

For *ANNALS OF THEORETICAL PSYCHOLOGY*, vol 14, 2017.
(Hroar Klempe and Roger Smith, Editors)

Beyond the ‘Variables’: Developing metalanguage for psychology

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ABSTRACT. Over the 20th century, psychology has adopted the scheme of causal thinking that involves the S→R (Stimulus→Response) basic structure. It brings into the thinking of psychologists the axiomatic acceptance of linear causality (“S causes R”) without a focus on elaboration of how the supposed process of *causing* actually operates. In the experimental and quasi-experimental practices of research that scheme has become contextualized as the practice of specifying “independent” (manipulable) and “dependent” (outcome) factors called “variables”, creating the illusion of researcher’s control over the processes under investigation in a context of an experiment (or its derivatives: questionnaires, interviews, etc). This is unrealistic in the case of human psychological processes that are of the character of open systems that are characterized not by “effects” but by exchange relations with environment (e.g, as exemplified by Dewey in his “reflex circle” replacement of the “reflex arc”) which operate on the basis of cyclical (catalyzed) rather than linear causality. The result is a situation—well captured by Ludwig Wittgenstein—that in psychology the problems and methods pass each other by. We trace the history of the terminology of “independent” variable as it became used in psychology, discuss the philosophical underpinnings of the notion of “variable” in a universe of dynamically structured and normatively guided psychological phenomena, and suggest that the notion of “variables” be abandoned and replaced by other concepts that would capture the qualitative nature of the human phenomena more adequately.

Keywords: variable, causality, catalysis, terminology choice, scientific language

Psychology should rely on qualitative studies that go beyond observation of quantitative relationships between variables; studies should take into account that the phenomenon under study, mind, only manifests in behavior; qualitative levels of analysis should be clearly distinguished, it should be taken into account that elements in a whole cannot be independent in principle; studies should focus on cases instead of groups; typology is the main methodological tool for generalization in psychology; prediction without insight, without substantive theory, should not be acceptable, selection of facts should be systematically guided by theory; and scholars should not constrain themselves to interpretation of data provided by convenient methodological tools, such as statistical data analysis—psychologist should be more interested in thinking about the meaning of collected facts than in the accumulation of facts as such.

Aaro Toomela, 2008, p. 262

Psychology needs a revolution as a science, and it is quite easy to see the direction in which it could favorably proceed. We need to correct only one claim in the many commandments given by Toomela above—the mind does not necessarily manifest itself in what we conveniently call “behavior”: our thinking of wanting to “do X” and then, feeling ashamed (as X is something normatively inappropriate), not doing it—is not manifested in any observable “behavior”, yet it is a crucial introspectively available phenomenon of the *psyche*. The last bastion of behaviorism is thus demolished—observable behavior is not the mirror of the mind, and mind can operate without any overtly visible behavior. What is not observable from outside may nonetheless be important for the person—and completely missed by observation.

The socially established normative nature of psychological phenomena is the crucial starting point for a new psychology of the human being (Brinkmann, 2016). In much of its past, psychology has proceeded on the assumption that its phenomena simply *happen*, as elements in causal chains. Psychologists have thus been interested in uncovering the *laws* that allegedly describe (and ideally enable us to *predict*) the happenings of mental life. The methods of inquiry have been based on the manipulation of variables in an attempt to isolate causally working factors. But there are several problems inherent in this causalistic and mechanistic model of psychological science, which necessitates a shift to a normative understanding instead.

First, phenomenologically, we rarely experience our mental life as something that simply happens. Rather, we find ourselves thinking and reflecting, trying and acting, and expressing our emotions as something we *do*. If psychology is to begin from the basic facts of experiencing human beings, it must acknowledge that we experience most of our mental lives as *doings*. As we argued above, such doings need not find expression in overt “behavior”, for the inner dialogue of wanting something, and yet abstaining from it

because it is deemed normatively inappropriate, is a clear example of an active (yet invisible) psychological process.

Second, it would seem to be logically impossible to delineate the subject matter of psychology if it simply belonged to the world of causal happenings. For how, then, to distinguish between the reflex-induced cough that truly does simply happen on the one side, and the intended cough used as a signal in a game of poker on the other hand? Physically – in terms of bodily movements, acoustics etc. – the two events are identical, but while the former one must be seen as a physiological process to be analyzed (and perhaps treated) by an Ear, Nose and Throat specialist, the latter one is a psychological process, a doing that is meaningful because it refers to an established (although possibly secret) system of sign use. If we wish to retain the term “behavior”, we should probably reserve it to describe events of the former kind, while the latter psychological doing is more adequately described using the term “action”. If psychological phenomena simply happened, there would be no way of distinguishing between these two sets of events, and ultimately all psychology would be reducible to physiology and neuroscience. Incidentally, human agency and everything that follows concerning morality, responsibility and law would fall.

