

TRANSCENDENTAL LOGIC REDEFINED

(Manuel Bremer, 2007)

[S]o machen wir uns zum voraus die Idee von einer Wissenschaft des reinen Verstandes und Vernunftkenntnisses, dadurch wir Gegenstände völlig a priori denken. Eine solche Wissenschaft, welche den Ursprung, den Umfang und die objektive Gültigkeit solcher Erkenntnisse bestimmte, würde *transzendente Logik* heißen müssen, weil sie es bloß mit den Gesetzen des Verstandes und der Vernunft zu tun hat, aber lediglich, so fern sie auf Gegenstände a priori bezogen wird, [...]

(Kant 1786: 82-83)

Abstract. Traditionally transcendental logic has been set apart from formal logic. Transcendental logic had to deal with the conditions of possibility of judgements, which were presupposed by formal logic. Defined as a purely philosophical enterprise transcendental logic was considered as being *a priori* delivering either analytic or even *synthetic a priori* result. In this paper it is argued that this separation from the (empirical) cognitive sciences should be given up. Transcendental logic should be understood as focusing on specific questions. These do not, as some recent analytic philosophy has it, include a refutation of scepticism. And they are not to be separated from meta-logical investigations. Transcendental logic properly understood, and redefined along these theses, should concern itself with the (formal) re-construction of the presupposed necessary conditions and rules of linguistic communication *in general*. It aims at universality and reflexive closure.

§1 TRANSCENDENTAL VS. FORMAL LOGIC

The distinction between transcendental and formal logic in early transcendental philosophy by Kant (1786) and Fichte (1812) rested in part on a misconception of formal logic. Formal logic was understood as complete, unique and unchangeable. The tradition of Aristotelian logic was considered complete because of the stability of the canon in teaching this logic. Since the field of formal system analysis was not even on the horizon (at least for these authors) the idea of different logics (of speaking of “logics” in the plural) was beyond

imagination. Formal logic was thought to be concerned with laws that (really) apply to our reasoning and are – in modern parlance – “psychological real” in our minds. In as much as logic was considered to be unique and universal – maybe not so much because the theory of evolution was unknown – it was also considered to be unchangeable.

The task of the logician or the philosopher teaching logic was to set out the canon, a task that could be given a paradigmatic form and then be repeated without change over and over again. There was nothing new to be learned about logic, only new generations of students had to be initialized.

The canon consisted of Aristotelian syllogistic (in its presentation by the 4 figures and supplemented by some “immediate” inferences and “conversions”). This was further supplemented by a ragbag of well-known inference like *Modus Ponens*, *Disjunctive Syllogism*, *Modus Tollens* and a few more. The theory of inferences was accompanied by a theory of fallacies, where this seemed to be necessary, since there was no correspondence between fallacies and inference rules (respectively failures in their application). Further on, since inference was not a very broad field of study the theory of concepts and the theory of judgement were considered to be part of formal logic (there being no independent field of philosophy of language).

In distinction to this transcendental logic was concerned with the building or making of judgements, which were just given to formal logic. *Synthesis* was the topic of how concepts are employed or unified *by reason* to arrive at a judgement. Transcendental logic asked for the pre-conditions to arrive at judgements, the conditions of possibility of judgements. This included, at least for many transcendental philosophers, to answer the sceptic who denied our chance to make true judgement about reality or to talk about real objects in our judgements or to talk systematically and coherent about real objects in our judgements.

In comparison to formal logic, which presupposed answers to these questions and doubts, transcendental logic was considered the ultimate concern of the philosopher. Transcendental logic was *prima philosophia*. Transcendental logic dealt with the conditions of possibility of our experience or judgements about objects as conditions of *these* objects themselves. In this Kantian original perspective the principles to be discovered by transcendental logic had to be principles preceding any empirical investigation and had to be principles of synthesis, thus the task of transcendental logic was to outline a canon of synthetic *a priori* principles/judgements.

§2 KEEPING THE ESSENTIALS OF TRANSCENDENTAL LOGIC

One may well ask which elements of the Kantian picture of transcendental logic – later repeated slightly modified by Husserl (1929) – are more essential than others. Traditionally (i.e. at least in many parts of Neo-Kantianism and the Phenomenological movement, but also in parts of (early?) analytic philosophy) the border between philosophy and the sciences was drawn around the feature of being empirical or *a priori*. Philosophy is considered an *a priori* science in this tradition. This idea is beset with the many problems not only to define what “a priori” means, but also how we know that something is *a priori*. The latter question may concern us later on. The main thesis of this paragraph, however, is that the idea of philosophy being *a priori* was just a side-effect of the idea of dealing the preconditions of thought and judgement.

