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Logeme Shifts and the Growth of Pragmatism

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Abstract. A hundred years ago a *logeme shift* took place in theoretical logic. The nature and consequences of this shift are not always clearly understood. As a result we are burdened today with a number of seemingly intractable problems as to what should be our next steps in logical theory construction, and how to go about it. Some of these problems may be seen to derive from pre-1900 assumptions about what counts as a *fundamental* category of theoretical logic and what as a 'merely privative' one (as Aristotle would say). The cradle of traditional 'fundamental' categories was a logic of 'logophoric' (logos-carrying) terms. The said logeme shift was supposed to eliminate this logophoric logic type, but some of its metalogical/philosophical assumptions were retained, whereby we still often construe metalogical problems in an unproductive manner. It is recommended to take a close look at these ancient suppositions about points of departure and see if one could not better turn them around, i.e. start from the former privatives. – The author suggests, in a vernacular borrowed from thermodynamics and with many examples, that a shift from 'adiabatic' to 'diathermic' logic is overdue. Second, that in the interest of the latter transition the need for *logical conventions* be taken seriously. A procedure of standardization of logical conventions by national and international councils should be introduced. Such councils have for a long time been active in the physical and technical sciences, so as to enhance clarity and interpretability in the fields in question.

1. Privative Terms and Categories

Since Aristotle a term has been said to be *privative* whenever it has been understood to signalize a mere absence of some property, a privation. In practice this meant that a term was privative when it functioned as the 'mere negation' of some concept associated with the (postulated) metaphysical goal of action or cognition, the *terminus ad quem*. For instance, in the end, at the *terminus ad quem*, Rest and Unity would prevail, hence movement as well as plurality were privative categories.

This is well known, but it seems that no one has used this point of view in the study of the various types of logic, or *logemes*, found in practice in human minds, in the variety of mentalities from which the sciences are produced. This talk concerns the choice of fundamental logical categories that constitute a certain logeme, that of 'classical' or 'traditional' logic.

In order to refute the thesis that classical logic is the one and only logic we can, certainly, go into the logical problems of quantum physics, and some seem to think such a step even necessary for this purpose. However, the foundations of mathematics as well as philosophy offer the same possibilities of refutation — viz. the 'intuitionistic' hatred of 'logic' (Brouwer), next to an 'intuitionistic logic' of some kind or other (Heyting; perhaps Poincaré), moreover two- and many-valued truth-functional logics. We find still other logemes embodied in the so-called 'natural' languages, which from a logical point of view has taken on the nature of a palimpsest.

Traditionally a great number of logical categories that are very central to scientific thought today were seen as 'merely privative', mere denials, and not of great scientific interest and value.

Take asymmetry, which was for a long time understood privatively as non-Symmetry, often as broken symmetry — merely a sign that something needs to be restored, and so not of theoretical interest. Likewise chaos and fuzziness were understood as mere im-Precision; comparative as non-Superlative (Deprivation of purity); criticism as nothing but an expression of disagreement; diathermic as nothing but non-Adiabatic, and the word 'diathermic' as signaling the mere privation of closed, adiabatic, conditions (the etymology of 'adiabatic' itself was not much considered). Disagreement and conflict counted, logically, for nothing but an expression of privation of Agreement, difference was privation of Identity, disjunction was disregarded by some (Leibniz !) *as* non-Conjunction, doubt as imperfect Belief, error as signifying an imperfection of Self-evidence. The importance of falsity was played down as merely a privation of Truth — the fundamental category — and was therefore not much in focus. Movement was explained away as non-Rest, un-Rest, lack of Rest, plurality as lack of Unity, and even today many people understand the term 'quantity' basically as a lack of Quality, just as 'relative' is still sometimes interpreted as lack of Absoluteness.

In contemporary science this is certainly not common, but of the historical logemes that takes Symmetry, Identity, Unity and so on as its logical fundamentals there may still be unsuspected left-overs, and we are therefore well advised not to disregard the nature of those logemes. We may well appeal here to the Duhem-Poincaré thesis according to which a plurality of theories can be coupled with any given set of experiential data¹. An appeal to this now well-known idea can perhaps function as a warming-up phase for a recognition of a plurality of logemes, of half- or sub-conscious 'theories' for how to deal with our logical needs.

