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Dialectical Logic and Indiscrete Models¹

CHARLIE DONAHUE*

These laws [of logic] are the work of thought itself, and not a fact which [thought] finds and must submit to.²

G. W. F. Hegel 1830

Why are the objects that we want to take into account in dialectical logic not severally independent [isolated] things? What is there to relate entities internally as distinct from externally?³

Kerruish and Petersen

[With classical logic] the objective state of affairs is determined before we start reasoning.⁴

Kerruish and Petersen

It might be argued that if α is a state, then all the information that is relevant to possible transitions is contained in α alone.⁵

J. M. Dunn

Uwe Petersen⁶ offers a unique perspective on the philosophical significance of substructural logics.⁷ He argues that such logics encourage us to revisit Hegelian dialectical theses. The dialectical features that interest Petersen reside in proof theory. I note that these proof-theoretic characteristics have correlates in a certain class of models for non-classical logics.

Ternary operations on indices play a prominent role in the models for many deviant logics. Michael Dunn embraces an uncivilized interpretation⁸ of such operations — the resulting monsters provide our correlates.⁹

*University of Massachusetts at Dartmouth, cdonahue@umassd.edu. Notes are at the end.

1. Some basic themes of dialectical proof theory

Petersen has written extensively on dialectical logic. He focuses on some flaws in classical thought.

- Classical thought assumes that objects¹⁰ are severally isolated and independent

Which objects? That will soon be clarified in two ways: proof-theoretically and model-theoretically.¹¹ Proof-theoretically these turn out to be something like ‘bundles of information’; model-theoretically — indices in a model. This classical prejudice towards only such isolated, independent objects — manifests itself in a restriction to only external relations.¹² The cure requires the recognition of internal relations¹³ between objects.

- Classical thought misses the inescapable double character of conceptual thought — concealing a systematic ambiguity¹⁴

Gödel numbers provide an example of this ‘duality of function’. One and the same formal entity can play two roles — functioning as “a innocent number” and (simultaneously) as “a hieroglyphic behind which a complex proposition is hiding”.¹⁵ The point could as well be made with certain classical conundrums — for example that arising from Frege’s conception of a property.¹⁶ Ternary relations on indices present the possibility for the correlated — model-theoretic duality of function — such that one index may play two roles simultaneously.¹⁷

- Classical logicians deal with wffs as types — not as tokens.

And:

- Classically — proofs are thought of as objects — not as acts.

Proof-theoretically the structural rule contraction (among other things) guarantees that formulas will be taken as types and that proofs will be taken as objects. Dropping contraction will allow formulas to be taken as tokens and proofs to be taken as acts. Model-theoretically — reasoning transcendent truth (RTT) is the assumption that whatever adjudicates our semantic assignments is fixed before any semantic analysis can commence. David Kaplan’s rejection of ‘monsters’ and Graham Priest’s requirement of ‘explanatory grunt’ in any semantics for ternary operators display fealty to RTT.

1.1. How could internal relatedness be manifested proof-theoretically?

The answer comes from the substructural analysis of logic. Gentzen's sequent calculus substructural logics¹⁸ allows for the *explicit recognition* of the role of structural rules (that recognize various ways of bundling premises) along with operational rules for the logical constants.

Neglect of premise combination¹⁹ amounts to the *unstated* assumption that premise combination always follows set union — which is associative, commutative, extensional and idempotent. That in turn builds in structural principles such as associativity, commutation, weakening²⁰ and contraction. And that in turn restricts the sorts of information expressible in our logic. The deduction theorem transfers the properties assumed for premise bunching to the conditional. Proof-theoretically internal relatedness arises once we drop the structural principle called 'contraction'.

We will find that internal relatedness is expressed model-theoretically when the indices (worlds) are no longer required to be discrete²¹ — as is required with any robust ternary operator.

1.2. Why be contraction free?

One particularly interesting²² feature of the substructural approach is that the very same rules can be used for the operators in logics which are classical, intuitionist, relevant, linear and so on. This is remarkable because combatants on both sides of philosophical arguments — such as over realism — have standardly agreed that the rubber meets the road in adjudicating *which* are the *correct* definitions of the logical constants.

It turns out that there is a deeper issue than operational definitions — What are we willing to countenance as information? More specifically: How are the premises to be bunched?²³ And that, in turn, is determined by which differences in structural rules are condoned.²⁴ Those different assumptions about the possible structure of information reflect differences over 'how inference in the abstract is to be structured'.²⁵

As an example consider the relevant objection to classical logic. In the end it has to do with whether or not we adopt weakening.²⁶ We were all wrong to assume that differences over the operational definitions of the logical operators are required to individuate logics.

One structural rule plays an especially important role with respect to a dialectical revision — contraction: (according to which) if a conclusion

follows from two assumptions of the same thing then it follows from just one. Linear logic is distinguished in that it drops contraction (along with weakening). In linear logic — formulae are taken as *concrete resources* whose multiplicity has to be taken into account.²⁷

Here are some²⁸ sorts of reasons in favor of abandoning contraction:

- The absence of contraction is a safeguard against the property theoretic paradoxes.²⁹
- The logic of information flow clearly requires relinquishing contraction.³⁰
- Jacques Dubucs and Mathieu Marion³¹ offer a new anti-Platonism that eschews Michael Dummett’s (in principle) effective assertability conditions for conditions that are feasible in practice. This feasibility cannot be expressed by any Platonist conception of proof. In particular their feasibility requires the rejection of contraction.
- Resource consciousness: contraction free systems can display the ‘cost’ of running programs.

What is most relevant to the present investigation is that if contraction is rejected we can make sense of the transition to thinking of wffs as tokens (not types) and to proofs as acts (not objects).³²

By constraining discharge of hypotheses to be exactly up to one occurrence, namely to be both mandatory and unique, one takes up logic towards a fine-grained taxonomy of the activity of justification; justification is now analyzed act by act, and no longer by reference to undifferentiated types of acts.³³

Jacques Dubucs

2. Model-theoretic correlates

Let’s preview the correlations between dialectic proof and model theory:

Proof theory rejects the assumption that objects are severally isolated and independent. \Rightarrow The indices of models need not be discrete.³⁴

- The isolation is repaired by recognizing an ‘internal relatedness’ between bits of information. \Rightarrow We drop the assumption that the information³⁵ at a given state (world) is (by itself) sufficient to express all possible transitions.³⁶
- We reject contraction which allows for reading wffs as tokens and proofs as acts. \Rightarrow The internal relatedness that corrects the classical isolation can be expressed by a robust ternary operation (which appreciates indices as tokens).
- Conceptual thought has an inescapable double character — concealing a systematic ambiguity. \Rightarrow An inevitable duality of information (data) and computation (programs) violates types restrictions.

One way to present this is to apply Dunn’s insights to a certain interpretation of modal logics with ‘actually’ operators. First we need a few words about ternary operators for relevant and two-dimensional logics.³⁷

3. Ternary operators

It does not matter what takes the place of the seeing-relation among players, so long as it is some kind of dyadic relation.³⁸

G. E. Hughes and Max Cresswell

Indexed logics³⁹ provide for the evaluation of any given wff at distinct indices or points. The classic example is, obviously, the standard modal logics — which allow wffs to be evaluated at different worlds. A number of assumptions were built into the original Kripke-style modal logics. Worlds were assumed to be consistent and complete. Relevant logicians like Richard Routley correctly railed against the expressive limitation of this. But there were more subtle assumptions. The worlds in the classical systems were assumed to be discrete. The full appreciation of what constitutes discretion with respect to indices will emerge.

3.1. Relevant B logics

It is obvious that anyone interested in relevance will not want $q \rightarrow (p \rightarrow p)$ to be valid. If our semantics is restricted to only binary relations we are in trouble. Why?

A binary relation would inevitably introduce irrelevance because since $p \rightarrow p$ is true in all worlds $q \rightarrow (p \rightarrow p)$ would be valid.

The whole motivation for the relevant inference tickets is to liberate the conditional⁴⁰ from the narrow paradigm according to which it requires an extensional reduction. For the first time information about one (formal) situation can give us information about another situation. That is indiscrete.

The system B gets *more discriminatory ability* by defining the conditional via the ternary relation — allowing the exploitation of the conditional at non-normal worlds under specified conditions. Normality conditions are stipulated which guarantee that the base (normal) world does not fully exploit the ternary relation. Basically what we are doing is allowing for a range of conditions to apply to the non-normal worlds while quarantining their effect such that they do not infect the normal world. The general effect of restrictions placed on the accessibility relation R in B logics is to block potential counter-examples in the ternary framework — allowing more valid forms to blossom.

The interpretation of such ternary relations is an extremely divisive question — and an extremely important one.

3.2. Discretion is violated by the inclusion of robust ternary operators

This is how discretion is violated by the inclusion of (robust) ternary relations.

Any ternary relation challenges⁴¹ the possibility of restricting our semantics to *just* external⁴² relations between worlds. Why?

Given just worlds 1 and 2 (at a time) — they can relate to each other (or not) but given 1, 2 *and* 3 — a new possibility opens up. One of these, in addition to being a discrete individual, can index sets of ordered pairs thus introducing something *beyond* an external discrete relation.⁴³

This is where the distinction between robust and anemic ternary operators comes in. Anemic relations are those which are constrained just so that they cannot violate discretion. The cost is in expressive power.⁴⁴

Dunn’s interpretation of ternary relations is robust. We introduce ‘actually’ enriched modal languages first. The reason is that the application of Dunn’s interpretation of ternary relations is particularly interesting when applied to the ternary operators that most naturally express (robust) two-dimensional logics. See appendix I for some of Dunn’s own words on ternary relations. I will return to his insights below. First an ‘actual’ argument.

4. How to ‘actually’ avoid being too-much-of-this-world

The key problem for any modal logic with an actuality operator⁴⁵ is how to get generalizations of such principles without submitting to ethnocentrism — being too-much-of-this-world.

David Lewis offers a rebuttal to a possible rejoinder by Saint Anselm to one of his objections to the Ontological Argument. We generalize his argument to any instance of actualizing a modal principle.

- i. You have a metaphysical principle that you propose to *actualize*.⁴⁶
- ii. With the *wide scoped* reading of the actuality operator the principle loses its status as a necessary truth — but it is required to keep that modal status if it is to secure its metaphysical pedigree.
- iii. That is, if the actuality operator’s influence does not transcend the wide scope necessity operator it cannot solve the puzzle. But it is impotent if narrowly scoped.
- iv. It appears that the *only* generalizations possible either do nothing or get you back to ethnocentrism.⁴⁷
- v. Thus actualization must be rejected.

Lewis’ objection *does* indicate⁴⁸ why a one-dimensional analysis of ‘actually’ cannot work. Scope can’t cope.⁴⁹

But the conclusion — which is not explicitly stated in full generality⁵⁰ — is clearly too strong — it requires that we can *never* generalize on any actualized philosophical principles.⁵¹ That is an extremely heavy conclusion. Lewis simply assumes that he has considered *all* possible generalizations. This is false — *unless* we assume that certain very general features⁵² of classical model theory cannot be up for revision.

Lewis does not state premise (iv.) but without it his argument does not go through. According to (iv.) that there can be *no* generalization

that does the trick — transcending the power of the necessity operator (required to solve the puzzle) *without* losing modal generality.

This amounts to blocking the use of actualized modal principles from *ever* having general philosophical application. That ought to draw extreme skepticism from philosophers.⁵³ But it did not since this analysis is nourished by a more profound (deeply concealed) prejudice.

David Lewis later introduces a sort of pluralism that avoids this criticism. That pluralism is open to different criticism due to an unwarranted reliance on realist assumptions.⁵⁴ That argument is beyond the scope of this article. For now I simply claim that the proper generalization of ‘actually’ in modal contexts is achieved by adopting a two-dimensional logic.

There are (at least) two kinds of two-dimensional logic — anemic and robust. The latter emerges from Dunn’s analysis of ternary relations.⁵⁵ That will be our correlate to the proof-theoretic dialectical theses above.

5. The two-dimensional fix

A new two-dimensional modal operator is required. It reads ‘at *any* world *j* — with *j* taken as actual’.