To investigate the conditions of possibility of experience, thought, judgement is the essential idea of transcendental philosophy. Transcendental philosophy – and thus transcendental logic as its analytic core – is directed at the basic conditions, rules and presuppositions made in our cognitive faculties. If it turns out that some knowledge about these faculties has to be acquired or checked empirically we still have the transcendental question (of the conditions of possibility). In as much as these are meant to be conditions of *possibility* (not only *actuality*) one may suppose that transcendental philosophy has some *a priori* or *conceptual* parts. How they relate to empirical investigations of cognition has to be considered. And there is a methodological reflection on the wide reflective equilibrium between such supposedly *a priori* methods as conceptual analysis and rational re-construction, and the other methods, mostly empirical, of the cognitive sciences (cf. Stein 1996, Terman 1993). I understand transcendental philosophy as being part of the wider study of cognition (in the cognitive sciences). It deals not with the actual details and features of the human psyche or human brain, but tries to outline some necessary features (conditions and rules) of having thoughts at all, of being able to judge at all. The value of its analysis has to be assessed not only by confronting them with other philosophical theories, but also by confronting them with our empirical knowledge about the workings and limitations of human cognition. Whether one wants to call it *a priori* is of no importance at all, once its methods are set out and kept apart from other approaches in science. Especially any pretence of “a priori” meaning “unrevisable” has to be dropped, having done philosophy not a single favour.

Furthermore, I consider the preoccupation of transcendental philosophers with scepticism a blind alley. *Transcendental arguments* are often seen as a reply to

radical forms of scepticism or to “a sceptic”. Replying to “a sceptic” seems, to me, to be a waste of time, and so I confine myself to a few general remarks.

1. As soon as a sceptic makes some positive claim denying α he finds himself much in the same position assuming the possibility of knowledge or language as the philosophers under attack. Thus he can be easily refuted *ad hominem*.
2. If to circumvent this self-refutation the sceptic is considered to “merely pose a question” one may ask what that question is. If it has the form “Could it not be that ...” the meaning of “could” is far from clear. It certainly cannot be presupposed to be understood in terms of possible worlds or the like, on pains of falling back to point 1. Whether a vague sense of imagining other “possibilities” should be taken seriously cannot be taken for granted. I don’t. If the question has the form “Are you sure that...” one may well ask why one should answer such a question once one has given reasons for one’s views. A reasonable doubt (i.e. a new doubt that argues for a need of further clarifications) has to be answered, but a reasonable doubt then falls back to point 1.
3. Alternative theories should not be subsumed under the label “scepticism” to avoid confusing the issue of scepticism. So someone who doubts whether there is something like meaning in the sense of theory T_1 may better be called a “critic” as long as she does not doubt meaning in general.
4. Being even a modest realist one assumes that there is or at least may be a gap between our representations, our cognitive faculties with their abilities and the complete structure of reality. To exclude the possibility that reality is – in some vague sense – greater than our cognition would be giving up realism and switching to some form of idealism in which the limits of our cognition define what there can be. So a “scepticism” belabouring this gap should not be considered scepticism at all, as long as no specific limit of our cognition is mentioned, which would lead back to points 1 or 3. That there are some parts of reality beyond our abilities does, further on, not exclude that in some parts our abilities are quite appropriate.
5. Presenting the standard that the gap between belief and reality has to be bridged before an argument can be said to be successful is requiring from us to become idealist only to accuse us then for giving away realism! The whole debate around the corresponding “failure” of transcendental arguments (cf. Stern 1999) seems to be misguided.
6. Arguments on scepticism often start like “suppose a sceptic”. One wonders whether there really is or has been anyone claiming what “the sceptic” is said to claim or ask. That no non-fictional sceptic can be presented is an observation relevant to the very issue of scepticism. If

someone can really find somebody who claims to doubt the existence of things or other people he should ask him for his wallet, his car and maybe suggest to him to jump from the next bridge. Any non compliance with these suggestions is relevant to the very issue of the existence of sceptics.

The aim of transcendental arguments thus does not lay in refuting sceptics but in *delineating analytic dependencies* between concepts or assumptions. In seeing that α is a condition for the possibility of γ we recognize a conceptual connection within our conceptual scheme. Phrasing this discovery as “If a sceptic were to doubt γ she could not believe α .” adds nothing to it.

Successful arguments sometimes show that some premises entail a conclusion, sometimes the premises make the conclusion plausible. Sometimes a premise of normality (like “nothing is different in other situations”) or exhaustiveness (like “and these options considered are all the options there are”) has to be added to make an argument sound. Such premises may turn out wrong. So may be the way of science and scientific progress. As long as no reasonable doubt has been presented, however, we are justified in seeing these arguments as establishing their conclusion. They may even stand as they are for all time to come. To require stricter standards for arguments has to be argued for concisely itself. I have not seen such arguments. Hinting at such a ultimate justification does not suffice. Recent attempts for ultimate justification in “apodictic evidence” (in some period of Husserlian phenomenology) or “reflexive ultimate justification” (in Apel and Kuhlmann’s [1985] *transcendental pragmatics*) are less than precisely worked out. The only point of raising the standards of justification and argument seems to be to keep some “sceptic” in business (cf. point (4) above). Transcendental logic need not aspire to outdo all sciences and argumentations in its rigour. Formal (re-)constructions, meta-logic and conceptual analysis are useful and difficult enough.