We said that in many minds, Falsity was merely an absence, the *privation of truth*. Error was also merely privative, signifying *lack of Self-evidence*. How was it possible to imagine this, how could they cope? In case of error popping up, Conjunction, one of

¹ Significantly, this thesis is referred to by Naess in an early paper with the title: *Wie fördert man heute die empirische Bewegung? Eine Auseinandersetzung mit dem Empirismus von Otto Neurath und Rudolph Carnap* (1937-39, with Appendix added 1956), translated into English as [Naess 1992].

the fundamental categories, was the great remedy: as Bradley said in his *Principles of Logic*, “error becomes truth when it is supplemented” [Bradley 1883, 173].

Traditionally, the very source of fundamental theoretical categories was the *terminus ad quem*. However: when we switch from an interest in a presumed *goal* — the *terminus ad quem* — to a new interest in the point, or points, of departure — the *terminus a [ab] quo*, or, the *termini a quibus*, as our location for fundamental categories, then the former privatives become candidates for the role of focal theoretical terms. For instance, a-symmetry comes into focus in the study of direction. This word, ‘Direction’, could now well be used as a new, non-privative name for asymmetry, as a reminder that asymmetry is no longer a merely privative logical category but a logical neo-fundamental. Here are other examples:

Old ‘negative’ names

Names as Neo-fundamentals

and mental equivalents

un-Rest
dis-Harmony
un-Likeness
non-Agreement
dis-Junction,
non-Conjunction
privation of Conviction
mis-take, im-Precision
in-Valid argument
un-Rest
de-Nunciation, dis-Agreement
dis-Union
mere Quantity
in-Definite
im-Precise
im-Purity,
Bad individual (Hegel)
non-Adiabatic

Movement
Conflict
Difference
Flux of opinion
Sheffer’s Stroke or
Quine’s dagger
Doubt
Error; Tolerance
Fallacy
Movement
Criticism
Plurality
simply: Quantity
Relative
Foggy, Fuzzy
Variety, individual -, in a
population (Darwin)
Diathermic

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Many former fundamentals may now be understood as neo-privatives:

	<i>can be taken as</i>
symmetry	privation of Direction,
superlative	in-Comparable,
harmony	non-Conflict,
identity ₁	a-Difference, non-Contrast

in another context:

identity ₂	in-Variation, in-Variability
stability of agreement	stagnation, non-Flux
conjunction	not-Stroke
belief	doubtlessness, in-Dubitability
self-evidence	epistemological in-Tolerance
precision ₁	non-Ambiguity

in another context:

precision ₂	lack of Fuzziness or Chaos
rest	im-Mobility, privation of Movement (and is relative rather than absolute)
quietism	lack of Critical activity
unity	im-Plurality
absoluteness	in-Comparability, un-Relatedness
adiabatic	non-Diathermic

As to unity as privation of plurality, and so deserving the name implurality: this concerns the old categories Quality and 'mere quantity', its privative. The concepts Quantity that we employ nowadays are defined in complete independence of notions of

quality. In fact, Quantity and Quality are orthogonal dimensions of our present logical space. Hence neither one is today understood as privative.

Certainly, it may not always be necessary to treat the old fundamentals as merely neo-privatives, but there clearly has been a tendency in the sciences in this direction the last hundred and fifty years.

2. 'Adiabatic' and 'Diathermic' Logic

Pragmatic philosophies pursue a *rapprochement* between, on the one side, Logic and Philosophy of Science, and on the other, the realities of the Laboratory and the political Arena. For this purpose, all definitions of 'logic' that keep the field theoretically within the insulated icebox of subjectivism ought to be contested. I shall borrow and use, in a somewhat metaphorical sense, a central expression of thermodynamics, that of an *adiabatic process*. The expression *adiabatic logic* is to stand for that conception of logic that takes logical processes — by definition — to concern the activities of one brain at a time, one 'insulated' brain which does not exchange 'heat' with other systems (minds) in the course of the process. We can then say, metaphorically, that the present conception of logic is still largely restricted to 'adiabatically' closed intelligences. A logical process still is by definition an adiabatic process; the reasoning mind, while reasoning, is conceived of as impenetrable by other minds, shielded from the 'heat' of the battle. I repeat that this is a metaphor, though a suggestive one, and in the right direction. Take the calorimetric definition of heat as given by Zemansky: heat is "that which is transferred between a system and its surroundings by virtue of a temperature difference only" [Zemansky 1937, p. 58]. The temperature differences we are concerned with here are differences of opinion. What is transferred consists of critical 'attacks' and 'defenses' against them. Of such stuff is the heat of the battle — when logic, in its diathermic version, gets a chance to intervene.