That new operator is best represented via a ternary relation. It adds to the binary relations (used in standard Kripke modal logics to express *external* relations between worlds) a new point or world (for the perspective). As noted above the formal move to a ternary relation opens up the possibility to go beyond external discrete relations between worlds. A robust ternary operator exploits this possibility — an anemic one invokes a restriction forbidding that expressive power.

The third point has an inescapable *duality of function* because it picks out a certain world (as does any point) but *at the same time* it functions as the initiator of sets of worlds as actualized by itself. It does this by indexing sets of ordered pairs. This clearly violates types restrictions. Dunn will celebrate this.⁵⁶

A sufficient condition of distinguishing between anemic and robust ternary relations is the violation of Åqvist’s constraint⁵⁷ — according to which: If any two points differ *only* with respect to their perspectival coordinate then they must agree on their assignments to atomics.

Kaplan's insistence on avoiding monsters is an instance of an abiding faith in Åqvist's constraint.

The liberating effect of giving up the classical faith . . . is immense.⁵⁸

Richard Routley

6. Applying Dunn's insights on robust ternary operator to 'actual' logics (beyond civilized functions)

Dunn's analysis can be applied to a ternary relation for an 'actual' two-dimensional logic. The new index in our ordered triples is for the perspective world — 'the world taken as actual' at some point in an interpretation. All worlds get a shot at that role — thus ethnocentrism is avoided. But for any particular such triple the world in that new perspective position is indiscrete in that it enjoys a special second role (besides the one all indices fulfill of representing some particular situation) — that of *indexing* the following ordered pair of (standard) worlds. This duality of function is ineliminable if we are to have a robust ternary operator with maximum expressive power. This clearly amounts to indiscretion — a non-external relation — and a violation of types restriction.

It also introduces what we might call 'a participatory ambiguity'. The ambiguity consists in the fact that there is a choice that *has* to be made as part and parcel of any semantic assignment. This is a clear violation of the principle of what we will come to call the assumption of 'reasoning transcendent truth'.

6.1. Dunn's ineliminable duality of function violates types restrictions (See Appendix One: i.–iii. and v.)

The perspective index in the robust ternary operators in two-dimensional system is required to fulfill two sorts of role at one time. Thus we get the duality that violates types.⁵⁹

6.2. Dunn's indexing of binary relations cannot condone severally isolated and independent objects (See iii.)

Again the robust perspective index cannot remain discrete — which is to say the indices cannot remain isolated and independent.

6.3. Internal relatedness is expressed in the logic. (i.–ii.)

The ineliminable relatedness is obvious. Consider $\langle 3, 5, 3 \rangle$. The first index represents some world — say the world where all investment bankers are deeply altruistic. The third index, obviously, represents that same world. But back to the first index: It has a second role — it indexes sets of ordered pairs — all those for which world 3 is taken as actual. This cannot be expressed via external relations.

6.4. Indiscretion (iv.)

The internal relatedness manifests indiscretion — which, in turn, is motivated by reasoning transcendent truth.⁶⁰

6.5. Robust versus anemic (i.–v.)

Lindström’s system is anemic. That of Rabinowicz and Segerberg is robust. Let’s check that out.

7. Rabinowicz-Segerberg vs. Lindström — A case study in robust vs. anemic ternary relations

Variable-perspective operators are rather peculiar concepts, from the philosophical point of view.⁶¹

Rabinowicz and Segerberg

F. B. Fitch famously argues that verificationism entails the absurd thesis that: all truths are known.⁶² Wlodek Rabinowicz and Krister Segerberg (1994) and Sten Lindström (1997) offer rejoinders. Each reply relies on a two-dimensional logic — but on very different sorts of two-dimensionality. Their distinct approaches exemplify the distinctions between discrete and indiscrete models (and between robust and anemic ternary relations).

Rabinowicz and Segerberg show clearly how an intuitive actualization of the puzzle will collapse⁶³ for exactly the same reasons that David Lewis first rejected such an approach. Then they go two-dimensional introducing a variable perspective operator — evading Fitch’s puzzle. Lindström later tries to solve the problem with a perspective operator — but one that remains fixed within any interpretation. This marks the difference between approaches that might be call ‘civilized’ (Kaplan; Lindström) and ‘monstrous’ (Rabinowicz; Segerberg). The details are fairly complicated⁶⁴

— I am going to try to indicate what it is about the two approaches that makes the former a paradigm of discretion and the latter a paradigm of indiscretion.⁶⁵

A first indication of indiscretion comes when Rabinowicz and Segerberg offer the following intuition:

A formula says something *about* the reference world, but *what* it says is partially determined by the world of perspective.⁶⁶

An external-only restriction on the relations between indices in a model disallows just this sort of interference with the (internal) content of a given point. That is discretion.

7.1. Civilized functions

Lindström’s accessibility relations are based on ‘civilized’ functions:

For any formula in Lindström’s language, its semantical interpretation with respect to a particular model is a function from perspectives to propositional contents.⁶⁷

Within any given interpretation — for example, any indexical constant such as ‘this world’ will point to an already designated world — whether that be a given reference world (picked out by that interpretation) or a (fixed) perspective world. In order to understand what makes this ‘civilized’ it might help to see how the Rabinowicz-Segerberg monsters work.

7.2. Monsters

Rabinowicz-Segerberg explain why their account could not be expressed in what I am calling a ‘civilized’ manner:

Our epistemic operator, unlike the one he [Lindström] allows, cannot be seen as representing *any* operation on propositions understood as sets of worlds. Nor can it be interpreted in terms of a function from perspectives to such operations.⁶⁸

There are two ways in which this demonstrates important distinctions between the systems of Rabinowicz-Segerberg and Lindström: they rely on different notions of propositions and most importantly the former require indiscretion while Lindström remains discrete.

7.3. Di-Propositions

Philosophical analysis during the Kripke-Lewis-Kaplan reign was expressed almost exclusively in terms of what came to be known as UCLA propositions — sets of pairs of worlds.⁶⁹ Models for different logics are *fully* distinguished by various sets of binary relations on pairs of worlds. That amounts to the assumption of discretion — the assumption that the indices or worlds in a modal model can *only* have external relations to one another.

The standard assumption in classical modal logics is that a proposition corresponds to a set of possible worlds. Then the modal operators operate on sets of worlds. This seemingly innocuous formal stipulation blocks indiscretion (such as is found with variable perspective operators).

But there is an alternative. Di-propositions — are sets of ordered pairs of indices.⁷⁰ These are utilized in the Rabinowicz-Segerberg system — expanding expressive power.

What is important to note is that to simply *assume* that propositions should be treated in the classical way is to rig the game. It is similar to simple *assuming* that the indices for modal reasoning generally — can be consistent and complete worlds. Another example — simply *assuming* — that the philosophical deck is not stacked by simply assuming that the only sorts of information that we ever need to attend to correspond in structure to set theoretical union.

It is impossible to view this operation on sets of states as a function from perspectives to operations on sets of worlds.⁷¹

Rabinowicz and Segerberg

7.4. The Rabinowicz-Segerberg criticisms of Lindström

Lindström utilizes the distinction between *de re* and *de dicto* claims — here with respect to situations. Rabinowicz and Segerberg show that Lindström is unable to keep these categories logically distinct — undercutting any explanatory advantage that distinction might have had for them. The *de dicto* interpretation immediately runs into trivialization. So does the *de re* interpretation *if* the language is to have the power to express such straightforward claims as:

This (situation) is the actual world.

Given such a claim the Lindström verificationist cannot stop a collapse into total knowability (a god-like perspective).

There are a number of further criticisms of Lindström — but even if the *only* one were concerning expressive power — why should a fidelity to reasoning transcendent truth trump that?

What is distinctive for the present proposal is that we give up the idea of a fixed actual world (the designated point) and replace it with a variable perspective.⁷²

Rabinowicz and Segerberg

7.5. Motivation for discretion

At the end of the day what is the motivation for discretion? It may have something to do with a fidelity to truthiness. (See section 9.) But I suspect an even deeper inspiration is a faith in reasoning transcendent truth — the ultimate realist dogma.

8. Anti-Realisms: an application

There has long been a criticism of Michael Dummett's anti-realism that goes like this: He objects to the idealization that is required to explain the grasp of verification-transcendent truth conditions. But Dummett may run into a very similar problem with the grasping of his assertability conditions.

According to the intuitionist a sentence P can be said to be true just in case there is⁷³ a constructive proof.⁷⁴ But there is a notorious open question here. For example, with respect to mathematics:

- Does understanding require an actual proof or *merely* an effectively decidable (possible) proof?⁷⁵

In the former case you seem to be stuck with the restrictions and problems⁷⁶ of the strict finitist.⁷⁷ But — in the latter case the realization of the conditions for understanding seem to face just the same sort of (idealization) objection, as does the realist account of meaning.

Dubucs and Marion argue that an inert⁷⁸ notion of ratification needs to be replaced by a more effective notion of feasibility if the anti-realist is not to be caught by his own objection against realism. Their radical anti-realism does not abide Dummett's notion of grasping assertability

conditions via some method that is *merely* effectively decidable (in principle). Rather the grasp of assertability conditions needs to be feasible in practice.⁷⁹ Such feasibility cannot be expressed via an intuitionistic logic. Why?

At this point J. Dubucs and M. Marion jump in with an interesting insight: Intuitionist logic is just as infected with a certain sort of Platonism, as is classical logic.

A Platonist conception of proof as an object⁸⁰ sees any proof as just as an assemblage of strings of symbols satisfying certain principles — that is formulas are taken to be types and proofs are taken to be objects (worked upon from the outside). What makes intuitionist proofs Platonist in this sense is the fact that they (like classical logic) embrace the structural principle of contraction — which forces one to treat formulas as types.

For Dubucs and Marion feasibility cannot be expressed via any sort of Hilbert-style calculus — we need to embrace a substructural logic — preferably linear logic (which drops contraction as well as weakening). One characteristic of such a resource-conscious substructural logics is that they can be seen as treating formulas as tokens rather than as types. Another is that a proof is more like an act than an object (some of whose properties the logician simply ratifies). The Platonic notion of proof-as-an-object is satisfied with the notion of decidability-in-principle — an idealized notion to be sure. On the classical view our activity is reduced to that of ratification, which does not require any particular cognitive resources.

There are two prongs to the Dubucs-Marion solution to Dummett's problem:

- A feasibility system (via actual cognitive resources) — which is to be based upon
- A contraction-free logic

One might object to the feasibility approach in that its emphasis on actual cognitive capacity forces a sort of real-world logic that sacrifices the modal generalization we have come to appreciate in our meaning theories.⁸¹ If so one should note that contraction free logics offer *more* than resource consciousness. Contraction free logics open up the possibility for participatory semantics — liberated from the assumption of RTT — the systems can enjoy a genuinely relational semantics such as those that utilize robust

ternary operators or recognition of the possible significance of repetition of ‘the same’ piece of information.

Clearly one can be contraction-free without embracing the feasibility approach. It is only because Dubucs and Marion assume that they have an epistemic obligation that they are forced to go feasible. Just like with (some) metaphysics — (some) epistemology assumes that we can only act⁸² (externally) on a product that is severally isolated and independent.

The assumption that I call ‘reasoning transcendent truth’ (RTT) is the methodological constraint that would block Dunn’s use of *dual* role for the third (‘perspective’) index in his analysis of ternary operators. The same violation occurs with the robust ternary relations used in two-dimensional analyses of ‘actually’ in modal contexts. These are examples of the ‘monsters’ that David Kaplan abhors.

The underlying rationale is that — whatever adjudicates our semantic assignments — must be fixed before any semantic analysis can commence. This is model-theoretic correlate of contraction.

Given such an assumption we are obliged to provide an account of the linkage to that pre-fabricated Platonic reality. But if we define anti-realism via rejection of reasoning transcendent truth — we can avoid such a commitment.

With a contraction free logic we can get not only tokens (instead of types) but also we get for the first time a participatory logic rather than a reasoning transcendent truth type logic. We don’t have to *explain* grasping the preformed semantic entities ‘from the outside’ — we get access to them for free — do to the truly relational nature of the semantics.

The common core of dialectical proof and model theoretic liberations suggests a new cutting of philosophical boundaries — under what (for want of a better name) we might call informationalism. Notoriously classical modal logics generated metaphysical garbage. But there is epistemological damage as well.⁸³ Once you have contraction free (indiscrete) logic — you no longer have the Platonic baggage which requires metaphysical and epistemic connections. We avoid the struggles over how to account for the practical feasibility. That is because: We are already in the game.