Such reflections have led a number of scholars to call for a normative understanding of psychology, most stubbornly articulated across the decades by Rom Harré. Recently, he has, with Fathali Moghaddam, argued that a proper psychology should see itself as a cultural psychology, defined as “the study of active people carrying out their projects according to the rules and conventions of their social and material environments. Thus it is normative.” (Harré and Moghaddam, 2012, p. 6). They add that if we should keep the idea of causality, we should talk about “agent-causality” – and not what could be called “causality of variables” – since persons considered as agents are irreducibly the sources of their own actions. It is not our mouths that speak or our brains that think. True, we could not speak without a mouth or think without a brain, but it is nonetheless the person that does the speaking and the thinking. Mouths, brains and numerous other physical and semiotic tools are of course needed in order for human beings to carry out their tasks of acting, thinking and feeling. But these tools should be thought of as mediators and not as causally efficacious variables (Brinkmann, 2011). History of psychology gives us good indications of where innovative efforts to solve methodological problems were made—and where they failed. Our goal is to learn from these failures, and try anew. In this sense, our chapter here firmly belongs to category 5 (A resource, or even necessity, for contemporary research or practice) in Roger Smith’s introduction (Smith, 2016). We do history of psychology for the sake of its potential future—not for documenting the events of the past *per se*.

From methods to methodology

Psychology does not need new methods—there are too many of those already—but a methodology that is adequate to grasp its phenomena. Methodology is not reducible to a “toolbox” of methods, or to socially normative application of some hegemonic generalization tools that fortify the tactics of inductive knowledge making. Instead, a genuine methodology should be thought of as an epistemological “cycle” that involves all

relevant components of knowledge making—starting from the educated intuition of the researcher (Figure 1)

Given the nature of psychological phenomena, such methodology is (a) qualitative (b) open-systemic (c) based on human meaning construction and hence needs to constantly recognize novelty, and also (d) dynamic. All these features have been emphasized—and then conveniently forgotten—in the history of psychology. Today, it is often forgotten or perhaps even repressed that many founding figures of scientific psychology worked on such a basis and represented what we now call qualitative and cultural psychology (Brinkmann, Jacobsen & Kristiansen, 2014). Given the hostility of much so-called mainstream psychology to qualitative approaches, it has likely been seen as embarrassing to text-book writers to include such figures as Freud and Piaget among “qualitative researchers”. They were *researchers*—in the full sense of the word (Figure 1), not “implementers” of, or “propagators” of one or another kind of methods.

Psychology is a strange science. It was once described, by Sigmund Koch, as unique among the sciences in having decided on its methods before defining its subject matter (see Robinson, 2001). Psychologists have never been able to agree on the nature of their subject matter – the mind. It has been defined as inner experience, outer behavior, information processing, brain functioning, a social construction, and many other things. Maybe precisely to escape such confusions on the theoretical side, the majority of psychologists have since the mid-twentieth century constructed their science around quantitative methods – as a science of numbers – in an attempt to emulate the natural sciences. In emulating they have succeeded—but making it a general science of socially embedded human subjectivity they have not (Toomela and Valsiner, 2010). The latter would require clarity about the object of investigation, and the construction of methods in accordance with the goals of such investigation.

There is something like a “physics envy” running through the whole history of psychology and related disciplines. Bruno Latour, an anthropologist, who has actually entered into and observed research practices in natural science laboratories, concludes laconically: “The imitation of the natural sciences by the social sciences has so far been a comedy of errors” (Latour, 2000, p.14). It is a comedy of errors chiefly because the natural sciences do not look at all like it is imagined in psychology and the social sciences. The natural sciences like physics, chemistry, biology, zoology, and geology are not built around statistics, but often around careful qualitative descriptions of their subject matters. Anatomy and physiology are qualitative disciplines in large parts, describing the workings of the body, and it can – without stretching the concept too far – be argued that Darwin was a qualitative researcher, adept at observing and interpreting the natural world in its qualitative transformations.