Rousseau is an excellent example of a person whose thought processes and even linguistic processes in fact did take place in adiabatic isolation. The Dutch mathematician L.E.J. Brouwer is another. The conception of Logic in our time, particularly as worked out by later intuitionists and most constructivists, is one that might have taken Rousseau as its model.

For anyone who is prepared to leave the dogma of logic as adiabatic behind, it is not difficult to take yet another step, that from a purely 'robotical' philosophy of logic to one that permits the

addition of the 'pathological' approach as a respected component of research². And perhaps this new approach will turn out to be the more fruitful of the two, though it is too early to offer an opinion here. As in cognitive science the prevailing methodology in logic is very much the robotical one. This inherited outlook naturally brings one to limit one's analyses and efforts to algorithmic descriptions of *good* logic ("the one and only good logic", usually). The pathological approach on the other hand invites you to consider also the various attempts at logic construction that went wrong, their political and cultural ramifications and effects, as well as *why* these theoretical attempts went wrong.

3. Logeme Shifts

In order to get a firmer grip on the growth of pragmatic insight and its effects on cognition and theory formation, it is advisable to return — but now *not* on the basis of an idealist approach to philosophy — to the study of the logical categories that are involved in theory constructions, i.e. to the most general non-referential cognitive categories that have been invented for the purpose of enabling us to draw inferences from given data or assumptions. Together the logical categories used in a scientific theory, or in a philosophical system, constitute a logeme.

The extent to which the logical categories of a theory — or, say, of an ideology — determines its content usually goes unnoticed. Most philosophers, therefore, are unaware of the kind of pragmatization that takes place through a logeme shift. The growth of pragmatism demands detailed knowledge of the variety of logemes. Attention should be given to the interwovenness of logical categories with their syntax (and further semiotics). Another part of the job would consist in looking for the tautologies that are specific to a given logeme. To minds imbued with another logeme they may not be tautological at all. A good example here is offered by the 'generic' sentence form, *the (generic) M is P*, so central to older philosophies ; put *M* for *P*, and you will have a logeme-specific tautological form, *the (generic) M is M*. The logical category Tautology (we could say) is, in other words, logeme-variant.

2 The methodological expression 'pathological' is taken from Sacks and Wasserman. They exemplify the 'robotical' philosophy by D. Marr's *Vision* (1982).

4. The Cradle of Traditional Non-Privative Categories: Logophoric Logic

Where do the traditional basic categories come from? Why were exactly these categories taken to be so fundamental that their 'privative' counterparts could not be entertained as central instruments of cognition?

Let me give the answer — my answer — right away. Until recently, European thought has been, and often still is, entangled in a badly known *logeme* (with variants) which one has not been willing to study in a systematic manner. The bit and pieces of our knowledge of this logeme have been insufficient for us, as the famous flies in Wittgenstein's fly-bottle, to see our way out. Though one can repair a ship while in open sea one cannot cast off a straight-jacket if one is unaware of having one on.

Certain expressions of Poincaré's may be interpreted in this light.

Van Stigt holds that Poincaré insisted, as did Descartes, on "the need for Intuition as a guide at all stages, in selecting axioms as well as the sequences of a logical argument" [Poincaré 1905, 133].

Given this reference to Poincaré's interest in "the sequences of a logical argument" one wonders whether his emphasis on 'intuition' could be to some extent explained, and perhaps fully explained, by an assumption about external influences upon him and the lack of visible counter-arguments to them in the culture that surrounded him.

This is my guess: like so many other authors at his time, Poincaré received no incitement to completely free his thought from that outlook on the (pre-Fregean) logic of the quantifiers that historically has been the most favoured one. This is the thesis that Aristotle's 'ekthesis' is completely dependent upon some kind of 'intuition': proofs 'by ekthesis' are (one thought) proofs δι' αἰσθησεως. Since logic before Frege saw existential instantiation as well as universal generalization in the light of the dominant theory of *ekthesis*, an 'intuitive', non-formalizable component of logic seemed unavoidable, as well as, in some sense, a 'valid' procedure. Here I refer to studies of the 'intuitive' theories of *ekthesis*³.