... one can clearly identify the structural rules responsible for the vestiges of Platonism that are still present in intuitionism.⁸⁴

... the traditional anti-realist ... pays too much tribute to a «platonician» conception of mathematical inference: according to this conception ... objects may be likened to documents ... already written, perhaps never read by anybody ... [which] could not be affected by limits of the cognitive capacities of the agents.⁸⁵

Jacques Dubucs

A proof is, not an object, but an act.⁸⁶

Per Martin-Löf

8.1. World theory builds in discretion

In the first class of the first day of graduate school I asked my professor if he could help me choose between two different possible readings of a difficult passage.⁸⁷ After staring at the passage for a long time he handed it back to me and said that he could only grasp the proper meaning of any text involving such modal expressions once it had been translated into world theory.⁸⁸ ‘World Theory exposes the meaning of any philosophical discourse’.⁸⁹ Alas world theory guarantees a sanctuary for all the prejudices of the ubiquitous modal philosophical analysis of the latter half of the last century. Chief amongst those is the assumption that models must be discrete and that reasoning transcendent truth cannot be violated.⁹⁰

Restall pointed out:⁹¹ The support between a *point* and a *proposition* need not simply codify information *about points*. It can yield an account of the information carried *by* points.⁹²

Not only is world theory not the Rosetta stone for philosophical analysis — it conceals deep prejudices which are manifestly unwarranted and which dramatically restrict expressive power. For example — it condones philosophical pseudo problems. See the reincarnation of essentialism in metaphysics and the epistemic over-reach noted in the rejoinder to Dubucs and Marion.

9. Graham Priest’s depraved ternary relations⁹³

What does the ternary relation mean ... ?

It is difficult to give a satisfactory answer to this question.⁹⁴

Graham Priest

Days before finishing this note I received Graham Priest’s: *Is the Ternary R Depraved?* It offers a stark contrast with Dunn’s take on ternary rela-

tions. First note that even as he used them for relevant B logics in his text on non-classical logic Graham Priest expressed philosophical misgivings about ternary relations. The point of the new article is to address what Priest takes to be the most important objections to the Routley-Meyer semantics for relevant logics.

Just as with modal logic — relevance logic first emerged via proof theory. Many argued that the rebel logic required a model theory to achieve legitimacy.⁹⁵ Soon Richard Routley and Robert K. Meyer developed a model theory for relevant logics.⁹⁶ Two objections arose — one to the Routley-star semantics for negation and the other to the ternary operator utilized for the conditional. B. J. Copeland⁹⁷ led the second attack. Priest is here responding to that attack — by arguing that the Routley-Meyer semantics can be given an informal interpretation that makes them clearly depraved (genuinely semantic).

Priest claims that a logic can be seen as a system that looks at possible patterns of symbols — constrained by certain formation rules.⁹⁸ What the logic does is distinguish between those patterns which are valid and those which are not. But Priest insists that a logic cannot be satisfied in just making this distinction. It must also explain *why* certain patterns are worthy and others not. For Priest, an impure or depraved semantics must be given in terms of ‘genuinely semantic notions’. Obviously, Priest has clearly not jumped on the emerging inferentialist⁹⁹ bandwagon.¹⁰⁰ If depraved semantics are required then inferentialism appears to be dead.¹⁰¹

Ternary relations (such as those used for relevant B logics) have frequently been met with skepticism — even at one time by Priest himself.¹⁰²

Priest concedes that we need a ternary operator for the relevant conditional which is expressed via a segregation of worlds into the normal and the non-normal worlds — via a functional relation.¹⁰³ So far so good.

But then Priest argues that the semantics needs a little depravity in order to get their explanatory grunt. And where better to find depravity than in the actual world.¹⁰⁴

The key to achieving his grunt is that Priest defines the notion of ‘holding in an interpretation’ in terms of a fixed perspective constant.¹⁰⁵

The original Routley-Meyer semantics did not include a designated world. Priest adds such a world @ which he says represents the situation about which we reason.¹⁰⁶ He claims¹⁰⁷ that the inclusion¹⁰⁸ of a base world in his semantics ‘makes no difference to what is valid’. That may

be true for the interpretation that is his quarry — but it certainly is not true for models in general.¹⁰⁹

One concern is the way that @ constrains possible semantics. The designated @ plays a significant role in delivering depravity — it ties the semantics to the actual world — more importantly it keeps that ground sacred — it cannot permute. Even assuming that that is required for *this* notion of ‘justifying’ the semantics — it comes at a cost in terms of general expressive power.

An inferentialist obviously is required to justify her explanation of how the meanings of the logical operators are explained proof-theoretically (avoiding Arthur Prior’s tonk objection). If such an effort succeeds — Is it not reasonable to assume that there will be a model-theoretic correlate? *If so* it would clearly have to follow Dunn’s (and not Priest’s) account of ternary relations.

Greg Restall and Graham Priest are clearly two of the finest philosophers on the planet today. The following issue divides them:¹¹⁰

Is it required that the notion of validity be explicitly formulated in terms of the notion of truth?¹¹¹

Consider a recent definition from Restall:

An inference is valid if it is logically incoherent to assert all the premises and deny all the conclusions.¹¹²

Notice that this definition does not even implicitly involve the notion of truth. This is Priest’s concern. He charges Restall with ‘glossing the notion of validity.’ Does this rest on something beyond faith in reasoning transcendent truth?¹¹³

Validity has got something intrinsically to do with truth.

Graham Priest

R0 says¹¹⁴ that, in the situation about which we are reasoning, \rightarrow really represents the entailment relation.¹¹⁵

Graham Priest

If the ternary relational semantics is to justify the fact that some inferences concerning conditionals are valid and some are not, then there must be some acceptable account of the connection between the meaning of the relation and the truth conditions of conditionals.¹¹⁶

Graham Priest

There is not merely a plurality of correct theories and of more or less satisfactory world-views: there is a corresponding plurality of actual worlds . . . There is an actual world, which is suitably external, mind-independent, perceiver-independent, and the like, but it is not unique.

Richard Sylvan

Appendix I: Dunn on ternary relations in relevant logics

- i. Here is Dunn on the interplay between the static and the dynamic representing the duality between information and computation demonstrating a profoundly relational quality:

By $R[A]$ let us mean the set of relations determined by the states in A . Suppose we have two such propositions A and B . We can then do various things with $R[A]$ and $R[B]$. For example, we can take $R[A]$ and “*apply*” it to B , getting all the states we can get from B using the relation in $R[A]$, treating A as a *program* and B as *data*. This is the key to modeling combinatory logic.¹¹⁷

- ii. Again connecting the implicit relational character and duality of function:

This uses *only* the *implicit* relational character of A .¹¹⁸ But we can use the *implicit* relational character of A and B , taking the relations in $R[A]$ and the relations in $R[B]$ and forming their relative products in all possible ways. This is like viewing *both* A and B as *programs*, and *composing* A with B . This is the key to representing relational algebras. Lyndon showed that relational algebras cannot be represented in the natural way by taking elements to be relations. We in effect show this can be done one type-level higher, by taking elements to be *sets* of relations, i.e., a “relational database.”¹¹⁹

There is thus a doubling of form. At one time it is reflected into itself; and then it is identical with the content. At another time it is not reflected into itself; and then it is the external existence, which does not at all affect the content.¹²⁰

Hegel 1830

- iii. Again on the ineliminable duality:

One can think of each [indexing] state ρ as having a dual nature, first as a state and second as determining a binary relation $R_{\rho\alpha\beta}$ between

states α and β . This can be given the “philosophical” reading: “the pair $\langle \alpha, \beta \rangle$ *exemplifies* the relation (determined by) ρ ”.¹²¹

Each world in the model can be inert but the indexing world “can be turned in for the set of relations determined” by its index and “those relations can of course be regarded as taking states to states. So A is *at the same time* quite dynamic.”

‘True’ and ‘false belong among those determinate notions which are held inert and wholly separate essences, one here and one there, each standing fixed and isolated from the other . . . [but] truth is not a minted coin that can be given and pocketed ready-made.¹²²

Hegel 1807

iv. Indiscretion:

I wish here to give the main idea. Suppose we have a ternary frame with a set of states U , and a subset A of U . A can be thought of as a set of states, i.e., a proposition. So A is quite static. But, and this is the main idea, it can be turned in for the set of relations determined by those states, and those relations can of course be regarded as taking states to states. So A is *at the same time* quite dynamic.¹²³

What we are dealing with in logic is not a thinking about something which exists independently as a base for our thinking and apart from it.¹²⁴

Hegel 1812

v. Types violation:

Dunn argues that the indiscrete implicit duality was presaged by John von Neumann’s notion of a ‘stored program’¹²⁵ — breaking free of the prevalent notion of type inviolability.

The contrast during the first fifty years or so of the twentieth century between the type conscious mainstream in mathematical foundations, and the type insensitive undercurrent in the *logic of computation* is quite striking. It reminds one of the stories of early aviation theorists proving the *impossibility* of powered flight while the Wright brothers and others were working on the first models, and then on *real* airplanes.¹²⁶

Appendix II: Group or Lattice?

An example of indiscretion at work might help. Francesco Paoli's distinction between lattice and group logical operators requires moving beyond an RTT framework.

Consider the following two disjunctions:

- [9] Either $2 + 2 = 4$, or London is in Alaska.
- [10] Either the butler did it, or the gardener did it.

With [9] no special relationship is assumed to hold between the disjuncts — [9] grounded simply in the acceptance of at least one of the disjuncts [in isolation]. This is a paradigm example of a [Lattice¹²⁷ disjunction: II] [Join is associative, commutative and idempotent¹²⁸].

On the other hand [10] has two possible readings:¹²⁹

- [L] Assume that I know for sure that the butler is guilty. My sole ground for asserting [10] is that I know one of the disjuncts to be true — thus the disjunction is true 'by logic' — the other disjunct is irrelevant. But this is not the only grounds for asserting [10] though classical logic students might assume so.¹³⁰
- [G] Alternatively, suppose that I carried out some investigations and detected that there were only two individuals on the scene of the crime — the butler and the gardener. Say both had equal motive and opportunity — and no one else did. Then I am justified in asserting the following:

- [11] If it was not the butler then it was the gardener and if it was not the gardener then it was the butler.

[11] presupposes a connection between the disjuncts. It is such a connection that produces the acceptance of the disjunction, not the previous acceptance of one or the other disjunct. (Group disjunction or Fission drops idempotence.¹³¹)

The failure of idempotence is connected with the failure of the information theoretic principle of contraction. Note: I need not accept either disjunct in order to be justified in accepting [11] — it is their mutual connection that produces the grounds for the disjunction — not the previous acceptance of one of the disjuncts. Here the disjuncts must be *relevant to each other* — they are not discrete pieces of information. This internal

relationship cannot be expressed if I assume wffs are always type entities — that is if I am bound by contraction.¹³²

Research into an unexplored area like that of the progression of theories in higher order logic, for instance, can't be left to people who expect to have that area mapped out and secured beforehand so they could be advised [*in advance*] as to why they should engage in it.¹³³

Uwe Petersen

Hegel was not a logician.¹³⁴

Timothy Williamson

In the absence of contraction, normalization and cut elimination can be proved without recourse to the length of the formula in question. It is this that makes logic without contraction so safe against all antinomies arising from abstraction.¹³⁵

Uwe Petersen

If assumptions are treated as sets instead of multisets, contraction is in a way built into the system and cannot be expressed as a distinct rule.¹³⁶

Jan von Plato

I was aiming at . . . the possibility of turning [Hegel's'] idea of a dialectic of pure reason to the task of questioning all forms of authority,¹³⁷ including that which may be thought to inhere in classical logic itself.¹³⁸

Valerie Kerruish

Models and possible worlds are extremely different kinds of things.¹³⁹

Patricia Blanchette

Relations *between* worlds are not sets of worlds.¹⁴⁰

I. L. Humberstone

To the ordinary (i.e. the sensuous understanding) consciousness — the objects of which it knows count in their isolation . . . independent . . . resting in themselves.¹⁴¹

Hegel 1830

Giving useful semantics for non-classical logics in the relevance family requires more than just moving from “worlds” to “pieces of information” or “theories.” In addition, it will no longer do to have a Kripke binary relation be the only element of semantic structure.¹⁴²

Nuel Belnap

Almost nothing is more commonplace, in the beginning of a book or article on philosophy than to encounter a set of statements about or involving the world¹⁴³

Richard Sylvan

Notes

¹ I dedicate this little note to Aida Beatriz Donahue. She was born on July 9, 2009. Congratulations to mom Myrna, dad Sean and sisters — Angie and Carmen.