If this analysis is valid, it means that qualitative research in psychology – as in most, if not all, human and social sciences – looks much more like natural science that is normally imagined and is much older than usually recognized: Here can be mentioned not just Wundt’s cultural psychology, but also William James’s study of religious experience, Freud’s investigations of dreams and his clinical method more broadly, Gestalt psychologists’ research on perception, Piaget’s interviews with children, Bartlett’s studies of remembering, and Merleau-Ponty’s phenomenology of the body. These towering figures are routinely mentioned in psychological textbooks – after all they have all been formative of the discipline – but their open qualitative research approaches,

methodologically respecting the nature of psychological phenomena, are almost always neglected or repressed.

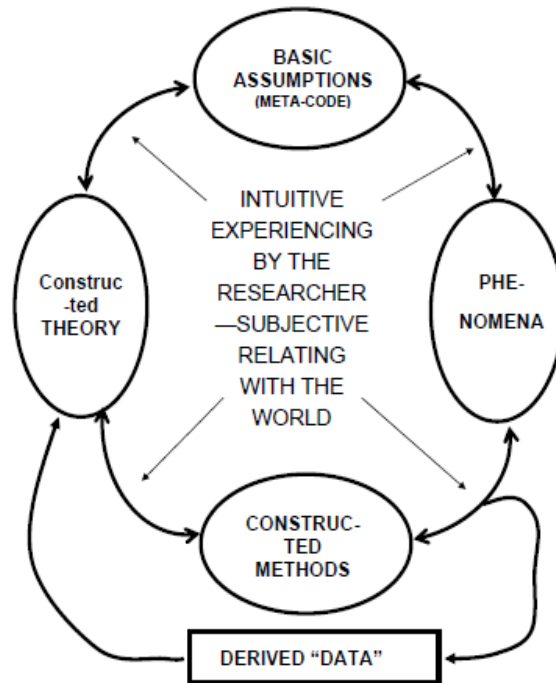
All phenomena of psychology are open-systemic—they depend on the constant relating with the environment. Already focused upon in the key paper by John Dewey on the reflex arc (Dewey, 1896), psychology over the past century has failed to recognize the implications of that general feature. As Dewey argued almost 120 years ago, we cannot explain psychological processes with reference to stimuli impinging on a passive mind. Indeed, for Dewey, there are no such things as stimuli in and of themselves, for something becomes a stimulus only within cycles of human activity. Being engaged in the activity of writing a paper means that a certain range of stimuli – or affordances, to speak the language of ecological psychology – open up, while other potential stimuli disappear from the psychological field.

Open-systemic phenomena are not predictable from their starting states, generating escalating variability over time (Maruyama, 1963, 1995). The focus is on how new phenomena are created—in biological evolution (the work of James Mark Baldwin-- Valsiner, 2009) and in human development (the focus of Lev Vygotsky-- Valsiner, 2015). Creativity in the immediate everyday life contexts is the process for granting continuity through diversity (Glaveanu, 2014; Tanggaard, 2014). If one follows pragmatists such as Dewey and also Mead and takes as axiomatic the fact that humans are inherently creative in virtue of their meaning making capabilities, the true riddle for a science of psychology becomes not “how to make humans creative” (as in so many contemporary educational and business development programs), but rather to understand how humans succeed in *not* being constantly creative, i.e. in how they manage to develop relatively stable structures and patterns in their social lives – in families, schools, workplaces, civil societies, and entire nations. We should not go looking for the variable that can causally inflict “creativity” in human lives-- with hopes of finding it, for example, in a specific set of personality characteristics. Or—given our contemporary journalistic fascination with the decoding of the genome—in a specific gene. Instead we are better off asking how the numerous and constant normative doings of human beings can collude to create what we think of as collective life.

Methodology as a cycle

The Methodology Cycle (Figure 1) has been around for two decades (Branco and Valsiner, 1997) and can hardly be considered a new invention. In fact it is a return to the basic science notion of methodology that Toomela (2008) has called for in relation to contemporary psychology. For our purposes here we want to emphasize the integrated role of the cycle—all parts are important for the whole, none can be taken out of the cycle without eliminating the whole.

Figure 1. Methodology as an epistemological cycle



The real social practices in psychology over the last half century have moved in a direction that is precisely opposite to the one implicated in Figure 1. Instead of integration of all aspects of the cycle, we can observe the discounting of the upper (meta-code) aspect of the Cycle, reduction of theories to some kinds of general “umbrella” labels (e.g. “cognitive theory”), and distancing the phenomena into the category of “anecdotal evidence”.

A crucial role in this social transformation of the discipline was played by the adoption of the discourse about “variables” which has plagued psychological science over the last half century and to which we now turn directly.