The proper idea of transcendental philosophy focuses on several areas to be dealt with. There are questions before and beyond empirical science. These questions concern – *inter alia* – those of setting up at least the core of the linguistic framework of the kind of study in question. The core of the linguistic framework is not concerned with the definition of theoretical concepts of the science in question, but with questions like the expressive power of the linguistic framework needed (e.g. do we need higher order quantification in that area or do we need a syntactic/semantic category of processes) and the arsenal of inferential methods (e.g. do we have to be able to have probability assignments and procedures of conditional updating). A couple of these questions are somewhat continuous with foundational studies in a field of science. Especially so if they are concerned with the regional ontology that sets apart the region of investigation (i.e. with essential regional concepts like *organism* or *force*). Some concepts and questions, however, are so general that they are not treated even in foundational studies of individual sciences. Questions about the nature of *truth* and *sufficient justification* or the comparison

of seemingly equally coherent theories (including an outline of what *coherence* consists in) belong in this category. Even in those cases where there is some overlap to foundational studies (say in arguing for basing temporal ontology on points or on intervals) the scientists are now engaged not in typically empirical investigations, but in a typically philosophical reflection on the proper construction of a linguistic framework. Whether this kind of reflection on the (linguistic) conditions of possibility of the best theory is done in the philosophy department or somewhere else does not change the character of the problem.

One field of questions that cannot be dealt with by empirical science on pains of a massive naturalistic fallacies are, of course, ethical questions. Inasmuch as transcendental philosophy is concerned with the conditions of possibility of all thought and action and basic ethical principles may be part of these preconditions a transcendental ethics (in the manner of Kantian or Discourse Ethics) is part of transcendental philosophy. It is not part of transcendental logic, and so we do not treat of it here.

The investigation of the fundamental linguistic framework operates with two basic ideas: the existence of a *transcendental conceptual scheme* and the *universality* of logic and core concepts.

Transcendental contains more substantial claims than “merely” laying out the logical form of thought. The most general forms of thought, since they are part of the necessary conditions to apprehend objects and make judgements at all, are part of the laws of reason. Since reason is universal (i.e. all beings with reason have the same reason [as faculty]) so are these laws and the corresponding claims of transcendental philosophy. By exploring the possibility to make judgements at all transcendental logic is the foundation for any theory of truth (in general). Every specific discourse or field of empirical exploration is founded in this investigation, and *it shares* the most general features that characterize reason. Expressed in terms of analytical philosophy: the transcendental investigation is concerned with the most general features of language (as a means of communication and representing thought). To be explained is not the framework of some individual language – be it formal or natural – but the universal frame which is presupposed by all these languages. This talk of “conceptual schemes” has been criticized by Davidson (1974) as the “third dogma of empiricism”. Davidson’s thesis, however, is directed against the claim that there might be several conceptual schemes which are incommensurable with respect to each other. The claim of incommensurability requires that these schemes are not translatable into each other, and this claim is incompatible with a Davidsonian theory of meaning, which starts with the concept of interpretation (or translation). A supposedly untranslatable language (incorporating a supposedly incommensurable conceptual scheme) can never be *identified as language* in the first place, since we start with our understanding of what a language is and identify some behaviours as possible targets of translation; and at the same time we had to identify it as *language* to give the

incommensurability thesis its proper content. The claim of there being several incommensurable conceptual schemes thus destroys itself. There may be beings the behaviour of which is not translatable, but once we are able to identify something as language we impose the most general features of our framework on the target. We employ here (with these means of translating and identifying) our universal (or transcendental) framework of language. Thus within our kind of linguistic life form the concept of language (and what more specific general features go with it) is one and not many. The many natural language share the features that the universalist tries to identify. Formal languages – that usually abstract from some dimension of language, usually pragmatics as a whole – share some of the features that define, for example, what it takes for an expression to be composed or to have meaning. Davidson's complain about talking of several conceptual schemes should so be read as highlighting the fact that we already have taken our stances within our conceptual scheme. There has to be something that is shared by the many languages. The problem is to identify these features. The task of universal linguistic philosophy is to identify the features of the transcendental frame of language. It might not be much, and it might be quite formal or parameter ridden what is universal in this sense, but it has to be there.