This traditional understanding of the steps in an argument involving premisses with existential quantifiers is an important component of the logeme I have been referring to.

3 See the following publications by [Beth 1956-57; 1959, 190-194; 1957; 1967, chap. 4: "The Locke-Berkeley Problem"]. Also discussed in [Barth 1974-1981].

It is not possible to give a description of the logeme in this paper. Besides, though one can truly speak of the (one) traditional logeme provided no more than a rough outline is requested, upon closer inspection the logeme turns out to have some two or three variants.

It is another point that, for each of these variants, one can find authors who have liberated themselves from it on some particular point — who have managed to tear out one nail in the straightjacket while still remaining in its grip.

One tends to lose out of sight that the variants of the logeme have most features in common. Their common part operates with a *logical* category Substance, inviting questions about the 'Whats' of the subject matter. Thereby it assumes a duplication of terms: in addition to phenomenal terms there are also terms referring to a postulated substance, with no parallel in modern logic. The logeme is based on Plato's and Aristotle's Principle of the Absolute, which is reflected in the notion of the *terminus ad quem* — usually identified with the postulated substance in question. It knows a restriction to symmetrical, convertible relations, with one exception: that of higher or lower rank — higher in the direction of the *terminus ad quem*. It assumes the primacy of cardinals above ordinals and the impossibility of determining a rank without first determining cardinals and 'quantities'.

Certainly most people who attend a conference like this one are very well aware indeed of a number of the components of the old logeme, or logemes, but they do not study them in detail. Lack of knowledge prevents us all from flying out of the bottle. The flight could be speeded up by exchanging piecemeal knowledge for more systematical knowledge.

The study of the *terminus ad quem*, to take one example, has been isolated from the study of other features of the traditional logeme. That the *terminus ad quem*, the goal of all activity and movement, for a very long time hampered the development of an adequate mechanical science is well known; many authors have made us aware of it.

But what has the *terminus ad quem* to do with logic in the narrower sense? Very much indeed. This has mostly gone unrecognized. Neither the varieties of intuitionism nor later mathematical elaborations may at first seem to be much tied to the *terminus ad quem*. But reinterpret the *terminus ad quem* as the level of Spiritual Mastery, and the connection is clearly there.

Also, with the successes of modern logic, particularly in meta-mathematics, it is too often taken for granted that our culture does not

really have problems with *logic* nowadays (perhaps with the exception of atomic physics). The possibility that well-trained specialists in the sciences could still be hampered in their work by unconscious ties to remnants of general *logemes* of which they have thrown away the greater part, is an idea that is not discussed, not even by logicians. It is known that the category *terminus ad quem* was detrimental to early attempts at creating a science of physics, but nothing similar is talked about in connection with *logical* theory — although there are problem fields that scream for a new perspective.

*

Let us elucidate the above allusions to intuition in mathematics somewhat by turning our attention to a very powerful logeme, since Frege and Russell suppressed in academic logic (and rightly so), but still extremely powerful in other environs: *Logophoric logic*. It turns out that all the problems concerning category choice that have been mentioned here — there are other ones, of course — can be traced back to the fundamental pattern of this logeme, reflected in a former academic logic, in the strictest and most general sense of the word.

Technically, the most conspicuous feature of this logeme is that it had a *many-tiered model*. Strictly speaking, the model has a closed-interval continuum of tiers, with but scant attempts of representing them separately in linguistic terms and their syntax. For this reason the model may seem, at first glance, to be two-tiered. In addition to a bottom tier of individuals, classes of individuals, and relations between these classes this logeme posits a second extreme, the ‘substantial’ stratum, a ‘logos-carrying’, or ‘logo-phoric’, tier that mirrors and is mirrored in the first one. Technically this is an assumption about non-individual concepts. They are taken to contain “a logophore, an ontologically self-supporting carrier of the properties in question, which apart from this characteristic of ontological independence remains indefinite, an empty place into which a suitable individual can enter, when one proceeds from (say) the ‘rose’ to ‘this rose’. The logophore is the concreteness of the individual deprived of its individuality, but not of its ontological independence”. Presumably, exactly the same nucleus occurs in ‘homo’ and in ‘Socrates’, or rather, both contain nuclei with identical predicate-bundles. Their subject or carrier — the logophore — is called ‘determinate, individual’ with respect to ‘Socrates’ and ‘indefinite’ or ‘indefinite’ with respect to ‘homo’ [von Freytag 1961, 39f].