² Wallace (1873), p. 25.

³ Kerruish and Petersen (2006), p. 81 (I combine parts of two quotes — hopefully faithful to the authors intent).

⁴ Kerruish and Petersen (2006), p. 87.

⁵ Dunn (2001), p. 9. Dunn is here arguing *on behalf of the fool*.

⁶ See Uwe Petersen entries in the bibliography. For the purposes of this note one might begin with his joint paper with Valerie Kerruish (2006).

⁷ Obviously there are many central Hegelian theses of Petersen to which I do not attend perhaps most notably the creative role of contradictions in concept formation.

⁸ An *uncivilized* interpretation does not respect reasoning transcendent truth — or restriction to discrete information. See section vii.

⁹ In many ways this note provides only the skeleton for a much more detailed argument. For example, I claim — without presenting any text from Lewis that his argument against ‘actually’ enriched logics cannot have certain application, or (more significantly) that Dunn’s important work has such and such philosophical implications. Here I do offer text but with far less background explanation than might be desired. And similarly, the important example of the distinction between *robust* and *anemic ternary relations* via the contrast between Rabinowicz-Segerberg and Lindström. In each case I am confident that if the reader goes to the sources my claims will be sustained. But if the full case were to be made this article would be much longer. The point here is simply to note model-theoretic correlates to certain dialectical lessons of a liberated proof theory. The common core can form the basis of a new branch of philosophy which might be called — informationalism. Just the slightest hint in that direction comes from a suggested response to Dubucs and Marion.

¹⁰ This is intentionally kept vague at this point. One could say ‘objects of thought’ if that notion could be completed drained of any psychologism. We will clarify first model theoretically and then proof theoretically what counts as such objects.

¹¹ For now you may think of ‘objects’ as whatever our logic is talking about (of course that is not theory neutral).

¹² ‘External’ is, of course, a technical term that has both a proof-theoretic and a model-theoretic reading. We will get to the details soon. For now note that transitivity over worlds would be an external relation. The worlds themselves are like black boxes — any information within them has no effect on the external relations between worlds. The ‘*monsters*’ which David Kaplan warns against are horrific precisely because they cannot be expressed in terms of external relations.

¹³ One example of a non-external relations is that between the perspective world (the world temporarily playing the role of actual world) and the other worlds under consideration in deviant two-dimensional operator read as: ‘at any world j with j taken as actual’. Another would be required to account for Paoli’s group-theoretic disjunction (see Appendix II).

¹⁴ Francesco Paoli is particularly interested in *logical ambiguity*.

¹⁵ Kerruish and Petersen (2006), p. 83.

¹⁶ “The Fregean concept of property is inconsistent with classical logic.” J. Myhill

¹⁷ Petersen refers to ‘a conflict between form and content’. Dunn refers to an ambiguity that can take one and the same index — *at the same time* as static information and dynamic computation.

¹⁸ The following motivation is almost directly taken from Greg Restall’s article on substructural logics in the Stanford Encyclopedia of Philosophy. It is so clear I cannot resist including it. The reader familiar with substructuralism can skip ahead.

What, in general, do we need to know to be justified in inferring β from α ?

We need the premise that: *if* α is true then so is β .

That is, we need to know that ‘ $\alpha \rightarrow \beta$ ’ is true. In full generality, this is expressed in the deduction theorem.

$$X; \alpha \vdash \beta \text{ if and only if } X \vdash \alpha \rightarrow \beta$$

That is, I can validly deduce β from X *taken together* with α if and *only* if I can validly deduce the conditional $\alpha \rightarrow \beta$ from X alone.

Note that there are three operational symbols in the theorem: the turnstile ‘ \vdash ’ encoding validity, the ‘ \rightarrow ’ for the conditional, and a semicolon ‘;’ encoding the mode of premise combination.

Most standard intro logic texts pay a great deal of attention to the first two and none to the third.

Why is this? *If* we restrict attention to just classical logic then the *left side* of the bi-conditional above could just as well be written

$$X \cup \{\alpha\} \vdash \beta$$

simply *assuming* that the mode of premise combination is that of *set union*.

\cup is the set theoretical operator for union: *idempotent*, *commutative* and *associative*. Each set theoretical principle of union corresponds to a structural rule, for example idempotence corresponds to contraction.

Also: Some ask: Why don't multiple conclusion consequences collapse into one? That is because they have *not* considered the possibility of group disjunction.

¹⁹ This 'neglect' is discussed in footnotes above and below.

²⁰ This is the structural principle of weakening.

$$\frac{X \vdash A}{X, Y \vdash A}$$

We go *from* a stronger statement, that A follows from X — *to* a possibly weaker one, that A follows from X together with Y . In relevance logics, the inference from an *arbitrary* premise to a *logical truth* such as $q \rightarrow q$ may fail. Classical and relevant logics can be expressed with exactly the same operational rules for all of their logical constants. What differentiates them (*all* that differentiates them) is the fact that classical abides by weakening — while relevant logics reject it. One other point — the substructural perspective points out relevance logic does not discover a sieve that needs to be applied to the classical program. It is not just about relevance — irrelevance is a symptom of a more subtle disease.

Relevance has been oversold as a motivating factor in relevance logics.

Meyer and McRobbie (1982), p. 125.

See Stephen Read 2003.

²¹ That is — isolated and independent.

²² Please don't ask me to define 'interesting'. All that I can say is that if your conception of what is interesting is not evolving during your life — neither are you.

²³ Examples of non-classical bunching: Actions: non-commutative fighting and then making up is not the same thing as making up then fighting Syntactic Typing: contraction fails a string of two sentences is not itself a sentence Information Flow: For many channels, you may eke out more information by repeated applications. Any time that using a channel twice (serially) yields more information than using it once will result in a failure of contraction (see explicit proof content). Paradoxes generated by *pseudo modus ponens* are vanquished by rejecting contraction.

²⁴ This generates a devastating argument *against* classical monism:

You mean to say that you insist that the *only* form of information bunching that we *are allowed to consider in logic* — our most *general*

discipline — is that which corresponds to *set theoretical union*? That is highly restrictive — and what is worse — it is arbitrary.

²⁵ This lovely phrase comes from John Slaney (1990).

²⁶ Intuitionists drop contraction right — which is responsible for LEM.

²⁷ Consider a judge drawing an inference from three instances of the same type of info say identical eye-witness accounts as against just one.

²⁸ Obviously there are many more.

The distinctive feature of contraction-free fuzzy logics is prelinearity — which can demonstrate the cost of running a program.

Libor Běhounek and Petr Cintula

Contraction is the reason for the undecidability of first-order logic. If contraction is excluded, then there are no infinite paths in the proof search and thus derivability becomes decidable.

Andrea Cantini

There is a way of organizing the principles of proof so that one can start from the theorem to be proved, then analyze it into simpler parts in a *guided way*.

Sara Negri and Jan von Plato

²⁹ Following an early insight by the Russian logician V.N. Grišin, Uwe Petersen argues that contraction is the only rule in which the induction on the length of a cut formula is required without exception.

³⁰ As Restall notes: For many channels, you may eke out more information by repeated applications. Any time that using a channel twice (serially) yields more information than using it once will result in a failure of contraction.

³¹ Jacques Dubucs and Mathieu Marion (2003) and Jacques Dubucs (2002).

³² There is a more subtle advantage — yet to be revealed.

³³ Dubucs (2002), p. 232.

³⁴ For now think of discretion as the assumption that worlds can have *only* external relations (like transitivity) with respect to one another. With respect to information they are like black boxes. Monsters violate this constraint.

³⁵ The information at a state here is its data — in world-theoretic terms — what is true there. Dunn’s whole point is that this leaves out a critical relational element — which is formally expressed via partial functions.

³⁶ See Dunn’s quote at the head of this note.

³⁷ Not a lot of philosophers have appreciated the commonality between relevant and ‘actually’ enriched logics. Richard Sylvan (1997) is a notable exception.

³⁸ Hughes and Cresswell (1968).

³⁹ Abstracting away from the particulars *any* indexed logic requires: points or indices that support information. Furthermore, the information carried by

a point must have some sort of logical coherence. Systems that exemplify such indexed logics include:

- Intuitionistic and modal logics
- Relevance and Linear logics
- Maps

The received view in philosophy — until very recently — was that standard modal logics provide the paradigm case of an indexed logic.

⁴⁰ The conditional of a relevant B logic exploits the ternary relation $Rxyz$ — which can be read as saying — if we start with the perspective of state x then if we were to enter state y then state z is a potential outcome. (That is, the pair $\langle y, z \rangle$ is a possible transition given state x .) This allows us to place restrictions on this rule based on the base or normal world that can block the undesirable inferences. Basically the third index quarantines the non-normal worlds so that the advantages of relevance can be established while we build up a stronger logic than N^* . This is a very *different* role than the third index plays in (fully) actualized modal logics. But in both cases we end up with situated models that cannot be expressed with discretion.

⁴¹ This ‘challenges’ rather than ‘obliterates’ discretion because it is possible to neuter the challenge by requiring that the ternary operators be *anemic* — as with ‘the war on monsters’.

⁴² External relations are forced by any discrete semantics. The first quote from Dunn at the head of the paper is mocking such discretion. Model theoretically internal relatedness (truly relational semantics) will be accommodated by the double-functioning of certain indices — violating types restrictions.

⁴³ It is exactly this that violates *Åqvist’s constraint* and David Kaplan’s Constraint (against *monsters*) and which Dunn is celebrating. According to *Åqvist’s constraint*: if two points differ *only with respect* to their (second) perspective coordinate then they must agree on their assignments to atomic statements.

⁴⁴ Philosophical nonsense is a further cost.

⁴⁵ There is an obvious need for an actuality operator in our modal systems — for consider

It is possible for everything which is in fact φ to be ψ .

$$\diamond(\forall x)(A\varphi x \rightarrow \psi x)$$

This *cannot be expressed* without an actuality operator — A . The first somewhat natural expression in a formal context was to have a *distinguished world* amongst the possible worlds representing our beloved (contingently) actual world. Then the actuality operator can always point to that world. This is a bad idea for at least two reasons:

- This will guarantee as a thesis: $A\theta \rightarrow \Box A\theta$. This is unacceptable *as a thesis* because from the simple fact that world α is actual it ought not to follow that no other world *could* have been actual.
- Any *actualized* theoretical principle (say a metaphysical thesis) faces a dilemma:

Either the principle will be *ethnocentric* (attributing some special metaphysical status to our contingently actual world) *or* the *expressive advantages of actualization will be sacrificed*. Indeed this is exactly the dilemma that David Lewis threw in the face of any attempt at actualizing a philosophical principle.

What is needed is a two-dimensional modal logic that has strong enough power to express: *Whichever world had been actual* — α would have been true at *that world considered as actual*. So, for example, $A\alpha \rightarrow \Box A\alpha$ would not be valid with the modality in its consequent read ‘*at any world with that world taken as actual*’. We introduce a *new* necessity operator Φ which simultaneously does two things: it ranges over *all* possible worlds and on each instantiation it sets up a *marker* to which each subsequent actuality operator (in a given wff) will point. Thus, $A\theta \rightarrow \Phi A\theta$ is not a thesis.

⁴⁶ Imagine you have a generalized modal principle which is subject to a killer objection. (Perhaps we cannot get a certain argument of which it is a constituent valid — when, intuitively, it clearly seems to be valid.) It may seem reasonable to add an actuality operator within the syntactic scope of the wide scope necessity operator that provides the generalization — perhaps because this gives you your validity. You have just actualized the principle. See the tolerance principle.

After all as long as we remain one-dimensional there are only two scopes:
 $\Box \dots \downarrow A \dots$ *or* $\downarrow \Box \dots A \dots$

⁴⁷ If you read the actuality operator as inside the scope of the widest modal operator it is impotent — but if it is scoped outside the necessity operator we get ethnocentrism. The key point is that with a one-dimensional language those are the *only* options.