Transcendental philosophy thus is universal. And it should be. Philosophy cannot restrict itself to non-universal languages. The language of philosophy has to be *semantically closed*. Philosophy does not want to deal only with the structure or conditions of talking in some specific language or languages of some kind, but aims at a theory of the basic structures and conditions of having a language *in general*.

This requires the corresponding resources to express the universal claims. There may not be a hierarchy of languages so that we always talk in a *last* meta-language the semantic properties of which cannot be made clear, except in a further turn of the screw (a new meta-language ...). Universal theories of meaning, truth, knowledge etc. were not to have if we can talk only from some meta-language "down" to some distinct object-language. A general statement like

(K) Knowledge is true belief.

would be not *well-formed*. But these are the very theories that philosophy is after. And notwithstanding their lip-service to hierarchy solutions of the antinomies most philosophers propose their general theories of meaning, truth, belief, reference, knowledge etc. They are right to do the latter, since we have such universal concepts.

There seems to be no crucial difference between formal languages and natural languages with respect to the properties being of interest here (i.e. semantic and structural properties), although formal languages have no native speakers, mostly no pragmatics, no socio-linguistics – and so on.

We can investigate and formalize the logical structures of any natural languages. That is one of the central tenets of logic and formalization. We not only talk about properties of all (natural) languages, it seems even incoherent whether there could be two completely incommensurable languages. Such a system could never be identified as a language at all.

There are several logics. This is, however, hardly evidence against universalism: Often standard first order logic and set theory are taken as the meta-language to prove theorems about the logic in question; sometimes – as it should be in intuitionism or dialetheism – the meta-language is taken to be the same logic as the one introduced or explained; but in all cases the logic and its formalisms are argued for in natural language texts. Natural language turns out to be the last meta-language, that meta-language in which the most basic formalisms of some other meta-language were introduced. And natural language turns out to be the universal meta-language in that all the formal constructions and sentences of some new system can be translated (read) as ordinary sentences with some formal regimentation. There is no extraordinary special or deviant new logic which can say something that we cannot say in (some) natural language. Natural language thus contains the understandability of all these systems. What structures are responsible for this may be the task of advanced transcendental philosophy to find out. And we have to make a further distinction between those languages which are possible as such and those which are feasible in the sense of being the medium of communication and representation of embodied, finite, interacting social beings like us intervening in and adapting to a law governed environment.

Our concept of language, therefore, involves unity and universality. There has to be a set of properties defining what a language is. These properties are preserved in change or translation, they are exploited to establish correspondences.

Elucidating these properties and making them explicit from our intuitive understanding of language(s) is the traditional understanding of (transcendental) philosophy (of language). Without semantic closure we would not be able to elucidate a concept that we seem to have!

Transcendental philosophy in face of the paradoxes coming with semantic closure becomes a version of dialetheism: There are true contradictions within the universal framework and logic has to be adapted accordingly (cf. Bremer 2005).

Corresponding to this universal scope of its investigations transcendental philosophy needs the logical means to speak universally. Thus transcendental philosophy needs a *universal logic*.

There are two readings of having a universal logic: weak universal logic and strong universal logic. A universal logic might be universal as a paraconsistent logic, i.e. in all fields in which we need a paraconsistent logic this logic can be employed and gives acceptable results. This may be called the weak universalist

program. One may take the weak universalist program as being extremely cautious: One takes one's favoured paraconsistent logics – and sticks to it in all contexts. Since this paraconsistent logic can deal with contradictory contexts it can deal with any context, so it really is universally applicable. The problem with this extreme caution is that one loses all otherwise available consequences in consistent contexts. Therefore one rather tried to distinguish the type of context one is reasoning in. In praxis this meant that we employ standard first order logic for all non-semantic or non-antinomic contexts and switch to paraconsistency only in our formalization of complete semantics (or, maybe, set theory).

Or a truly universal logic can be employed everywhere, supposedly containing a way to distinguish consistent from inconsistent contexts, without loss of proper logical power in comparison to first order logic. This may be called the strong universalist program. In case philosophy contains consistent contexts and uses arguments valid only in consistent contexts it seems to need to follow *a strong universalist program*.

Both the LFI-approach in paraconsistent logic (cf. Carnielli/Coniglio/Marcos 2004) and Adaptive Logics (cf. Batens 2000) follow the idea to be able within the system used to distinguish contexts of a stronger logic (usually standard first order logic) and contexts for a paraconsistent logic. The way they do it is completely different, however. In the LFI-approach the distinction what kind of context we have has to be given beforehand; only given the corresponding knowledge can we choose the appropriate formalization (i.e. use $\circ A$ or not). In Adaptive Logics we mark the supposition that some formula has to be consistent, a supposition that may be revised in the process of reasoning; no prior knowledge about the consistency behaviour of a context is required. Some rules like Disjunctive Syllogism [$\neg A, A \vee B \vdash B$] and *ex contradictione quodlibet* [$\neg A, A \vdash B$], and all derived rules depending on them, have to be restricted. Restriction means here that they are only used if the on the left hand side of the application no contradiction is involved. Without adaptivity we had to reason using some paraconsistent logic in all contexts which we suppose to contain contradictions. Given that quite a lot of standard logic is missing (including contraposition, transitivity (of identity) etc.) that is a severe restriction. We cannot capture a lot of (harmless) consequences in that field then. Philosophy as that area of universal talk about semantics and epistemology would have to use such a restricted logic. It is questionable how many of its theses and arguments could really (i.e. without hidden recourse to standard logic) be expressed. Adaptivity, on the other hand, makes clear that reasoning from the present contradictions is rather the exception than the rule.