This ‘logophoric’ stratum has usually taken to be the level of the Spirit, or Spirituality, which *carries* the rest. Another author who claims to support a comprehensional identity theory of the copula, speaks of “the participation of the *carrier* of inherence [the

logophore!]) in the identity between that which is inherent in it and its genus” [Jacoby 1962, 13 and 17, italics added]. Only in some versions of Marxism this stratum is identified as Matter. Either way, the various ‘logophores’ are a kind of logical nuclei, or rather, they are *the subject-part of* such nuclei, considered as bundles of predicates *of* something.

We supposedly get at them through intuition.

But although this two-tiered logophoric logic does not have much to offer in the way of definitions and clear rules of inference and debate, enough is known about it for us to say now that the logical categories we referred to earlier as ‘formerly fundamental’, are precisely *the* logical categories of this logeme in its original variants.

Ontologists operating under this logeme take a logophore to be something like a ‘logical gene’, or a capacity, or a combination of both. Unfortunately, anyone who looks for a theoretical account of the place and logical function of this concept ‘the logophore’, will have his hopes dashed⁴. But although this ‘logophoric’ logic does not have much to offer in the way of category-definitions (or other rules of inference or debate), enough is known about it to say that the logical categories we referred to earlier as ‘formerly fundamental’ are precisely *the* logical categories in this logeme.

*

Allow me to vent an hypothesis concerning Poincaré’s mathematical thought. In his discussion of the Mayer-Helmholzian Principle of Energy, Poincaré comes to the following result: “there is something that remains constant” [Poincaré 1905, 132]. With respect to the logeme under discussion something remarkably similar is at stake: one discerns something like a ‘rational field’ with the property that something remains constant. This something is usually called substance: it is the ‘fundamental’ tier.

5. Solved and Unsolved Problems of Diathermic Logic

Here are some examples of much-needed transitions from adiabatic to non-adiabatic ‘diathermic’ logic, and from robotical to non-robotical methods. They concern the very heart of the approach in most parts of analytic philosophy today. You will see that they

⁴ The receiver needs an informative statement of this kind: “There is a theory, recipe, [...] such that *according to this theory/recipe*, ALL M are P.” But such statements are not forthcoming from users of a logophoric logic ; the logophoric sentence is mysteriously regarded as self-evident.

involve exactly such steps of 'liberating the privative categories' as we have just discussed. These are not examples of a shift of scientific-cultural values, though in some of the cases, some people may feel it so. They are examples in a shift of basic logical categories, illustrating shifts in logical and epistemological focus and concentration.

Let us go back to the time when the main basic objects of the science of logic were the Laws of Logic, and rules for deriving conclusions. There has been a remarkable shift to another guiding notion: the problem of the existence of Counter-examples and Counter-models — historically new categories — both to the premises and to the desired conclusion, and modes for proving that they cannot be bad.

In the interest of the working logician, the category Validity has here become, we could say, a neo-privative, for it now means exactly and nothing more than an absence — the non-existence of counter-models to the sequent of the premiss class and the desired conclusion. This is the gist of Beth's method of Semantic Tableaus.

Or, shift to Conflicts of opinion and rules for resolving them⁵ — and you can, if you like, define validity privatively, as an absence, the *absence of winning strategies for opponents*. This yields Dialogue logic as developed by Lorenzen and Lorenz.

In our second example, again assume that either the Validity of an argument or the Rationality of each of the moves in the argument still happens to be one of your fundamental logical categories. One then easily comes to see the category fallacy as a merely privative category, namely that of *in-Valid argument* and nothing else. Some early fallacy-theoreticians have clearly started out from this conception.

Shift to: Fallacy as one of your fundamental categories in logical theory⁶. Now it is the validity of arguments or the rationality

5 This category was essentially introduced by [P. Lorenzen c. 1958]. See [Paul Lorenzen and Kuno Lorenz, 1978; E.M. Barth and E.C.W. Krabbe, 1982].