⁴⁸ Lewis himself gets around this expressive inadequacy with his indexical analysis of ‘actually’ as part of his later pluralism. An objection to that approach is beyond the scope of this note. I would argue that (perhaps surprisingly) that his pluralism itself relies on the assumption of reason transcendent truth. Once that fix is dismissed the obvious alternative is a two-dimensional logic.

⁴⁹ This expression is ripped off from Hintikka’s arguments about quantifiers: two completely different issues. Or are they?

⁵⁰ It is clearly follows from Lewis’ argument in the applied case.

⁵¹ This principle of tolerance — from the Four Worlds Paradox — is one requiring generalization.

[T] Any artifact could have been constituted out of a collection of parts slightly different from the collection out of which it was *actually* constituted.

My bicycle could have been made out of a collection of parts slightly different than the collection out of which it was *actually* made.

⁵² The most general feature is the assumption of reasoning transcendent truth.

⁵³ For example, Consider what came to be known as UCLA propositions — sets of pairs of worlds. Models for different logics are *exclusively* distinguished by binary relations on pairs of worlds. That amounts to an expression of discretion — the assumption that the indices or worlds in a modal model can only have external relations to one another. An expressive advantage occurs if we allow di-propositions (See Segerberg and Humberstone).

⁵⁴ Of course there are a number of more familiar objections to Lewis' pluralism. I am working on a paper which will lay out the realist objection.

⁵⁵ At this point I direct the reader to two articles. Lindström (1997) exemplifies the anemic use of two-dimensions. Rabinowicz and Segerberg (1994) exemplifies the robust use of two-dimensions. I will not review the formal details of their analyses. Rather I point out features of those analyses sufficient to disclose the issue of discretion.

⁵⁶ Dunn celebrates the type violation with respect to ternary operations for relevant logics — but the same expressive advantage is enjoyed here — perhaps with even more intuitive support.

⁵⁷ Contrast the original Åqvist and Segerberg 1972 articles.

⁵⁸ Routley (1979), p. 302.

⁵⁹ See Appendix II Paoli on Group-theoretic disjunction.

⁶⁰ I originally referred to this as 'reason transcendent truth'. My son pointed out that this has a prejudicial interpretation (which I enjoyed). But I now defer to his sense of legal fairness.

⁶¹ Rabinowicz and Segerberg (1994), p. 108.

⁶² Fitch (1963), Rabinowicz and Segerberg (1994), Lindström (1997).

⁶³ Rabinowicz and Segerberg's key point with respect to the Fitch argument is that: There are frames that satisfy their semantics and in which truth still does not imply knowledge: That is they allow propositions that contain some self-centered states without containing all their epistemic alternatives. As a result, in some models on such frames, for some formulas φ and some self-centered states, $\varphi \ \& \ \neg K\varphi$ is true in those states.

⁶⁴ Instead of evaluating a formula at a single point (world) each formula is evaluated at an *ordered pair* of points intuitively consisting of a perspective world and a reference world. The role of the *designated world* is taken over by the *set of* self-centered states — those of the form $\langle w, w \rangle$. They offer a

simple proof that in their new system $\varphi \rightarrow \text{KA}\varphi$ is invalid! (106). Thus, Fitch's argument is 'actually' buried.

⁶⁵ One way they differ is that the monsters violate Åqvist's constraint. That is at least a sufficient condition for escaping civilization.

Rabinowicz and Segerberg actually allude to this difference — concluding (incorrectly in my view) that it is not important. Part of the reason they may have concluded this is that they are focused on different criteria of what I am calling being uncivilized.

By the way, for the reader who is surprised to hear 'civilized' being used in a pejorative way — I suggest that you take a closer look to history. The self-proclaimed 'civilized' ones are always the most horrific.

⁶⁶ Rabinowicz and Segerberg (1994), p. 104.

⁶⁷ Rabinowicz and Segerberg (1994), p. 109. This is important. Rabinowicz and Segerberg cannot be interpreted as a function from perspectives to propositional contents. They need more expressive power than that can offer. This is relevant to the discussions of di-propositions and of Priest (below).

⁶⁸ Rabinowicz and Segerberg (1994), p. 110.

⁶⁹ This corresponds to what Dunn calls the static notion of a proposition. Note that in the Priest article mentioned below — he embraces the classical notion of a proposition.

⁷⁰ The first use of di-propositions that I am aware of appeared in Humberstone (1981). One might call these 'hyperintensional'.

⁷¹ Rabinowicz and Segerberg (1994), p. 110.

⁷² Rabinowicz and Segerberg (1994), p. 101.

⁷³ There are two interpretations of 'is' here. According to one there must be an *effective procedure for constructing such a proof*. According to the other we must be *in actual possession of such a proof*.

⁷⁴ Constructive proof is usually defined inductively. This would include, for example, a constructive proof of an existential sentence $\exists xP(x)$ via an *effective procedure* that gives us a certain object a and a proof that $P(a)$ holds.

⁷⁵ Dummett realized he faced such a question when he wrote *The Elements of Intuitionism*.

⁷⁶ For an example of objection *to* strict finitism see Mitchell (1992), p. 441:

An adequate theory of the practical abilities we actually possess requires that we be accorded possession of practical abilities we cannot actually exercise.

⁷⁷ Dubucs and Marion (2003) explicitly acknowledge *strict finitism* as an inspiration for their approach. An example of what generally is thought to separate the strict finitist from the intuitionist would be a sentence that is decidable according to the intuitionist but which includes numbers that are too

big to decide in practice. To be fair *feasibility* is strictly an alternative to strict finitism for these authors. But for our purposes — they are more like cousins — they share many traits — none of which we wish to embrace.

⁷⁸ In part ‘inert’ means that proofs are treated as objects.

⁷⁹ Dubucs and Marion (2003) eschew psychologism — but their approach is a little overly epistemic for my tastes. I hope to account for the participatory ambiguity of a liberated logic in purely information-theoretic terms.

⁸⁰ Would it be too outrageous to at least open a discussion on whether the commodification of absolutely everything in contemporary society is somehow connected to RTT? Treating proofs a merely objects is in a way an abdication of responsibility with respect to the proof-theoretic environment.

⁸¹ Some objections to strict finitism could also arise.

⁸² ‘Act’ may be a misleading expression here. Dubucs and Marion (2003) reject any reference to explicit cognitive capacities in their theory of feasibility. The coherence of their dependence on implicit cognitive capacities is worrisome — but beyond the scope of this note. See Marion (2008).

⁸³ We ought not assume that the boundaries of what we count as metaphysics, epistemology, or certainly logic are set. If I am right substructural insights ought to give us pause to consider the boundaries of epistemology. The lack of a fix methodology (and even subject matter) is what makes philosophy so interesting. See the last quote in this note: Graham Priest: The nature of philosophy and its place in the university, Inaugural Address University of Queensland, 1989.

⁸⁴ Dubucs and Marion (2003), p. 246.

⁸⁵ Dubucs (2002), p. 226.

⁸⁶ Cited after Dubucs and Marion (2003), p. 241.

⁸⁷ It was a part of the Dummett-Kripke debate.

⁸⁸ World theory is the LPC theory that translates modal operators into quantifiers over worlds.

⁸⁹ It sounded like we had found the philosophical Rosetta Stone. More seriously, if standard modal logics are inadequate — because of not being relevant or not (at least) paraconsistent or for some of the even more interesting reasons implied by this note — then it stands to reason that LPC is somehow inadequate (especially with respect to expressive power) as well. We know that there are a number of (more expressive) alternatives to LPC. It would be interesting to see which, if any, quantified language could express — say linear logic. What about Hintikka’s IF logic or Paoli’s group-theoretic quantifiers?

⁹⁰ Another professor held a hammer over my head while screaming ‘I will not allow you to violate Åqvist’s constraint’. I reminded him how difficult it would be to explain Åqvist’s constraint to the Amherst police — although I did concede that once they did grasp it they would rule — justifiable homicide. (Of

course it was not a real threat — but you have got to have your fun while you can.)

⁹¹ In his PhD dissertation.

⁹² Hear this insight from Greg Restall concerning relevant models:

The support between a *point* and a *proposition* need not simply codify information *about points*. It can yield an account of the information carried by points

The crux of the matter is the notion of “support” between a point and a proposition. Does this relation simply codify information *about* points in a model, or does it somehow give us an account of the information *carried by* points? The former is an external perspective, as we are classifying points from “the outside”. The support relation is a way of classifying points. The latter account is the *internal* perspective Modal logics are [taken by the external perspective to be] . . . useful sublogics or *refinements of first-order claims about models*. The standard translation ST of a formula is taken very seriously indeed. Intensional formulae are codifications of what is true *about* points. [See the section on world theory.]

If you take an *external perspective* on a frame Boolean negation is warranted.

If you take an *internal perspective* it is quite likely that Boolean negation *cannot even be defined*. According to the external perspective [the consequence relation] codifies information about points in a structure.

⁹³ It is interesting that while many of the leading lights of the non-classical revolution (Stephen Read, Uwe Petersen, Greg Restall and Francesco Paoli) have come to embrace inferentialism — Graham Priest is not even slightly tempted.

⁹⁴ This quote appears in both the 1st and 2nd editions of Priest’s *Introduction to Non-Classical Logic*. He addresses the issue in detail in his (2009). His new views on ternary relations are very different from Dunn’s. I say a few words about them below. I am willing to bet that a case can be made that his sort of ternary relations cannot match the expressive power of the Dunn-Rabinowicz-Segerberg ternary relations (although I do not make that case here). Assuming that I did make that case it is open to Priest (or other model-theoretic conservatives) to reply: ‘So what? The connection of models to truth is more important than expressive power.’ That would set the table for a truly interesting battle.

⁹⁵ Etchemendy (1990) notes that although both soundness and completeness proofs are required for any logic model theory is generally thought to justify what proof theory delivers. Etchemendy’s attack on the standard Tarskian model theoretic notion of logical consequence is not irrelevant to the question at hand. Patricia Blanchette supplements that argument in her (2000).

There is a fascinating philosophical standoff between Graham Priest and John Etchemendy that at least ought to be mentioned here. See Etchemendy (2008).

⁹⁶ Routley and Meyer (1973).

⁹⁷ Copeland (1983).

⁹⁸ The formation rules pick out the well-formed-formulas — and let's assume (without loss of generality) that we are dealing with patterns that have at least one premise and exactly one conclusion. The latter assumption is not lame — but it does not matter here.

⁹⁹ For Priest's argument against inferentialism see his (2006b), Chapter 11. At one point Priest (almost) says that intrinsic semantics must be grounded in the notions of sense and reference.

¹⁰⁰ Members of the band include Greg Restall and Francesco Paoli. I am more than sympathetic to inferentialism — but one point of this note is to argue that it is wrong to assume no model theory can be copasetic with this inferentialism.

¹⁰¹ Why 'appears'? Maybe it is dead only if it assumes explanatory superiority over any model-theoretic approach — that is if indiscretion is allowed. But clearly on Priest's restricted notion of what count, as a ternary operator inferentialism cannot even be sufficient.

¹⁰² Graham Priest's Introduction to Non-Classical Logic 10.6.

¹⁰³ This allows one to build on the system N^* which is absolutely free of irrelevance but which has been left very weakened.

¹⁰⁴ Can I hear 'Amen'?

¹⁰⁵ Similarly, a key to Lindström's avoiding monsters is his decision to rely on rigid situation constants.

¹⁰⁶ But see the quote of his revolutionary buddy Richard Sylvan (né: Routley) at the end of this note.

¹⁰⁷ Footnote 20 on p. 10 of Priest (2009).

¹⁰⁸ Graham Priest notes it does *not* appear in the original Routley, Plumwood, and Meyer and Brady semantics.

¹⁰⁹ See for example the difference between 'general' and 'real world' validity in Humberstone and Davies: Two Notions of Necessity. Also note Rabinowicz and Segerberg's notion of weak validity in their (1994) is similar to sort of real-world validity favored by Graham Priest.

¹¹⁰ Restall (2005), (2008), and Priest (2008b).

¹¹¹ Not however *truth simpliciter* — since Priest holds both true and false as a distinguished value — to be preserved by any valid argument.

¹¹² Restall (2008).