That we are in the vicinity of some really universal logical principle may be revealed by our failure to negate this principle in asserting something. Logical principles built into our faculty of logic and language used in communication will be principle that can only be attempted to negate by uttering some statement

which is the formal negation of this principle but in which case we have an immediate and obvious performative contradiction between the content of the statement and the presuppositions of the act of assertion going on at that time. So to say “I do believe $A \wedge B$, but I do not believe A .” is self-destructive in that the “but” works logically as an “ \wedge ” and so the statement makes sense only if both conjuncts uttered are taken to be in force by the assertion, which is what the assertion overtly tries to negate.

§3 RE-CONSTRUCTION AND CONCEPTUAL ANALYSIS

Following the linguistic turn the proper object of study of transcendental logic are the ways we linguistically communicate. The conditions of possibility which transcendental philosophy is concerned with are more appropriately taken as the fundamental conditions and norms that have to be in place to communicate with language *at all*. Examples that may illustrate this idea are a system of memorizable shared representatives (a necessary condition) and the adherence to truth (a necessary norm). Without a system of symbols that speaker and audience (roughly) share and which on occasion the speaker and audience can fetch from some memory store of linguistic representations they cannot do what we do: talk about a gone shared experience. Without striving at our assertions making true statements (in most cases) there would be no point in fitting our actions to what others say, since their assertions would not even roughly correlate with environmental conditions.

There is a multitude of discourse structures. On the one hand we may distinguish discourse types like scientific discourse – the one type typically in focus – and aesthetic discourse, which (obviously) cannot aim at intersubjectively shared truth in the sense of scientific knowledge. On the other hand we can direct our investigations not only at the structure of sentences and statements, but also on the illocutionary acts involved in making statements or the presuppositions and implicatures in a situation of cooperative communication.

One may doubt whether singling out language as the object of study leaves something essential out. Everything we are concerned with at least can be talked about. Thus there should be some way of talking the analysis of which links us to the topic in question. Not everything is language. So trivially analysis of language is no substitute for looking at the world or doing empirical science. The general features of a kind of topic (be it art, be it social institutions ...) have, however, to be expressed or be expressible within our linguistic conceptual scheme. This also holds true for feelings, sensations and acts of thought, which are often claimed to be beyond the reach of any science (cf.

Nagel 1986). Also in case of inner states and mental events, however, we talk (a lot) about them. Inner “perception” is articulated in sentences of self-report. It seems to be a necessary condition of having predicates for our psychological states that we share them with each other and are able to attribute them to one another (cf. Strawson 1959). So if we take all the reports and utterances dealing with inner states and events it is far from clear whether an analysis of this field of linguistic expression cannot yield essential insights about the structure of our mind. Just like the analysis of scientific language yields essential insights about the structure of reality, at least inasmuch as we conceive of it. Even if in the order of things reality precedes science or the intentional the linguistic – at least the latter may be doubted – in the order of scientific and philosophical understanding language and the analysis of discourse is our point of departure.

The phenomenological tradition has taken another stand on this, of course. By and large phenomenology, however, has failed to establish a shared area and methodology of research with commonly accepted substantial theories. A lot of this has, I believe, to do with its appeal to subjective insight into the essential structures of consciousness, in contrast to analysing language. Nevertheless I believe that phenomenology in the Husserlian sense should be part of transcendental philosophy, at least when it is philosophy of mind (cf. Woodruff-Smith/Thomasson 2005). Phenomenological description is an important heuristic, as it may be (even) for empirical psychologists. Phenomenological description is, further on, one way to secure or access some of our intuitions about our mind. Since the philosophy of mind deals with our mind and its aim is to reach some reflective equilibrium between the empirical cognitive sciences and our self-understanding this further approach to collect our intuitions is important and a further balance against too quick a dismissal of our folk self-understanding.

The idea of re-construction is that philosophy is not only concerned with invented formal languages or systems but mainly with our natural language and its conceptual scheme. Therefore the task of the philosopher may sometimes be to construct languages (with all the tolerance that Carnap had in mind). The task of the transcendental philosopher is to re-construct the structure and principles of natural language. Because these structures and principles are already in use the formal explication is a *re*-construction.