6 There are at least two approaches to a definition of 'fallacy'. In both cases the category *Kunstgriff* is defined privatively, as a move in an argument that *transgresses* a necessary condition for making acceptable moves. "The first approach presupposes that the theory of rational argumentation is formulated as a set of *necessary conditions* which an argument must satisfy in order to pass as rational [read: non-fallacious]. Rhetorical *Kunstgriffe* can then be analysed and unmasked as moves which do not satisfy these conditions, e.g. as moves which transgress certain prohibitions. A second and more contemporary approach consists in formulating a finite set of *production rules* for generating rational

of the moves that constitute them that becomes a privative: in this case, validity is nothing but *in-Fallacious argument*. (This, however, can be made more precise, in several ways. One of them is the precization of validity as Absence of Counter-example.)

Our third example concerns the ‘Diathermic’ application of these two moves in conjunction⁷:

Consider the shift from Fallacy as an ‘objective’ category to Fallacy as dialogical, inspired by the Lorenzen-Lorenz shift from either ‘objective’ or ‘subjective’ (intuitionist) over to a dialogical (discussive) logic [Barth 1992; Lorenz 1992].

Our fourth example: the main epistemological category, or one of them, has always been: Human understanding. Misunderstanding, however, though certainly of no less importance, has almost always been taken privatively as ‘merely’ the *lack of Understanding*.

One piece of pragmatization would consist in a methodical shift to Human Misunderstanding as a fundamental, non-privative category. This category, with the ‘negative’ name ‘misunderstanding’, could be renamed with a neologism, say Blooper, or Upperstanding, and we would then easily learn to treat understanding as a neo-privative category, to be known as non-Blooper or as mis-Upperstanding. Arne Næss may well have been the first to make precisely this step and to make Misunderstanding a fundamental notion.

Whenever successful theory construction is not forthcoming in spite of great expenditure of intelligence and energy it often pays to shift to a new way of construing the problem and to a new question. This may be done by taking inspiration from a different methodological philosophy.

Final example: *relevance*. A hard nut to crack in theoretical

arguments. Lorenzen’s dialogical rules which constitute definitions of the connectives and quantifiers are in fact rules of this kind. Such rules are *sufficient conditions* for calling the produced argument rational. Only the condition - here to be called ‘the restrictive condition’ — that the argument can be generated by one or more of these rules is a *necessary* one. Schopenhauer’s *Kunstgriffe* and other fallacies can then be unmasked as *arguments which cannot be generated* by the production rules. They do transgress one rule, viz. the restrictive condition that prohibits the use of arguments that cannot be generated by means of the production rules. In the pursuit of a theory of rational and irrational argumentation and of fallacy it seems wise to aim at such production rules for the generation of rational arguments as the ideal kind of theory, although rules of the first kind are not to be despised entirely, at least as long as the theory of rational argumentation is in its infancy.” [Barth and Martens 1977]

7 O.c.

logic is the question of the relevance of arguments, which ought to be guaranteed in any dispute: are there definitions, or are there rules, that can tell the players in advance what moves *will* count as relevant, so that we can figure out which ones will not?

There have been several serious attempts to define relevance, some of them formalistic — referring to linguistic entities and logical form, others have been less formal, but they are all unclear. Here is a methodical suggestion: *turn the problem around!*

We have become used to take irrelevance as a privative category: as merely a question of non-Relevance, a privation of, or imperfect, Relevance. We uncritically assume that a category of Relevance has to guide our theoretical fantasy here, and this requires that a *theory of Relevance* be construed *first*. So one thinks one has the following problem on hand: how to construct a theory of logical Relevance? This has always been the goal of Relevant Logic.

Here is a methodical suggestion that bypasses the question in this form. Throw out Relevance from your set of logical fundamentals and shift to the problem of constructing a Theory of irrelevance. Shift to Irrelevance as the fundamental category, but call it instead Perturbation; *then study what constitutes perturbation in dialogue*⁸.

Study and discuss Irrelevance as dialogical perturbation (compare weather forecasting)⁹. Easy examples of perturbing verbal moves in a discussion are remarks pertaining to the race, sex or social class of the participants: a perturbing kind of *ad hominem* argumentation. In situations of conflict of opinion such remarks should be abolished not because they are 'logically' or 'formally invalid' but because they are perturbing the discussion.

Now a definition — and theory — of relevance will come forth as a theory of im-Perturbance, defined as the absence of dialogical perturbation.