¹¹³ Here is an irony. The criticism by the RTT folks is that the alternative is 'merely formal'. But it is the old way that guarantees the petrification of concepts.

¹¹⁴ R0 simply stipulates that @ is a member of the set of normal worlds. What this achieves is fixing the third parameter for Priest guaranteeing a respectable but anemic notion of validity.

¹¹⁵ Priest (2009), p. 13.

¹¹⁶ Notice the model theoretic bias — again.

¹¹⁷ Dunn (2003), my emphasis.

¹¹⁸ Better — uses the implicit relational character of only *A*.

¹¹⁹ Dunn (2003), my emphasis. Ternary relations' graphs — just an equilateral triangle with one side an arrow (pointing to, say, the last position).

¹²⁰ Wallace (1873), p. 189.

¹²¹ Dunn (2001), p. 8.

¹²² Miller (1977), p. 22.

¹²³ Dunn (2001), pp. 10 f.

¹²⁴ Miller (1969), p. 50.

¹²⁵ Arthur W. Burks, Hermann Goldstine and John von Neumann: Preliminary Discussion of the Logical Design of an Electronic Computing Instrument, 1963.

¹²⁶ Dunn (2001), p. 5, my emphasis.

¹²⁷ It is important to note that lattice disjunction is not the same as the inclusive disjunction provided by the truth tables. (See Paoli (2007) and (2008).)

Truth tables are bad meaning-assignment devices they may give rise to dangerous equivocations.

Francesco Paoli

¹²⁸ Here is why it is idempotent: $A \amalg A$ is accepted in virtue of the acceptance of one of its disjuncts if and only if *A* is *itself* accepted.

¹²⁹ These examples and the commentary are taken directly from Paoli (2007) and (2008).

¹³⁰ Obviously knowing the other disjunct to be true would do just as well.

¹³¹ Here is an indication of the failure of idempotence: I can accept the first disjunct of [10] *without* accepting:

[12] Either the butler did it, or the butler did it.

with an 'intensional' "or" — if I accept the possibility of the alternative possibility that the culprit was the gardener.

¹³² By 2008 Paoli recognizes a third superintensional disjunction.

[12] Either it will rain, or the match will be played.

With [12] a tacit *ceteris paribus* clause is attached to the first disjunct awarding it a privileged role. Superintensional disjunction: loses both commutativity and idempotence.

¹³³ Petersen (2002), p. 963.

¹³⁴ While conceding, of course, that Hegel did not enjoy access to the advances in formal logic that we do — I have to agree with Petersen that this

makes Hegel's logical intuitions all the more impressive. Those intuitions have anticipated some of the most subtle philosophical corollaries of the substructural revolution in logic both proof-theoretically and meaning-theoretically. The quote is taken from an interview in a magazine titled '3 AM'. Of course my comments are not intended as a criticism of Williamson. No one can be expected to be coherent at 3 AM.

¹³⁵ Petersen (2000), p. 374.

¹³⁶ Sometimes it is instructive to operate at less than the most general level. We have noted that set union (if the classical logician were right — the only way that premises in an argument or items in data bases can be bunched together) is *associative*, *commutative* and *idempotent*. Sequents allow maximum possible variation from sets. On the other hand multisets *union* is like set union in being associative and commutative but multiset union does not follow set union in being idempotent.

The most basic structural rule on sets is extensionality — saying that *inference from a set need only appeal to a subset*. There need be no such constraint on *multisets*.

While extensional conjunction follows from the set of its conjuncts and in turn entails each of them: "Fusion [non-classical conjunction] is entailed by the multiset of its conjuncts and in general entails not those conjuncts individually but whatever can be got by using one of them as an inference ticket and the other as a departure point." (Slaney (1992), p. 315.)

¹³⁷ Reasoning Transcendent Truth provides a great deal of such authority. This topic has political implications.

¹³⁸ Kerruish (2006), p. 25.

¹³⁹ Blanchette (2000), p. 67.

¹⁴⁰ Humberstone (1978).

¹⁴¹ Cf. Kerruish and Petersen (2006), p. 80.

¹⁴² Belnap (2003), p. 174 f.

¹⁴³ Sylvan (1997).

Suppose that an inquiry is self-reflexive. Then *prior* to the inquiry we have no independent fix on the nature of its object. But if we have no such fix, we have no fix either on the fundamental assumptions of the special methods of the inquiry.

Graham Priest

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The Real/Trauma and Aboriginal Life-Writing

SACHA GIBBONS*

By employing a wide range of contemporary theory, primarily from work on Holocaust testimonies and Latin American *testimonio*, to examine Aboriginal life-writing, this article brings together diverse cultural and historical contexts of trauma and political agency. While acknowledging the incommensurability of these different cultural sites of trauma, I argue that there are processes involved in dealing with trauma and injustice that have cross-cultural significance. The most important of these are firstly, the need to address injustice (although the injustices differ) and, secondly, the project of recovering from traumatic experiences. Recovery is used here to encapsulate its historical, therapeutic and legal senses — “to bring back”, “to cure”, “a verdict giving right to the recovery of debts”¹ — because the work of recovery in working-through traumatic histories necessarily involves negotiating specific historical, therapeutic and political content. Judicial, political and therapeutic practices and concepts operate across different cultural domains by virtue of the fact that they are organising determinants of those domains. They thus provide a basis for cross-cultural comparisons.

Over the past fifteen years the interest in and practice of testimony has been present in many different countries in projects aimed at recovering and memorialising suppressed national histories. Instances include the growth of memorials to the Holocaust, South Africa’s Truth and Reconciliation Commission, and Australia’s *National Inquiry into the Separation of Aboriginal and Torres Strait Islander Children from their Families*. There are many other cases besides these ones. Nation-states,

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¹ *Shorter Oxford English Dictionary*, 1993.

diasporic and dispossessed cultures employ testimony to address and contest unresolved and often traumatic historical material. From testimonial writing's antecedents in small-scale political and personal expressions of marginalised identities, it has been used in recent times as a strategy for large-scale nation-building with both progressive and conservative manifestations. Its growth as a practice for establishing and recording individual and collective identity has provided previously suppressed and heterogeneous accounts of history.

It is important to note that the testimonial mode can be deployed to efface heterogeneity and provide simplistic redemptive totalisations of national identity. As a mode of writing, it has no inherent political allegiances. It can be used by those who wish to deny the same traumatic historical events that others seek to have acknowledged by it. Nevertheless, I argue that those who use the testimonial mode to affirm hegemonic history and further render unheard subaltern histories aggravate historical sites of trauma and cultivate injustices. Testimony may have no inherent political allegiance as a mode of writing, but this article demonstrates that when employed by Aboriginal life-writers it does have an allegiance: to the articulation and advancement of Aboriginal cultural identity and social justice. This is not surprising. Testimonial life-writing's formation as a literary genre is characterised by its use as a means for registering of subaltern experience. This is why most texts written in the testimonial mode are written by those who have been dispossessed by a dominant power. However, this history does not mean that testimony cannot be and is not employed as a way by which historical trauma is manipulated to further neo-colonialist practices.

The convergence of testimonial life-writing as a form of political resistance with testimonial life-writing as a form of writing-through post-colonial trauma encourages an alliance between post-colonial critical theory and psychoanalytic theory. John Beverley, one of the most interesting voices in debate on testimonial discourse, asks in his essay "The Real Thing", "[d]o testimonial narrators such as Rigoberta Menchú have an unconscious, and would a psychoanalytic reading of their narratives be useful? The answer on both scores, it seems to me, should be yes" (268). Such a positive view about a coalition between psychoanalytic and post-colonial theory is only briefly outlined in Beverley's essay. He discusses how Menchú's testimonial writing can be read "as an Oedipal bildungs-

roman built around the working-through of an Elektra complex [...]” (268). This article does not employ notions such as the Oedipal or Elektra complexes or any other such archetypes to help understand Aboriginal life-writing, because I think, like others before me (Deleuze and Guattari), that such notions are overly-determining meta-narratives that misperceive the specificity of Aboriginal life-writing. Rather, this article uses the more mobile concepts to be found in psychoanalytic theory, such as working-through, acting-out, resistance, and repression, as well as a reformulated version of the concepts ‘the Real’ and ‘the Symbolic’, with the intention of providing more specific analyses than psychoanalytic complexes allow.

The post-colonial project of developing means by which dispossessed subjects strengthen their agency is compatible with the psychoanalytic project of working-through the disruptions to identity caused by traumatic experience. Both work towards a recovery and reinscription of identity. Importantly, to succeed, these projects must maintain the tension that arises from avoiding both simplistic redemptive identities/nationalisms and the crippling of identities/nationalisms in epistemological and ontological aporia. Psychoanalytic concepts like working-through, acting-out, resistance, and repression, can be usefully employed in post-colonial studies as theoretical tools for dealing with the cluster of problems associated with post-colonial cultural articulation and re-emergence, cross-cultural dialogue, and the relationship between history (often effaced and traumatic) and the present.

By extension, the compatibility of post-colonial and psychoanalytic theory is useful for combating that particular deployment of post-structuralist thought which emphasises aporia, impasse and infinite regression. There is a tendency in post-structuralist thought to oppose

total-mastery, full ego-identity, ‘totalitarian’ social integration, and radically positive transcendence . . . on the one hand . . . with endless fragmentation, aporias, and double-binds, on the other. Sometimes evident as well is a perspective fixated on failed transcendence or irremediable loss in which any mode of reconstruction or renewal is seen as objectionably recuperative or naive. (LaCapra, *History and Memory* 46)

Donna Haraway warns against the risks of such oppositions when she argues that “[r]elativism and totalization are both ‘god-tricks’ promising vision from everywhere and nowhere equally and fully [...]”. Both rela-

tivism and totalization deny “partial perspective; both make it impossible to see well” (191). LaCapra’s and Haraway’s interest in avoiding such extreme positions is also what drives post-colonial theorists Diana Brydon and Helen Tiffin when they write,

we [do not] mean to suggest that an uncontaminated alternative space exists outside imperialist discourse from which the subaltern may speak. Instead, we are suggesting that even dominant discursive systems are diverse and multiply fractured, opening themselves to different levers in different times and places. (26)

In criticising the idea of an uncontaminated space and, by extension, full-identity and mastery, Brydon and Tiffin do not become “fixated on failed transcendence or irremediable loss [...]” (LaCapra, *History and Memory* 46), but rather focus on specific instances of the registration of post-colonial agency, that is, “different levers in different times and spaces” (Brydon and Tiffin 26). I will argue below that some such levers in the post-colonial context are psychoanalytic concepts developed for understanding and dealing with traumatic experience. However, before their capacity for interpretation in the post-colonial context is explored, it will be useful to outline how trauma has been conceived more generally.

The Real and Trauma

The concept of the Real was first developed by Jacques Lacan and has been used by literary theorists and others to discuss problems of representation and the question of what escapes, if indeed anything can escape, representation. The Real is figured as the Other to representational systems and therefore corresponds with the figuration of trauma as the unspeakable. As I discuss below, the operations of the Real have striking similarities to the operations of traumatic experience. The concept of the Real has been central to psychoanalytic accounts of the relation between representation and subjectivity and, consequently, I argue that theorisations of the Real provide resources for discussing writing that strives to establish narrative and affective control over traumatic material, such as Aboriginal testimonial life-writing.

How we conceptualise the Real (that which is Other to representation) and, in this article, how I conceptualise trauma as the Real, necessarily

affects what we can say about representational systems. This is because what we determine to be outside of representation, to be the limits of representation, necessarily determines what can be represented. Traumatic material manifests itself as a tension between what can and cannot be represented in speech or writing. This tension at best creates a state of disruption and, at worst, a state of dangerous crisis for the individual. Such disruption to or crisis of identity comes about because traumatic material (terrible memories, fears, cognitive confusions) structures an individual's experience, yet the individual has slight control over that material. Traumatic material determines the painful manner in which an identity experiences the world, but that identity has little power to alter that pain. While traumatic experience structures the traumatised identity, that identity is not properly integrated with that structuring force. The traumatised identity is an identity at odds with itself.

