot of Imaginary servitude that love must always undo again or sever" (1949, p. 7). For Winnicott, analysis may untie or free the True Self from its moorings in compliance. For Alvareth Stein, psychoanalysis began to "loosen the bars" in a way that speaks both to the development of the self and to the transformation of subjectivity.
5. Method of Analysis
    a. Small (1898, pp. 118-122) (following Wundt, "Die Analyse," 1880, pp. 2-10):
        i. The first of these steps or stages is **elementary analysis**. It consists of separating a phenomenon into the visible parts composing it, without any concern about the relation of these parts to each other— e.g., the movement of a tree in a gale, into the fluttering of the leaves, the bending of the limbs, and the swaying of the trunk. Such is the analysis which furnishes the uncriticised, or partially organized, raw material of social knowledge which I call descriptive sociology.
        ii. The second stage of analysis is **causal analysis**. It consists in the separation of a fact into its component parts with reference to the causal relations of the same. Thus tree, swaying motion, sound, may he analyzed as above in a merely descriptive or elementary fashion; but when there is advance to a different logical plane the process changes. Or I may say, when the process changes, the analysis is evidently proceeding on a different logical plane. Thus, " the god in the tree and the god in the air are angry with each other, and, wrestling together, they make what we see," viz., the details analyzed into the other terms above.
        iii. The third stage is **logical analysis**. It consists in the separation of a complex fact into its component parts, with reference to the logical relations of the same. The presupposition of the process is that ideas have been formed of the qualities of the (distinguishable) elements which make up the whole under investigation. If this condition is fulfilled, logical analysis then undertakes to follow out the separate consequences which result from these qualities.
    b. Krappe (1927, p. 397): Clearly, analysis is the first step in most learning processes, but synthesis of an elementary nature immediately follows before the analysis is forgotten. In no other branch of study do we postpone the synthetic phase.