8 I.e., study Irrelevance as *Unsachlichkeit* (*usaklighet* - Naess) in debate. In Naess' many publications relating to *Usaklighetsanalyse* there is a lot to be found that might be taken as points of departure for such a theory of irrelevance. Easy examples of perturbing verbal moves in a discussion are remarks pertaining to the race, sex or person of some of the participants: a perturbing kind of *ad hominem* argumentation for which a simple operational definition can be given. Such moves should be abolished not because they are 'logically' or 'formally invalid' but because they are perturbing — upsetting — the discussion.

9 Since several dictionaries translate *Sachlichkeit*, *saklighet* by *pertinence*, one is tempted to substitute *Impertinence* for *Unsachlichkeit* etc.

This ought to be germane for the construction of a practical logic that makes use of formality in the sense of some standardization but makes no attempt to reduce the question of an argument's appropriateness to a question of sentence form ('logical syntax').

6. Real Conventions: Standardization by National and International Councils

Relevance (at a given moment of time) can now be defined privatively: as the *absence of transgressions of conventional agreements on perturbation*. Exactly what is to count as a perturbation is a matter of (revokable) agreement and so a function of time. This set of agreements should grow with time, as in practice it often does, though slowly.

My conclusion is a constructive recommendation rather than a thesis. To start with, let us drop the expression 'a logical category' that we have used hitherto. Let us talk instead of the *dimensions* of a theory of inference, that is: of *fundamental logical dimensions*. The term is adequate and what is more, it can make us think in unexpected directions.

Everyone agrees that much depends on conventions. The conventions alluded to in philosophy are, however, not of the same force as in other fields that also depend to some degree on conventions. Law depends on conventions, but they are not tacit. Our legal conventions — such as laws — as passed by parliaments are supported by legal practice in interaction with a large academic field, but even together they do not suffice: in order to make a convention effective it has somehow to be 'passed'. A convention that has not been passed by any kind of body may suitably be called a *semi-convention*. So far, logical conventions have been no more than semi-conventions.

This is not a recommendation of a comparison of logic with law, dreaded by so many. Law is mentioned here simply so as to enable us to say this. Rather I want to draw your attention to the situation in the physical and technical sciences, where national and international councils study, recommend, and finally *decide upon* some choice of *fundamental dimensions*, of *units of measurement*, and related questions. The decisions constitute *real conventions*: they are introduced for purposes of smooth communication among scientists, engineers, teachers and students, and so, it is hoped, for further clarification of the physical sciences. They are revokable, and rather easily revokable at that, but they are real conventions: they have been passed by a body that was elected for the purpose of

recommending such conventions. That this does not lead to universal consent about which physical magnitudes (or dimensions) should be chosen as the fundamental ones is well known.

Sets of recommended conventions can function side by side. In my student days one had to be well versed in at least three systems for mechanics alone. But one can learn to live with that, so the prognosis that the situation would be the same in logic — no unique final universal agreement — should not worry us. I would rather see a multitude of sets of possible fundamental conventions, for arguers to choose from, than continue in the present situation where there is nothing at all to guide us in our combat with verbal perturbation.

Similar councils are needed among philosophers and logicians of many kinds, with at least two tasks. The first task will be to define the sets of fundamental logical categories, or basic dimensions, of the logemes that are operative in the various groups of contemporary human minds today. This goes a long way towards a complete description of the logemes upon which the 'natural' languages rest. More is needed: a scrutiny of their syntax, their semantical features and their whole semiotics, but a clear establishment of what the fundamental dimensions of a certain mentality are, is a necessary condition for improving human understanding, certainly in philosophy, and for the present generation an unrelenting responsibility.

The second task of national and international councils on logics is to survey and recommend that certain sets of moves be defined as what Schopenhauer called *Kunstgriffe*, that is to say: as irrelevant moves, fallacy-creating moves.

As to our example, ubiquitous 'logophoric logic', I do not think that the set of fundamental dimensions in it stands a chance of being recommended as logic by a committee of trained logicians who also know something about the development of the sciences that have reached the greatest intersubjective clarity. It is not true, as some might think, that this set of fundamental dimensions is "just one among several equivalent ones": it determines a logic with the poorest (and weirdest) set of inference rules imaginable, and it invites perturbations on a particularly grand scale.