The world of “variables”

The talk in terms of “variables” entered into psychology in the 1930s-1950s, and established its central position in the latter part of the 20th century (Danziger, 1997). The issue here is not about the technical implications of the notion of a *variable*—something that varies¹, or can be varied², or creates variability in the middle³—but its becoming a normative meta-language for a science. Such normative discursive practice sets up

¹ In researchers’ vernacular—“dependent variable”—some characteristic that varies as result of changed experimental conditions.

² The “independent variable”—a characteristic that the researcher changes at the input, or pretends to vary (e.g. gender as “independent variable”) and that is assumed to lead to changes in some outcome (“dependent variable”)

³ The “intervening variable”—something that “mediates” the “independent” and “dependent” variable.

constraints for the meta-code (Figure 1) with implicit transitions that are axiomatically accepted.

Psychology's main epistemological problem has been that of creating illusory causal entities from descriptive language use. The realm of diagnosis of various psychological conditions that may begin from subjective description ("I am depressed"), proceeding to reification of this subjectively labeled phenomenon into a technical description ("this person's depression score is X, Y standard deviations above the average") to explanation ("the person's high score on this test is due to his depression"). The meaning of depression in this sequence moves from subjective to technical to the making of a cause for the subjective reflection—"I feel depressed because I have depression".

Psychology's inventions of explanations-- as those are close to common sense— can become internalized by laypeople. Recent studies of psychiatric diagnoses have demonstrated that many patients are today interested in receiving a diagnosis, because it is thought to be able to explain their affliction. But, in reality, a diagnosis can at best explain something in a circular (and thus empty) fashion, for it is the case that a diagnosis is formulated on the basis of symptoms (i.e., problematic human patterns of thinking, feeling and acting, which do not conform to the norms of a given culture and results in suffering), which means that the diagnoses cannot in turn be said to explain the symptoms (Brinkmann, 2014). It would be equivalent to saying that the "diagnosis" (or category) 'bachelor' explains why someone is an unmarried man. Of course, this term does not explain anything, but is merely a shorthand description of a set of characteristics. These reflections do not just pertain to diagnoses and mental disorder specifically, but concern almost any psychological phenomenon imaginable. Intelligence, personality traits, emotions etc. are all routinely turned into explanatory entities by modern psychology that are thought to be causally effective in bringing happenings about.

Psychology is filled with such tricks of ontologization of everyday life terms into pseudo-scientific concepts, and then treating these as if these were causal entities. Kurt Danziger was explicit about that danger:

In transposing the category of 'variables' from a statistical to an ontological context psychologists had committed themselves to a nebulous language whose ambiguities often proved convenient. Empirical reports usually did not limit themselves to modest statements about the contribution of specific variables to statistical variance but talked in terms of the 'influence,' the 'direct influence', the 'effect', of particular variables. In the published journal texts the variables that investigators had constructed by means of their measurement instruments often appear as causal agents, variously described as 'determinative factors', 'influencing variables', 'determining variables', which 'affect' psychological processes, 'produce' effects, and play a 'determinative' role. (Danziger, 1997, pp. 172-173)

What Danziger pointed out was the projective substitution of a description by same-named causal entity that supposedly was "behind" it as its causal origin. This way of making up the universe of psychological causal entities was perfectly fitted to the inductive generalization focused perspective—fortified by the slogan of "empirical

science”—as it allows the open field of invention of ever-new and common-sense legitimate (looking) causal entities. Such legitimacy is of course an epistemological impasse—but it fits as an umbrella for accumulative empiricism.

The adoption of the “variables discourse” as a socially normative ideal in psychology has had and still has a deeply detrimental effect on the advancement of theoretical ideas in the discipline:

In promoting the language of variables to the status of a metalanguage, psychologists had adopted the language of psychological engineering as a universal medium for theoretical exposition. In other words, they had conflated conceptual control and instrumental control. (Danziger, 1997, p. 177)

By focusing on the instrumental control—of the phenomena that can neither be predictable nor controllable (as open systemic in their nature)—psychology has got itself moving in a theoretical direction of no return. It becomes hyper-productive in data generation—all of which become categorized into classes of different kinds—but no generalizing theoretical advancement follows. It tells us a story about the normative nature of the science of normative phenomena—as psychology is.