One understanding of Carnap’s slogan “to plan languages” and his “principle of tolerance” (cf. Carnap 1933) may see Carnap as advocating complete instrumentalism and relativism with respect to linguistic frameworks. Extreme conventionalism fails in fixing the set of (proper) logical truths: If a semantic idealist (claiming that truth can be generated by convention) believes that any convention can do, he is subject to the famous “tonk”-counterexample of absurd rules for introducing and eliminating logical connectives. An “or”-like introduction rule with an “and”-like elimination-rule yields “ $A \wedge \neg A$ ” even for consistent statements A . Non-logical truth – at least in part related to the idea of

correspondence – is not generated by convention either. Extreme conventionalism or extreme logical pluralism as a version of semantic idealism is incompatible with even mild versions of realism. There is more to the “old” Frege/Russell-theory that the laws of logic correspond to the most general structures of the world. Comparing different ways to express a universal logic is thus not idle. One of them has to be the best one. Even if all questions that we can put are questions *internal* to our conceptual scheme that does not mean that they are trivially answerable. The main problem of transcendental philosophy is that this very framework is not explicitly given. Thus we lack the representation of the framework in respect to which all structural questions are decided. The exploration of transcendental philosophy set out to *re-construct* this frame. Comparing several of these (partial) re-constructions we may improve the picture, and by improving the picture *reject* some universal logics as less appropriate renderings of our linguistic faculties. Philosophical arguments concerning formal ontology and logic might be read then as arguments to the appropriate representation of the transcendental frame.

Since the principles of the transcendental frame are already in use, and have been in use all the time, there is no independent point of view from which they may be perceived or even explained by something else. Being a condition of possibility just *means* that there *cannot* be a standpoint outside of them. Even in elucidating their workings and connections we have to make use of them. Transcendental logic thus never steps out of a *virtuous circle* elucidating the fundamental principles always in use. With respect to some forms of discourse we may take a step outside (say when we in theoretical discourse outline the principles of aesthetic discourse), but with respect to the common core principles (like distinguishing between what is said and conditions of fit) this is not possible. Transcendental philosophy so never explains the structure of language and thought by *reducing* it to something else or something more fundamental. It is rather an *elucidation* of ongoing processes and unalterable conditions. Even if within broad reflective equilibrium one may say that some principles are implemented in this or that part of the mind/brain and thus are realized in physical tokens or even types, this does not substitute for the internal re-construction of their workings.

Living in this transcendental circle transcendental logic is always self-referential and has to use a semantically closed universal language, that does not distinguish in its resources between the objects and the level of theory (object- and meta-language). This may lead to some antinomies and ultimately to some form of dialetheism, but so be it. The transcendental circle and universality are the only alternative to (Wittgensteinian) mysticism, ineffability or – rather common – ignorance of the transcendental scheme.

Formal models in philosophical logics can thus often be seen from the perspective of transcendental logic as re-constructions of part of our conceptual scheme as it pertains, say, to concepts like *belief* or *duration*. A transcendental

perspective on these philosophical logics focuses not only on their inner coherence and adequacy to some formal semantics, but tries to place these models within a reflective equilibrium with corresponding (linguistic) intuitions and scientific results.

Conceptual analysis aims at such formal presentations. It presupposes that there is some semantic structure to the transcendental framework. Transcendental arguments, arguments of conceivability and model building all aim at tracing the semantic roles and connections in this framework. Since there is this semantics and the conceptual analysis traces its workings its essential results are *analytic sentences*, one may even say that successful elucidation of the transcendental framework reveals the *synthetic a priori* principles at work in our mental faculties. Again (as with the case of the *Apriori*) nothing depends on these labels, which have had their share of philosophical bad press. Notwithstanding this conflict with current tastes the status of the principles explicated by transcendental logic is beyond those of mere empirical generalizations.

Conceptual analysis itself has had its share of philosophical bad press. In part – as with phenomenology – this might have been because of the sometimes subjective quality of its findings or musings. Extended empirical investigations and technical research certainly outstrip the means of a (couple of) researchers. Conceptual analysis seems to provide the conditions of possibility from an easy-chair perspective. Nonetheless, if there are innate concepts they are *a priori* from the individual speakers point of view. Conceptual analysis then should have a chance of succeeding (with respect to basic concepts). Some conditions of thought may be accidental (like being tailless), but nevertheless it is far from clear whether we can imagine *us* without them. For example: We may imagine how it might be to walk around with a tail, but this is far from imagining a completely different way of life (including tail fashions, tail poetry, famous tail-related historical events etc.). Thus finding the actual conditions (*simpliciter*) of thought may be the more secure way of proceeding and understanding what is involved in being human. Necessary conditions may leave out too much. Even within conditions *simpliciter* some are easily recognized as being more central than others (e.g. being able to write is more central than having two instead of three hands that might be used in writing). Empirical cognitive science therefore may go a long way towards the traditional aims of epistemology. Nonetheless – as with the case of phenomenology – conceptual analysis has to play its part in transcendental philosophy, the seeming subjectivity of some of its findings will be checked in broad reflective equilibrium with other findings and other models.