I do not say that this will define the whole extension of 'relevance' for those who will accept such a recommendation. What I do say is that what we need is not so much an understanding of something called 'relevance' as agreements and conventions about what is to count, for the time being, as irrelevance or 'dialogical perturbation'. The agreements will not oblige anyone to act upon

them who is interested neither in critical communication nor in communication with other logical non-conformists.

Nor will agreements once made lead to intellectual stagnation: new fundamental logical dimensions will continue to enter the established sets, and old ones will drop out.

No one needs to fear any kind of logical bondage. The 'logical stability'¹⁰ introduced by such conventions is a short-run stability, created precisely for the purpose of clarification and assessment of near-future debate. They are *revokable* conventions, which in the long and middle-long run will stimulate rather than hamper the *flux of opinion*.

References

- Barth, E.M.
1974 *The Logic of the Articles in Traditional Philosophy*, Dordrecht, Boston : D. Reidel, paper 1981.
1992 *Dialogical Approaches*, in M. Dascal a.o. (eds), 663-676.
- Barth, E.M., and J.L. Martens
1977 *Argumentum ad hominem : from Chaos to Formal Dialectics*, *Logique et Analyse* 20, 76-96.
- Barth, E.M., and E.C.W. Krabbe
1982 *From Axiom to Dialogue – A Philosophical Study of Logics and Argumentation*, Berlin, New-York : Walter de Gruyter.
- Barth, E.M., and J. Van Dormael and F. Vandamme (eds.)
1992 *From an Empirical Point of View — The Empirical Turn in Logic*, Ghent : Communication & Cognition.
- Beth, E.W.
1956/1957 Über Lockes „Allgemeines Dreieck“, *Kant-Studien* 48.
1957 La crise de la raison et la logique, *Collection de logique mathématique*, série A, fasc. XII, Paris/Louvain.
1959 *Foundations of Mathematics*, Amsterdam : North-Holland.
1967 *Aspects of Modern Logic*, Dordrecht/Boston : D. Reidel.

¹⁰Some authors express a regret that after the academic demise of 'logophoric logic' there is no logical stability any longer. This goes to sketch the difficulties one should be prepared for in logic councils of the kind we mentioned above.

Bradley, F.H.

1883 *Principles of Logic*, part I., London.

Dascal, M., D. Gerhardus, K. Lorenz and G. Meggle (eds.)

1992 *Sprachphilosophie / Philosophy of Language / La philosophie du langage. Ein internationales Handbuch etc.*, 1. Halbband , Berlin/New-York : Walter de Gruyter.

Freytag-Löringhofen, B. Baron von

1955 *Logik, ihr System und ihr Verhältnis zur Logistik*, Stuttgart : W. Kohlhammer Verlag, 1961.

Jacoby, G.

1962 *Die Ansprüche der Logiker auf die Logik und ihre Geschichtschreibung. Ein Diskussionsbeitrag*, Stuttgart : W. Kohlhammer Verlag.

Lorenz, K.

1992 Das dialogische Prinzip in der Philosophie. Ein Beitrag zur Überwindung der Subjekt-Objekt-Spaltung, in : *Entwicklungen der methodischen Philosophie* (ed. Peter Janich), Frankfurt am Main : Suhrkamp.

Lorenzen, P., and Lorenz, K.

1978 *Dialogische Logik*, Darmstadt : Wissenschaftliche Buchgesellschaft.

Naess, A.

1992 How can the Empirical Movement be promoted today? A discussion of the empiricism of Otto Neurath and Rudolph Carnap (1937-1939, with Appendix added 1956), in: *From an Empirical Point of View — The Empirical Turn in Logic* (eds. E.M. Barth, J. Van Dormael, F. Vandamme), 107-155.

Poincaré, H. J.

1902 *La Science et l'hypothèse*, Paris : Flammarion.

1905 *Science and Hypothesis*, New-York : Dover, 1952.

Sacks, O., and Wasserman, R.

1987 The Case of the Colorblind Painter, *The New York Review of Books* 19.11.1987.

Stigt, W. P. van

1990 *Brouwer's Intuitionism*, Amsterdam : North-Holland Publishing Company.

Zemansky, M. W.

1937 *Heat and Thermodynamics*, New York/Toronto/London : McGraw-Hill Book Company, 1951.