Why the “variables language” cannot be psychology’s metalanguage

There are many reasons why the rapid advancement of the empirical overproductivity in psychology using the variables language misfits with the constraints that the phenomena of psychology set for the whole discipline (see Figure 1). First of all—quantification is not admissible in the case of most psychological phenomena—hence “variation” in the independent variable is possible only in qualitative ways. This amounts to setting up different structured conditions, rather than quantitative gradations of a “variable”. Secondly, the person’s interdependence with the conditions in time renders the control (by researcher) over the varied conditions impossible—the researcher can set up the initial conditions, but in the process of communication with the subject it is the subject who starts to “control” (re-make the meaning) of the experimental setting.

Good examples of this are found in interviews, a method of psychological inquiry favored by Freud and Piaget among many other founding figures in psychology. As all forms of human communication and conversation, the course of an interview is in principle impossible to predict. The social practice of interviewing certainly sets normative constraints on the conversationalists – conventionally, it is the interviewer who asks questions, and the interviewee who answers, and everything from the length of answers and the turn-taking to the entire conversational rhythm can be described with reference to social norms and story lines. However, it is also quite clear that interesting discoveries can be made through interviews in psychology exactly when the normative expectations are broken because of the dynamicity of human communication.

We can refer to the follow interview as an example. It was set in India and conducted as part of a research project by Richard Shweder studying moral reasoning in different cultural contexts. Earlier in the interview, Babaji (the interviewee) has been presented with an adapted version of the Heinz dilemma (in this case called the Ashok

dilemma), constructed by the moral psychologist Lawrence Kohlberg to evaluate people's moral competencies: The dilemma tells the story of a man (Heinz/Ashok), whose wife is ill and will die if the man does not steal medicine from a pharmacist (who has refused to sell the medicine at a cheaper price). According to Babaji's religious understanding, stealing is not permitted, and the interview unfolds from there:

Interviewer: Why doesn't Hindu dharma permit stealing?

Babaji: If he steals, it is a sin – so what virtue is there in saving a life. Hindu dharma keeps man from sinning.

Interviewer: Why would it be a sin? Isn't there a saying "One must jump into fire for others"?

Babaji: That is there in our dharma – sacrifice, but not stealing.

Interviewer: But if he doesn't provide the medicine for his wife, she will die. Wouldn't it be a sin to let her die?

Babaji: That's why, according to the capacities and powers which God has given him, he should try to give her shamanistic instructions and advice. Then she can be cured.

Interviewer: But, that particular medicine is the only way out.

Babaji: There is no reason to necessarily think that that particular drug will save her life.

Interviewer: Let's suppose she can only be saved by that drug, or else she will die. Won't he face lots of difficulties if his wife dies?

Babaji: No.

Interviewer: But his family will break up.

Babaji: He can marry other women.

Interviewer: But he has no money. How can he remarry?

Babaji: Do you think he should steal? If he steals, he will be sent to jail. Then what's the use of saving her life to keep the family together. She has enjoyed the days destined for her. But stealing is bad. Our sacred scriptures tell that sometimes stealing is an act of dharma. If by stealing for you I can save your life, then it is an act of dharma. But one cannot steal for his wife or his offspring or for himself. If he does that, it is simply stealing.

Interviewer: If I steal for myself, then it's a sin?

Babaji: Yes.

Interviewer: But in this case I am stealing for my wife, not for me.

Babaji: But your wife is yours.

Interviewer: Doesn't Ashok have a duty or obligation to steal the drug?

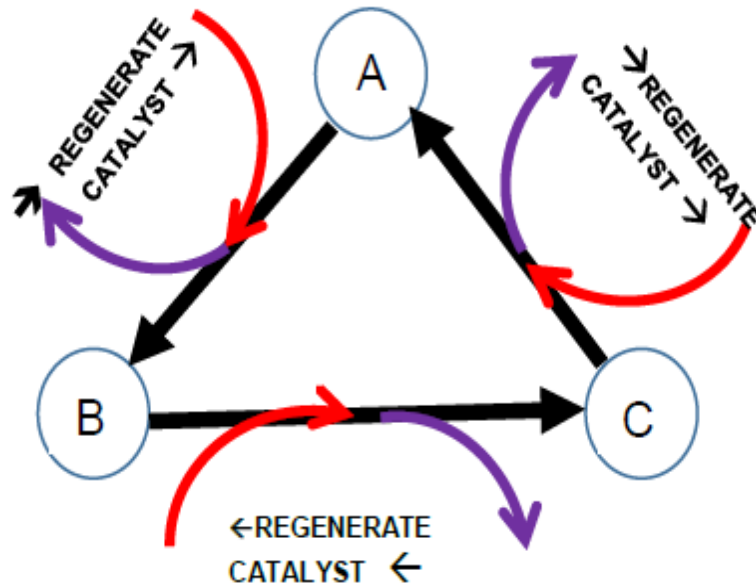
Babaji: He may not get the medicine by stealing. He may sell himself. He may sell himself to someone for say 500 rupees for six months or one year. (Shweder & Much, 1987, p. 236).