§4 SUPPLEMENTARY NATURALISM

Naturalism can be understood as the ontological thesis that everything is physical. This thesis stands in no conflict with the agenda of transcendental logic. Naturalism can also be understood as the methodological thesis that everything can be comprehensively dealt with and explained in physics. This thesis, which already falters with the complete reduction of biology to chemistry, is in conflict with the agenda of transcendental logic. Naturalism in another understanding can, however, play a great role for a re-defined transcendental logic.

As mentioned before, cognitive science tries to establish a wide reflective equilibrium that not only relates our pre-scientific intuitions (prejudices and judgements) to formal models of our cognitive abilities but takes into account the results of all empirical sciences (like neurophysiology or evolutionary psychology) that deal with (human) cognition (cf. Stein 1996). How the mind works cannot be seen from the philosopher's study alone. It also cannot be seen by taking the exclusively external perspective of neurophysiology. The philosophical contribution to this wide reflective equilibrium contains not just the formal model building, re-construction, meta-logical investigations already mentioned. It contains, additionally, conceptual analysis and phenomenological descriptions. It, further on, contains a stock of historical arguments and theories, which – maybe under re-description or new analysis – express some of our understanding of our cognition, which did not change that much since Hume's or Descartes' days. Informal logic as the study of these theories of logic or epistemology (cf. Finocchiaro 2005) has to be taken into account.

Against imperialistic methodological naturalism normativity is to stay. Our concepts of rationality in general and logic in particular are tied to the idea that we command some consequences to be drawn, some actions to be done *if* the addressee is to stick to being rational or logical. In this sense logic is – as philosophers like Kant and logicians like Frege have always stressed – a *normative science* like ethics (“an ethic of belief”). Complete elimination or reduction of the corresponding normative vocabulary to the exclusively descriptive vocabulary of a future complete physics or neurophysiology is, therefore impossible. There is no corresponding eliminativist virtuous circle like the transcendental circle. An ethnological or socio-linguistic or historical description of patterns of language use is compatible with the transcendental program. If linguistic behaviour is rule governed, a systematic description of it is adequate only if the observer has understood (and included in her description) what the standards are and how the standards are enforced. And having understood the rules governing the linguistic behaviour the individual behaviour is straight forwardly explained using these rules as (part of the) premises. The

behaviour is explained on the level of linguistic “laws”. An anti-reductionist should have nothing to complain here.

Naturalism helps out transcendental philosophy and broadens its perspective in cases where non-empirical solutions to a problem may fail or where models are proposed that are way beyond the capacities of actual humans. Cases in point – although all these examples are controversial – may be the problem of natural categories in concept building or semantical rules (cf. Hirsch 1993), the adherence to inductive generalizations or the rejection of scepticism (cf. Nozick 1993).

Empirical data on the psychology of proof (cf. Manktelow 1999) or the limits of ideal reasoning (cf. Cherniak 1986) are important to keep the models of philosophical logics and re-construction on the right track of analysing human and not angelic cognition. Empirical data and psychological theories of, say, irrationality may account for cases that otherwise would have to be considered as counterexamples to philosophical theories of rationality.

Naturalism understood in this way is a *supplementary naturalism*.

Some strange (supposed possible) languages (e.g. with widely disjunctive or infinitary rules) are to be rejected since we *are* built as we are built (i.e., our language faculty *is* structured in some definite way). And the structures of our language faculty (especially our habits of categorizing) do not allow such strange languages. We have to consider them strange. So supplementary naturalism would describe the standards of our categorization behaviour: Evaluations what speakers consider strange explain why there are our semantic categories and not the deviant categories. Supplementary naturalism can explain what we do according to the standards it *describes*. It leaves the rationality of our behaviour intact. Explanation occurs *within* the linguistic framework taken for granted.

