

ANALYSIS INTERPRETATION,MODELING

ANAYSIS INTRODUCTION

hilosophy 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;

- 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.
- 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.
- 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 , 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 ration.

Analysis inference or interpretation;

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. 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.

d. 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

i. 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).

and others,

- 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...ἢ

μὲν γὰρ ἀπόδειξις ἐστὶ 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.

c. Descartes

i. Réé (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).

d. 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.

e. 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.

f. 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.

3. Psycho-analysis

a. Luepnitz (2009, p. 974): The word 'analysis' comes from the Greek verb ἀνάλυσιν [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 Alvarez 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.

Method of Analysis

a. Small (1898, pp. 118-122) (following Wundt, 'Die Analyse,' 1880, pp. 2-10):

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 be 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

Interpretation Theory

- Theory of truth for a language is not one actual speakers employ in communicating.

He describes his aim as providing a theoretical model of understanding, which is not something that should be equated with what is actually going on when speakers communicate.

- What Davidson has in mind can be brought out by comparing it to the following case.

Suppose we want to construct a theory of riding a bike. We observe what bikers do and try to formulate principles of riding a bike that systematise the evidence of how bikers ride a bike. Eventually, we describe how biking is done by appealing to laws of mechanics and relevant empirical information available at each moment during a bicycle ride.

Davidson's tenets.

- It would obviously be circular to stipulate that knowledge of a language consists in the ability to interpret, as the ability to interpret presupposes knowledge of a language. 'To interpret' means, according to the dictionary, 'to explain the meaning of information, actions or words', but we can only explain the meaning of something in a language.¹⁵ So interpretation could only be used to explain how speakers who already understand a language could come to understand each other.

Modeling:

Abstract:

Model-driven engineering and model-based approaches have permeated all branches of software engineering to the point that it

seems that we are using models, as Molière's Monsieur Jourdain was using prose, without knowing it. At the heart of modeling, there

relations that can be used to express various kinds of representation

relations and we propose a graphical concrete syntax to represent these relations. We also define a structural definition for this

language in the form of a metamodel and a formal interpretation using Prolog. Hence, this paper is a contribution towards a theory of

modeling.

Introduction;

- Ludewig “Models help in developing artefacts by providing information about the consequences of building those artefacts before they are actually made”

Features of models;

- According to Stachowiak [14] a model needs to possess the following three features:
 - Mapping feature. A model is based on an original.
 - Reduction feature. A model only reflects a (relevant) selection of an original’s properties.
 - Pragmatic feature. A model needs to be usable in place of an original with respect to
- According to Bran Selic [12] an engineering model must possess the following five characteristics: between models and metamodels is thus outside the scope of this work. Our target domain is software development; therefore, all our examples will be drawn from the software engineering field.

We will use a very simple language to build this representation, based on “things” and “arrows”

- This paper is entitled “modeling modeling modelling”. This is to reflect the fact that the presented work is about building a formal model (F in the picture) of a language (L in the picture), which in turn is a representation for a set of models of systems (M and S in the picture). This journal paper (modelling modeling modeling) extends the conference paper (modeling modeling) by a third level of modelling. Hence, this third modeling is the contribution of this paper.