The interview can be interpreted in various ways, but it seems to us that the interviewer (Richard Shweder), acts quite actively to persuade Babaji to accept the Western way of understanding the dilemma and see the tension between stealing for a moral reason and stealing as an immoral act. But Babaji refuses to see the situation in this light and first attempts to express other possibilities in addition to stealing/not stealing (i.e. give shamanistic instructions) before finally proposing that Ashok sells himself in order to raise the money. That solution remains of course completely outside the set of possibilities normatively organized minds of the occidental persons of our time.

As such, the interview flow is best understood as an active encounter between two quite different worldviews articulated by persons who are trying to make sense of each other. The different views are revealed exactly because the interviewer's normative anticipations are not met. The sequence exemplifies the features of a methodology, which is adequate to the subject matter of psychology in being qualitative, open-systemic (in this case perhaps also inter-systemic with several symbolic worlds colluding), based on human meaning making *in* the act of research and inherently dynamic and unpredictable. It is by no means possible to understand the doings of these conversationalists in terms of causes, variables, or natural laws.

Finally—psychological phenomena exist in conditions where catalytic—rather than causal—processes dominate (Cabell and Valsiner, 2014). The catalytic talk—in contrast to that in terms of causality—is the dominant discursive style in the past two centuries of chemistry, and is the core for our contemporary biological sciences. The “variables talk” vanishes when the prevailing meta-code is that of catalysis—no simple causal relations ($S \rightarrow R$) are discernible in a chain of transitions $\dots A \rightarrow B \rightarrow C \rightarrow A \dots$ where each transition is guided—but not caused—by self-regenerating catalytic agents (Figure 2) – as witnessed for example in the interview. The regeneration of the catalysts at each transition maintains the dynamic stability of the system—but does not “cause” it. The disappearance of “causality talk” from the meta-code should take away the “variables-talk” from the minds of researchers.

Figure 2 The vanishing variables: catalyzed processes



What will change in psychology with abandonment of the “variables talk”? First of all, the assumption of summativity of presumed “causes” will be gone forever. In our contemporary psychology such summativity assumption has entered the role of meta-code together with the elevation of a particular statistical method—analysis of variance—to the status of (meta)theory (Gigerenzer, 1993, 1996, Gigerenzer and Sturm, 2007). Explanation of a psychological phenomenon by way of reducing it to the sum of “causal components” that are thought to be responsible for some (small) percent of “the variance” is an unrealistic axiomatic starting point if we rightly assume a systemic nature of the phenomena. This of course was clear for researchers since 1890 when the discussion of the nature of the Gestalt was initiated in psychology.

Secondly, the whole range of macroscopic complexes—previously considered “variables”—become specifically located in the processes of person<>environment transaction as catalytic conditions. Complexes like “education”, “social class”, “culture”, “poverty”, and many others cannot “cause” any particular ways of feeling or acting, but are very relevant in their catalytic role. Our educational history cannot “cause” our particular ways of relating to an object of value—a book or painting—but it surely is present when I *carefully* open the book that I am currently eager to read. My actions towards the goal of getting to know something from the book of my interest are guided by my educational history, but not caused by it. My reading of a new book further feeds into my educational life-course as a “nerd who loves books”, in contrast to an ideologically guided youngster who vehemently destroys patrimonies of humanity in some iconoclastic fervent.

In short, the psychological terms (intelligence, emotions etc.) can favorably be thought of *adverbially* rather than substantially. There is no substance, no entity, called

intelligence or sadness within a person that causes him or her to act in a certain way. Rather, we can reasonably describe someone as acting intelligently or in a depressed way. Again, the person is the irreducible agent in psychological life, and her doings are understood and given meaning within local normative orders that are endlessly subject to creative transformation (hence the open-endedness of psychological life).