A traditional transcendental philosopher may ask: “Now, *why* are we built this way?” This criticism – framed as a question – misses the whole point of “going naturalistic”. Supplementary naturalism is pursued when *a priori* arguments to solve some problem have failed. Their failure is the basic reason that only a naturalistic account – instead of a sceptic agnosticism – can answer to the problem. To go naturalistic *means* that one is referring to facts or describing facts which cannot be questioned further. Further inquiries stemming from the philosophical easy chair have to be rejected in favour of systematic descriptions or empirical investigations of our linguistic faculties (e.g., in cognitive science). Naturalism might even try to give an explanation of our behaviour by referring to facts *outside* of the way of life described. These explanations no longer answer to the questions put *within* our way of speaking and acting. Seen from this perspective of participants in our way of speaking we might leave behind this kind of stronger naturalistic investigation altogether. Knowing why we are biologically or neurophysiologically build the way that we are build *might* be of

no great relevance to the questions raised. Naturalism *might* also be pursued with respect to a further investigation in the natural history or the causal antecedents of our (linguistic) behaviour. In a wider scientific perspective on linguistic behaviour we probably might be interested in reductionist explanations. Nevertheless supplementary naturalism seems to be a first option. The merits of supplementary naturalism are not appreciated by conflating it with methodological naturalism or eliminativism. As a result of such a conflation fanciful philosophical doctrines are developed to “avoid naturalism”. A comprehensive theory of cognition should comprise both transcendental logic and the empirical cognitive sciences in wide reflective equilibrium.

§5 TRANSCENDENTAL ARGUMENTATION

Transcendental argumentation does neither aspire to refute “the sceptic” nor does it present a standard of argumentation that outdoes all other justifications (cf. §3).

Transcendental arguments are often thought to be arguments of a special kind. Typically regressive transcendental arguments (working toward the presuppositions of an uncontroversial given) are distinguished from synthetically progressing arguments (achieving an expansion of an uncontroversial given by some dialectic). Leaving refuting scepticism, the idealistic jump from conditions of thought to “objective” conditions and the strange dialectics of Fichte and Hegel to the side one can see the starting point of (regressive) transcendental argumentation as working from given facts of communication (like “I address an audience in a situation by claiming as true ‘Sheep are mammals’.”) to the conditions and rules that are to be presupposed in these communicative encounters. These conditions and rules, which we may call “structures” of linguistic communication, have to be in force for that communication having a chance to be successful (which in the example given may contain informing the audience of the fact that sheep are mammals and/or secondary that the speaker at least believes that sheep are mammals and/or tertiary that the speaker at least believes that “is a mammal” is a predicate in a language shared with the audience and/or ...).

Inasmuch as transcendental logic tries to re-construct the structure of our transcendental conceptual scheme it is not concerned with a mere description of conditions, set-ups or grammar (as some parts of linguistics are). Transcendental logic tries to establish that some structure cannot be taken away at all, for any (natural) language whatsoever. Transcendental argumentation in this way tries to show that some structures, doing their work in the observed cases, are also *necessary* structures, being required by all cases to be observed in the future or imagined in some other *possible world*. The crucial step, therefore, is to show

If “available” means “it is not possible that there is a C such that ...” then (iv) follows from (iii). But how could we ever establish (iii)? If we leave it open whether there *are* no further options besides those we have explored the second type of argument has an element of inductive argumentation to it. The fundamental ingredient is to argue by *exhaustion*. We consider a couple of (supposed) alternatives, but none of them fulfils the job of B or not to a degree sufficiently close to the workings of B. We suppose that we have looked at an appropriate arsenal of candidate options, and we ascertain that there is no unanswered reasonable doubt that we have overlooked some important candidate option. From this then we conclude (by exhaustion) that B is the only thing that can take the role under consideration. So B is not just a condition we hit upon, but a necessary condition.

Ways to proceed may be generating or collecting (from folklore) a couple of analytic hypothesis or formalisms (say axiomatizations involving the crucial concepts) first and confronting them with the functional requirements to be met. One may also try to come up with an alternative by first isolating the exact function of B and then working towards another way to fulfil it. Thought experiments have their (limited) role to play here as well.

The informal structure of transcendental argumentation thus comprises:

- (i) taking stock of *our intuitions*
- (ii) evaluating (in the philosophical literature) *inherited preconceptions*,
- (iii) following or proposing conceptual connections (fixed in *analytic hypothesis*),
- (iv) building (formal) *models*,
- (v) considering *alternative options*, making use of thought experiments,
- (vi) making use of *informal argumentation* (like diagnosing *performative contradictions* if ever someone argues against the presuppositions of illocutionary acts),

being elaborated further by

- (vii) formalization and (algorithmic) implementation wherever feasible

and being finally strengthened by

- (viii) a supplementary naturalism taking given human nature into account.

Once one has established some structure as necessary its elucidation will yield further results. Thus the theses that language is our principled access to a socially shared (objective) reality and that our language can be given some formal representation immediately transform corresponding meta-logical results into epistemological theses about the form and the limits of our cognition. The four cornerstones of the edifice of a redefined transcendental logic might thus be: representationalism (in the computational theory of mind, including

transformational linguistics), the *Church-Turing-Thesis* (that Turing-computability is equivalent to our intuitive concept of computability), *Montague's Thesis* (that there is no fundamental distinction between natural and formal languages) and semantic closure (requiring some paraconsistent universal logic).

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