The process of reconciling disruptive traumatic material within the subject is a process of establishing narrative and affective control. It might be said that some identities would benefit from disruption and that an overly comfortable identity may be an overly normalised one. However, traumatic disruption is of an order of experience where the survival of the subject (not the survival of an overly normalised conception of the subject) is threatened. Traumatic material is often expressed as potentially fatal violence towards oneself and others. Efforts of the person suffering from trauma to establish an integrated identity are repeatedly undermined and a functioning identity cannot be established because a personal life-story cannot be established until the traumatic material has been narrativised.

The concept of the Real is useful for understanding post-colonial conditions and the process of cultural recovery. In the following passage Beverly introduces the concept of the Real as a tool for understanding post-colonial processes, writing that "the Real is not the same thing as the concept we are perhaps more comfortable using, the 'reality effect', as it is used in Barthesian or Althusserian criticism. When [...] the blind man crashes against the stone post, [...] he is] experiencing the Real, not a reality effect" (274). Thus, the Real needs to be distinguished from the terms 'realism', 'reality', and the 'reality effect'. These three terms are to be distinguished from the Real in that they are operations of the Symbolic, whereas the Real is pre-Symbolic. The Real does not exist as an

entity in itself, but is better envisaged as that which is Other to the Symbolic, where the Symbolic is a specific and dominant configuration of a culture's signifying process.

Beverley makes a connection between the Lacanian Real and the post-colonial condition, writing:

the Real is, like the subaltern itself, with which it is connected both conceptually and 'really,' not an ontological category but a relational one, historically, socially, and psychically specific. Just as there are different strokes for different folks, one might say there are different Reals for different Symbolics. As subjects our (non)access to the Real is necessarily through the Symbolic. (273)

The connection between the Real and post-colonial 'reality' is a consequence of the fact that colonial practices, in their function as mechanisms of discursive control, generate extra-discursive silences; active silences that render some subjects mute. Not all colonial practice operates in the same way and, thus, the re-emergence of the Real in a post-colonial context takes different forms in, say, Australian and Canadian settler/invasor cultures than it does in South African Apartheid. As Beverley puts it, "there are different Reals for different Symbolics" (273). Beverley continues to tie together the Real, subalterneity and testimonial life-writing when he writes that "[*testimonio*] was the Real, the voice of the body in pain, of the disappeared, of the losers in the rush to marketize [neo-colonise], that demystified the false utopian discourse of neoliberalism, its claims to have finally reconciled history and society" (281). Here we see that the Real, as *testimonio*, is generated by the "utopian discourse of neoliberalism", that is, the Symbolic as neoliberal ideology. Beverley has provided a starting point for understanding the convergence of post-colonial and psychoanalytic theory in his use of the Real because, for him, there is an equivalence between the Real and the experience of trauma.

To mark the special significance of the Real, Beverley restates Lacan's use of the word 'thing' and shows that Lacan's analysis of the original German term *das Ding* was used, following Freud, to distinguish *das Ding* from the German term *die Sache*, which designates "'a product of industry and of human action as governed by language' in the sense of a created or linguistically elaborated object [...]" (266). In contrast, *das Ding* "designates a traumatic otherness that cannot be represented or incorporated by the subject in language [...]" (266). Paul de Man

employed the trope *prosopopeia* to describe this opposition between the linguistic object and ineffable otherness. Lacan's Real performs an almost identical operation as de Man's referent, in that both elude representation or are displaced by Symbolic representation, or as Kristeva figures the condition, "I abject *myself* within the same motion through which 'I' claim to establish myself" (Kristeva qtd. in Yúdice 27).

In a post-colonial context we could rephrase this to say that the colonialist symbolic abjects itself within the same motion through which it establishes itself. In such a context, Kristeva's point is dubious because it renders self-privileging as abjection. It suggests that the establishment of an abjected post-colonial subaltern, as experienced by living embodied persons, is a form of *self*-abjection. Kristeva's abjected object is the unrealised possibilities available for subjective becoming, in distinction from determining forces such as racist discourses that construct selves and worlds. In this sense, the criticism of the referent as the denied Other is based on a retreat into the self as abstracted possibility. De Man's and Kristeva's post-structuralist move to, and emphasis on, the defaced referent and the 'always already' effaced Real instantiates epistemological impasse. LaCapra identifies the potentially crippling consequences of such a move:

Theory itself in this context may take necessary critical and self-critical inquiry — including inquiry into one's own assumptions — and autonomize or fetishize it until it becomes an externally predictable but internally compelling process of disarticulation, disorientation, destabilization, dismemberment, and so forth. The discursive symptom of this understanding of theory is the repeated, moth-to-flame movement toward the paradox, aporia, or impasse that 'sublimely' brings language to a halt and renders impossible (or situates as helplessly naive) any form of recovery or viable agency. (*Representing the Holocaust* 192)

LaCapra suggests that although we can concede that traumatic material behaves like the Real, or as he sometimes puts it, the 'sublime', there is still the potential for symbolic representation of it. The Real, as repressed traumatic material, as the Other to the dominant Symbolic, uncannily returns and disrupts the Symbolic, similar to the way traumatic material continually disrupts the subject who lives in its grip.

“The traumatic event, although real, took place outside the parameters of ‘normal’ reality” [...]” (Laub 69); and, *das Ding* denotes “a traumatic otherness that cannot be represented or incorporated by the subject in language [...]” (266).² Thus, the irruption of the Real, in its otherness and irreducibility, is similar to the experience of trauma. Post-colonial trauma, as experienced by the dispossessed Other to the colonial Symbolic, even if historically repressed, disrupts that Symbolic, its legacies, and similar neo-colonial formations. It undermines the normative claims of colonial ideology. Often such disruption is literary.

Testimonial life-writing is structured around the intrusion of the Real which, according to Lacan, as cited by Beverley, is “that which resists symbolization absolutely” (266). As my argument above suggests, I am in disagreement with Beverley regarding the Real’s absolute resistance to symbolisation because I agree with him that there are different Reals for different Symbolics. Just as there are differences between cultural Symbolics and dynamic changes within them, and because there are different Reals for different Symbolics, it follows that the Real shifts with shifts in the Symbolic.

The experience of trauma corresponds with the Real in its defiance to be spoken, but unlike the Real, it manifests itself over and above the sign of absence — *prosopopeia*. The Real supposedly can never be spoken because it is purely asymptotic, whereas trauma defies being spoken while simultaneously manifesting itself through repeated affective and linguistic disruptions. This is what distinguishes my analysis of post-colonial subaltern agency from deconstructive positions like that of de Man’s or Kristeva’s which state, to use Foucault as an example, that while “‘the ‘other’ is ‘that absence in the interior from which the work paradoxically erects itself’ (Foucault 1977, 66), it does not exist” (Yúdice 22–23). In contrast, subaltern life-writing’s negotiation with traumatic post-colonial material that resists representation is not a “‘representation’ [...] born of the exclusion of the ‘limiting otherness’ [...] but, rather, by dialogue

² It is important to consider how trauma relates to Jean-Francois Lyotard’s notion of the *différend*. The language gap between different cultures that divests the plaintiff of the means to represent his or her self is further complicated by traumatic material because even if one had an adequate cross-cultural means of representing oneself, the traumatic material remains difficult to access. Thus, trauma is another order of the *différend*.

and interaction with it" (Yúdice 27).³ Yúdice further defines the implicit difference between the practices of subaltern life-writers and what he terms 'hegemonic postmodernism', that is, infinitely regressing, impasse-enacting deconstructions, writing:

Again, in contrast with the hegemonic postmodern text, in which the 'I' is expelled as vomit, in which the body transforms into vomit, that which is expelled, separating it from nature (mother and father), thus making dialogue impossible — 'I abject myself within the same motion through which 'I' claim to establish myself' (Kristeva, 1982, 3) — Menchú's text is, rather, a testimonial of incorporation, embodiment. (27)

The same problematic theoretical position that states that the Other is that which it is impossible to have dialogue with can be seen in the work of Lacan's scholarly disciple, Slavoj Žižek. In discussing trauma and the Real, LaCapra describes Žižek's position thus:

The 'sublime object of ideology' itself emerges as the Lacanian Real — an unsymbolizable limit or unrepresentable kernel of experience. Indeed, in Žižek the sublime seems to involve fixation on a radically ambivalent transvaluation of trauma as the universal hole in Being or the abstractly negative marker of castration. (*Representing the Holocaust* 206)

Furthermore, LaCapra argues that Žižek identifies Lacan "with Hegel as the negative dialectician who subverts speculative synthesis or wholeness (*Aufhebung*) and validates alienation and infinite desire as the horizon of thought and action" (206).

If traumatic material can function like the Lacanian Real in the way that it eludes representation, as I have argued, and if, in contrast to the Lacanian Real, it is often successfully articulated and narrativised in testimonial writing, I maintain that we can say considerably more about it than Lacan's schema allows theorists to do. This means that the deconstruction of voice can be contested. In contrast to Lacan's notion of *das Ding* as "a traumatic otherness that cannot be represented or incorporated by the subject in language [...]" (266), testimonial life-writing, as

³ The *nahual* is "[t]he word given to the double, the alter-ego, be it an animal or any other living thing, which, according to Indian belief, all human beings possess. There is a relationship between the *nahual* and a person's personality" (Menchú 250).

a process of working-through trauma, demonstrates that it is possible to transform traumatic memory into narrative memory. Trauma, as the closest approximation of the Real, can be spoken and, I think that, following LaCapra,

instead of becoming compulsively fixated on or symptomatically reinforcing impasses, it [testimonial narrative] would engage a process of mourning that would attempt, however self-questioningly and haltingly, to specify its haunting objects and (even if only symbolically) to give them a 'proper' burial. (*Representing the Holocaust* 193)

The difference between impasse-enacting deployments of post-structuralism and subaltern negotiation with post-colonial trauma is as follows: post-structuralism contends that the Real is always negatively inscribed through narrative and, thereby, the self cannot represent itself without effacing possibilities of itself; post-colonial negotiation with trauma suggests that the Real, or the closest approximation of it, traumatic experience, can be productively represented in language and, in fact, demands to be represented in language in order for it to be integrated into the individual's life-story and cease being a disruptive force. Such representation is an act of survival. The former position dismantles and risks crippling subaltern agency and the latter affirms agency, demonstrating the effectiveness of its position by the therapeutic benefits provided by narrativisations of trauma that are claimed by testimonial life-writers. Evidence of this success is that testimonial life-writing comes to form an important and empowering written history for the testifier/writer, their family and cultural community and, in the case of contemporary Australia, an important contribution to the vocabulary of debates on national identity and history.

In testimonial life-writing's claim to represent the Real/trauma, it aligns itself with the mimetic practice of realism. But, while testimonial life-writing may explicitly align itself with realism, it need not necessarily be categorised as such. In the case of Aboriginal life-writing, testimonial life-writing might be categorised as a variety of projects aimed at historical object-specification within a process of mourning. Nevertheless, object-specification is a process that is never entirely completed because, as Lyotard explains, "that what remains to be phrased exceeds what we can presently phrase" (13). Testimonial life-writing is not best described by

the broad brush strokes of realism or impasse-oriented deconstructions, but is better described as a literary practice oriented towards specifying particular historical events that by their nature are both transparent and opaque, phraseable and beyond phrasing.

The existence of a desire to reduce traumatic post-colonial events to theoretical categories may be the result of confusing what LaCapra calls historical trauma and structural trauma. He writes that it is important

to argue for a problematic distinction between structural or existential trauma and historical trauma that enables one to pose the problem of relations between the two. [...] It is deceptive to reduce, or transfer the qualities of, one dimension of trauma to the other, to generalise structural trauma so that it absorbs historical trauma, thereby rendering all references to the latter merely illustrative, homogeneous, allusive, and perhaps equivocal, or, on the contrary, to 'explain' all post-traumatic, extreme, uncanny phenomena and responses as exclusively caused by particular events or contexts. Indeed the problem of specificity in analysis and criticism may be formulated in terms of the need to explore the problematic relations between structural and historical trauma without reducing one to the other. (*History and Memory* 47–48)

LaCapra provides evidence of the desire to collapse historical trauma into structural trauma with reference to Žižek, citing him thus:

All the different attempts to attach this phenomenon [concentration camps] to a concrete image ('Holocaust', 'Gulag' . . .), to reduce it to a product of a concrete social order (Fascism, Stalinism . . .) — what are they if not so many attempts to elude the fact that we are dealing here with the 'real' of our civilization which returns as the same traumatic kernel in all social systems? (qtd. in LaCapra, *Representing the Holocaust* 206 fn. 2)

LaCapra comments on this: "One should also not forget that these various historical cases have different valences and pose specific problems [...]. Žižek's stance often seems to be that of the high-altitude theorist obsessed with the Real and its putative effects" (206 fn. 2). There is damage to be done in collapsing historically specific traumatic events into instances of the structural operations of trauma because the complexity and intensity of the experience is concealed by generalisations.