Thirdly, the ways in which particular methods are considered – through the methodology cycle (Figure 1) – become viewed from a different angle. A memory task— as exemplified by the work of Frederic Bartlett (Wagoner, 2017) is not a retrieval, but a re-construction task. An answer to a questionnaire item or interview question is not a task of giving a “truthful” answer, but a construction of a new meaning based on the question (stimulus), guided by a whole range of catalytic conditions (e.g. interpretation of why the question is being asked, anticipation of the feedback on one or another kind of answer, subjective importance of the act of the answering to the answerer etc.), not to speak of different ways of interpreting the meaning of the question itself⁴.

Negotiation of metalanguage for a science: learning from chemistry

It might be of interest for psychology to learn from chemistry how negotiation of appropriate metalanguage can proceed. Chemistry accomplished its change from common sense to scientific language between 1780s and 1830s, culminating in the establishment of Mendeleev’s Periodic Table as its core in the 1870s. In chemistry, the history of the common language meanings

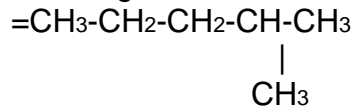
. . . survives in their synchrony in a different manner than is the case in natural languages. In natural languages diachrony manifest itself only through the etymology while in chemistry lay and semi-lay terms coexist today as clear synonyms with and to the functional and systematic names, and the choice of terms is determined by the efficacy rationale of the various communication situations pertaining to the field of chemistry. (Mounin, 1981, p. 218)

In language use in chemistry there exist four parallel layers of names—for the same substances (Mounin, 1981, pp. 217–18):

1. Lay terms that represent either a specialization of common sense terms (water, salt, ammoniac) or neologisms based on alchemic roots of chemistry (aqua forte, tincture of litmus). These names do not represent the actual chemical composition of the substance, and are arbitrary encoding of the objects. So, the term water has no implications about its composition of H-O-H.
2. Semi-lay terms that combine the root of a common sense word with a prefix or a suffix that connects to a paradigm (benzene, ethylene, propylene). Nothing in the name gives information on the structure of the chemicals, yet their function as a category name can be elaborated in the terms of the components.

⁴ A male clinical counsellor told the story—decades after it happened-- of interviewing an adolescent girl who, in response to the politically correct intervention to inquire if she has already entered the world of sexual relations (“Are you sexually active?”) in full honesty and openness responded “No, I just lay there”.

3. Functional names that specify major chemical function (phosphoric acid, benzoate of soda, silver chloride).
4. Names that describe the sum of the elements—rigorous and absolutely unambiguous reconstruction of the substance is possible—2-methyl pentane



A comparison of the intertwined language layers of chemistry with those of psychology leads us to detection of parallels with first three layers—but not the fourth. Psychology uses common language terms widely—and even glorifies their use since common sense is rich in nuances of meanings (Siegfried, 1994). Yet its forms of abstraction are limited, and often fuzzy. So the notion of “smartness” (Layer 1—common sense) followed by “intelligence” (Layer 2—category name, in contrast to others e.g. “motivation”, “affect”, “personality” etc.) can get as far as “cognitive functions” (Layer 3—specifying functionality within the mind). But there is no Layer 4 equivalent. No research imperative follows from declaring a particular act of decision making a “cognitive function”—even if it can be located in the brain through a fMRI picture.

The notion of “self” is even more interesting here—different empirical projects include methods where direct questions about “your self” are asked (and answered)—Layer 1. The answers are treated as data and grouped into different sub-classes of “the self”—now becoming Layer 2 in its language use. Despite the sharing of the term there is no functional elaboration given. Talking of “selfing” does not open any new alleys for any “theory of self”. It is only when the category notion of Dialogical Self (Hermans, 2001, Hermans and Kempen, 1993, Hermans and Gieser, 2012) becomes formulated and translated into terms of relations of components (“voices”, “I-positions”) that the notion of “self” reaches Layer 3 status. Yet it does not operate at Layer 4—from detecting the many “voices” or “I-positions”, even together with their locations on the “map of the self”, it is not clear in which ways they can relate with one another (while Layer 4 chemical formulae specify precisely what kinds of reactions could or can never happen with the given chemical).

There is a more profound lesson to learn from the comparison of chemistry and psychology. Psychologists have been trying to *compress* their language use towards that of the common language, fearing alienation. In contrast, chemistry has *expanded* its language use beyond that of common language. It transcended its common sense roots—in alchemy—through extending the language use beyond that of the common language, fitting it in different abstract ways to the scientific tasks, rather than to social practices. Or, more precisely—the latter are left in the hands of common sense—in cooking in our kitchens we do not need to know if the given recipe has specific amounts of salt in it, feeling that “it tastes salty enough” is sufficient for the task. This would not lead us too far in a chemistry laboratory, but it is fitting in the kitchen.

The layering of terminology is even more limited in the clinical practice area in psychology. A common language expression “I feel down” can become diagnosed as “depression” (Layer 2 equivalent), a semi-lay term which is a category, but does not represent any psychological functions that could be further analyzed. Instead of further analysis—not available in the diagnostic label (no notion of “depressifying processes”)—

leads to pharmacological interventions on the grounds of demonstrated statistical relations between the “variables”.

General Conclusions

Ludwig Wittgenstein was well on target when he claimed that in psychology “problem and method pass each other by” (1958, p. 232). We can further testify that such blatant by-passing has continued in the second half of the 20th century. It cannot be the case that this unfortunate situation occurs only due to the intellectual transformation within the history of psychology in itself. There must be some societal catalytic process for the meta-theoretical blindness in the field.

Social catalysts for any science operate at the intersection of the discourses of that science and those in a wider society. In the 19th century such catalytic system entailed the social opposition between the Soul (exemplified by the dialogues between religious normativity with Romantic efforts to break out of it to establish secular ways of being) and Society (exemplified by the demands of the rapid industrial economic transformations). The resulting opposition in all sciences was that of the *Naturphilosophie* and *Naturwissenschaften*—which ended with the win of the latter. Psychology lost its soul in that battle—even before it was completely established over the course of the 19th century (Valsiner, 2012).

In the 20th century—exemplified by the two World Wars and globalization—the growing differentiation of the producer<> consumer relations in the economic sphere can be seen as a catalytic system that directs the relation of psychology with its subject matter. The divide that is produced through the differentiation of the producer and consumer domains leads to increasing social demands on consuming psychological know-how (Hurme, 1997). Psychology is becoming “societally useful” by producing and applying new diagnostic labels and “standardized” (=institutionally approved) techniques of applying them. The social “market” demand grows for psychologists to have a legal role in prescribing chemical treatments or cognitive therapy to patients. In parallel, the social demands on rapidly advancing biological sciences include the finding of “fixed causes” for social, moral, and psychological problems. The actual decoding of the human genome has moved contemporary genetics from assuming genetic determinism (of special genes “causing” a “problem”, e.g. a “gene for schizophrenia”) to that of epigenetic regulation systems. Yet the promises of the new epigenetics are still socially represented as “allowing the making of new drugs” that would miraculously cure the big challenges to our health (“quick fix”). Society’s consumption system needs the latter, while producers are in tension to promise it while it is clear the promises cannot be kept.

However, it is not our purpose here to raise one more lament about the state of psychology as science—the question is, instead, what could be a feasible way out of the normatively quantified and extensively hyperextended flow of empirical accounts of the relationships between the myriads of “variables” with doubtful reality backgrounds. The main point is clear—the Language of Variables has no future for psychology, both theoretically and practically. But the issue remains—what can be developed in its stead?

In this article, we have suggested that psychology should leave its causalistic studies of happenings behind and instead commit itself to the study of what persons do – publicly as well as privately. This would mean acknowledging the normative nature of

the subject matter of psychology – and also of the workings of the discipline itself. Doing psychology – as a practitioner and as a researcher – is obviously itself a normative practice with psychological implications. The relationship between Psychology (as a practice – sometimes signaled with a capital P) and psychology (as a subject matter) is intricate, and Psychology is able to exert an influence on psychology to a much greater degree than Chemistry is on chemistry. The subject matter of psychology – acting and suffering persons – are much more susceptible to what psychologists say and do to them than molecules are in relation to the actions of chemists. After all, molecules don't read chemistry textbooks, as Alasdair MacIntyre (1985) once remarked, whereas humans do read psychology books – loads of them, in fact, in a society that is increasingly looking for causally efficient variables with which to engineer happiness, health and productivity for – or in – individuals.

If we are right, this search is in many ways misguided, since no such simple variables exist. Instead, in psychology, we have acting persons whose lives and actions display many interesting features that should be studied in their qualitative, creative, meaningful and dynamic manifestations. The most important lesson that psychology has to teach the public today is that humans are *not* causally determined complex machines, but active persons who that can conduct their lives with reference to (moral) norms and carry out their projects – including that of a scientific psychology.

Acknowledgments. This chapter was prepared with the support of *Danske Grundforskningsfond* through the Niels Bohr Professorship (JV) and a Sapere Aude study (Diagnostic Culture) funded by the Danish Council for Independent Research. Grant no. 12-125597 (SB).

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