There have been two dominant ways of conceptualising trauma: one that argues that traumatic experiences may be understood as ahistorical instances of traumatic structures and that different historical instances of trauma are commensurate; and, in opposition, the view that historical instances of traumatic experience are always incommensurable. Such an opposition presents an either/or conception of the problem that may ultimately limit understanding of historically specific trauma, such as post-colonial Aboriginal trauma, on which I now focus in more detail. For example, not only do Apartheid and settler/invaser forms of colonialisation differ, they both differ from the Holocaust or a Sudanese war, and all differ from the killing fields of Cambodia. Furthermore, the individual experience of trauma within each of these tragedies differs one from another. However, it is important to note that the functions of structural trauma are not necessarily at odds with historical trauma. As with my discussion of different Reals for different Symbolics, the analysis of structural trauma benefits from historically specific analysis.

The relationship between Holocaust Studies and the cultural memory work underway in Aboriginal testimonial life-writing is a productive one for addressing issues of cross-cultural commensurability and incommensurability with regard to trauma. Below I outline two different views on cross-cultural comparison and take a position that incorporates them both.

Theoretical work on cultural memory and trauma has been most extensively undertaken in Holocaust Studies. This helps explain why some of the most dominant public voices in the debate on the traumas of Australia's Stolen Generation employ a theoretical framework based on Holocaust Studies. For instance, Inga Clendinnen's *Reading the Holocaust* and Robert Manne's *The Culture of Forgetting* precede their public engagement with the Stolen Generations debate and provide them with a vocabulary with which to articulate the issues involved. As I discuss below, some of the issues that have demonstrated cross-cultural significance are the importance of, and the disruption to, personal memory and, by extension, cultural memory, the destructive effects of trauma, inter-generational toxicity, the importance of telling stories that need to be told, and the ethical significance of listening to those stories.

However, it should be asked, as Gillian Whitlock does: is there damage to be done by articulating Aboriginal testimonials of trauma through a

structural vocabulary template of Holocaust discourse? Whitlock writes:

As I have argued, the geographies of Holocaust work on cultural memory have been fundamentally important in the emergence of a response to [Aboriginal] testimonies. [...] But the Holocaust template doesn't quite capture an element of the anxiety induced by these testimonies, and why discursive justice is so difficult to produce here. Why do we, the second person, the witness, the non-indigenous element in the transaction, why do we have to be told so didactically, so repetitively, what our response should be? (207)

Whitlock is not suggesting that Holocaust discourse is not relevant or useful for discussing Aboriginal testimonial life-writing, but is drawing attention to the cross-cultural differences between the two. One difference Whitlock is interested in is the position of the addressee in Aboriginal autobiography. She writes:

Holocaust testimony draws all of us into a horrified questioning of what it means to be human. In response to this, there is almost always some kind of compensatory movement in that we can install the Nazi as the Other, and so displace our immediate responsibility. We can imagine that we might refuse to become that figure, that third person who is the object of the testimony, the perpetrator of the crime [...] whereas in] interracial narratives there is a quite different movement [...] wherein] the second person, who is the witness and the narratee, is called upon to witness her own complicity and implication in the loss and suffering which is finally being spoken. (209)

It is also important to acknowledge that cross-cultural differences exist not only at the level of the addressee, but also in the very event and experience of trauma itself.

To balance this interest in difference, it is also useful to investigate similarities that exist between supposedly incommensurable historical instances of trauma, for instance, in the disruption of temporality (in the phenomena of latency and flashback), the disruption of narrative control and cosmological security, in inter-generational toxicity, the role of memory in the process of coming-to-terms with trauma, and the importance given to the recognition of trauma by the wider community. It seems

clear that the subjective experience of trauma cannot be reduced to being either absolutely cross-culturally commensurate or incommensurate. An instance of commensurability is seen in the way Australia's *Bringing them Home Report* was developed. The Aboriginal and Torres Strait Islander Commission (ATSIC) recommended to the Inquiry that

'Support be provided for the collection and culturally appropriate presentation of the stories with the approval of those who experienced separation policies' (submission 684 page 18). Link-Up (NSW) called for the establishment of an Aboriginal Oral History Archive. This Archive would be 'modelled on the Shoah Foundation set up to record the oral histories of Jewish victims of the Nazi holocaust' and would 'fund and facilitate the collection of oral histories of Aboriginal survivors of our holocaust' (submission 186). (*Bringing them Home* 21)

Here we see Australia's once peak (and now dismantled) Indigenous political body borrowing the language of and forms of memorialisation from Jewish responses to the Holocaust. In addition to the similarities I have outlined above, the commensurability between the Jewish and Aboriginal responses to trauma arises in part from the active, performative modelling of one experience on another.

Writing on inter-personal relationality, Paul Redding writes, "[a]s mutually presupposing but *differently* embodied and located self-consciousnesses, [. . . subjects] are linked by recognition, a relation that maintains difference as essential; they are not submerged within some overarching supermind" (125). One can expand this insight into the cross-cultural relationality of trauma: traumatic events are events connected neither by an overarching supermind nor absolutely separate, but are rather intersubjective and relational. Just as subjects are generated within the relational systems of their communities as well as cross-culturally, so too does traumatic experience range across a spectrum of similarity and difference. Thus LaCapra invites exploration of the problematic relation between structural and historical trauma and, by extension, between the commensurate and incommensurate. To repeat, the best approach is not to emphasise structural trauma or historical trauma, incommensurability or commensurability, realist transparency or the opacity of impasse-oriented deconstruction, but rather to emphasise phenomena that lie between these extremes.

To present different material as being either fully commensurate or incommensurate is a recurring and illogical tendency often encountered in discussions of trauma theory. If one assumes A (commensurability) and evidence proves this assumption to be false, there is a tendency to assume B (incommensurability): if not A then B. Writing on examples in trauma theory of the ‘if not A then B’ kind, where A is a false assumption to begin with, LaCapra argues that trauma theory itself

may be correlated with two complementary ways of responding to trauma that may mistakenly be seen as alternatives. One response involves denial or repression, for example, in a redemptive, fetishistic narrative that excludes or marginalizes trauma through a teleological story that projectively presents values and wishes as viably realized in the facts, typically through a progressive, developmental process. (*Representing the Holocaust* 192)

With regard to the complicit and opposite tendency, LaCapra writes:

The second and complementary response tends intentionally or unintentionally to aggravate trauma in a largely symptomatic fashion. This may be done through a construction of all history (or at least all modern history) as trauma and an insistence that there is no alternative to symptomatic acting-out and the repetition compulsion other than an imaginary, illusory hope for totalization, full closure, and redemptive meaning. (193)

Thus there is a tendency in theorising trauma to simulate typical either/or logical responses to trauma itself. Often, trauma theory either argues for simplistic redemptive narratives that mirror victims’ desires for redemption from traumatic experience, or argues that any attempt for narrative or affective control results in another traumatising impasse — a position that mirrors the destructive acting-out witnessed in victims of trauma. LaCapra discusses the proposition of an

extreme version of totalization [. . . which serves] as a foil to its radical undoing. An extreme and compulsively repeated undoing may nonetheless bear witness to the attraction of totalization and remain within an ‘all-or-nothing’ frame of reference. For the extreme reaction to an assumption that everything ultimately makes sense may be the assumption that ultimately nothing makes sense. Or, through an overly generalized theory

of romantic irony, one may believe that one always remains suspended between sense and non-sense in a manner that stymies all possible judgment and action. (191)

The desire for redemptive closure is found in testimonial life-writing that works-through traumatic injustices. Relevant here is LaCapra's insight into the desire for closure:

Ideologically, the achievement of full identity or closure is the telos of totalization, and the full redemption of meaning and value is the very essence of discourse. Mourning in this sense is a process that succeeds to such an extent that it negates or overcomes itself, and (to paraphrase Hegel) the wounds of the past are healed without leaving any scars. (191)

The either/or approach in responses to trauma, the desire for full identity or the complete collapse of identity, is best avoided. To better understand the complex narrative engagements with trauma found in testimonial life-writing one must forego the either/or approaches outlined above and instead focus on more subtle interstitial approaches. Responding to the need for these latter approaches, LaCapra writes, "[o]ne may nonetheless insist on a third sense of theory related to Freud's notion of working-through" (193). LaCapra also identifies this desire for a third way in Jacques Derrida's notion of 'generalised displacement' when he writes that a certain displacement "must accompany the reversal of hierarchically arranged binary opposites if one is not to remain entirely within their frame of reference" (*Representing the Holocaust* 193 fn. 18). Reading Aboriginal testimonial life-writing's negotiation of traumatic material requires such displacement and the psychoanalytic practice of working-through can be such a 'third' way of dealing with it.

Working-Through/Writing-Through Trauma

The above discussion of testimonial life-writing outlined two dominant and flawed strategies for grappling with traumatic experience: simplistic redemptive narratives and impasse-enacting narratives. I have also argued that effective post-colonial historicism requires an ability for both historical specificity and cross-cultural reach. Such an approach is necessary to account for the incommensurability between different historical con-

texts while maintaining openness to the structural commensurability between cross-cultural experiences of trauma. The concepts of structural trauma, historical trauma, redemptive narratives and impasse-enacting narratives, and historical and cultural incommensurability were discussed. While I examined the above three oppositions separately, they are connected in important ways in testimonial life-writing. Structural trauma is complicit with a comparative historicism that argues for the commensurability between different historical instances of trauma, while historical trauma emphasises the incommensurability of different historical instances of trauma. Both strategies are capable of emphasising either redemptive narratives or impasse-enacting narratives and to avoid this we must balance the work of historical object-specification with that comparative work that highlights structural similarities.

Central to the project of specifying historical objects of trauma that disrupt cultural agency is the concept of working-through, or as I sometimes term it in the case of testimonial life-writing, writing-through. Working-through functions to defetishise the compulsion towards narrative impasse and aims to establish narrative control over traumatic material. Working-through requires a distance between the present and the past and “involves the attempt to acquire some perspective on experience without denying its claims or indeed its compulsive force” (LaCapra, *Representing the Holocaust* 200). LaCapra writes:

working-through, as it relates both to the rebuilding of lives and to the elaboration of a critical historiography, requires the effort to achieve critical distance on experience through a comparison of experiences and through a reconstruction of larger contexts that help to inform and perhaps to transform experience. One’s sense of one’s own problems may change to the extent one comes to see their relations both to the experience of others and to a larger set of problems, some components of which may escape one’s purview. (200)

Ruby Langford Ginibi’s writing is a case in point with regard to the building up of larger contexts in the process of writing-through post-colonial trauma. Langford Ginibi’s writing begins to take on a significantly stronger testimonial style after the writing and publication of her more autobiographical text *Don’t Take Your Love to Town*. The vicissitudes of her personal life increasingly come to be connected to larger

cultural and racial experiences. There is a strong sense that the process of working-through her personal life and its hardships is the cause of the increasing politicisation in her later books. The titles of her books suggest a widening out of her concerns. From a personal title like *Don't Take Your Love to Town*, her later books are titled *My Bundjalung People* and *Real Deadly* (which deals with Aboriginal-specific humour). *Real Deadly* aims to highlight the significance of Aboriginal humour in countering the corrosive effects of cultural dispossession. These later titles evoke her place in her Aboriginal community. Her writing moves from being distinctly autobiographical to distinctly testimonial in tone. A later publication, *Haunted by the Past*, focuses on her son's struggles with crime and the justice system, explicitly connecting his struggles with cultural dispossession. In the narrative reconstruction of her life the reader witnesses "the effort to achieve critical distance on experience through a comparison of experiences and through a reconstruction of larger contexts that help to inform and perhaps to transform experience" (LaCapra, *Representing the Holocaust* 200).

Repetition is central to the process of establishing wider contexts for interpreting personal experience in writing-through post-colonial trauma. To illustrate: large textual chunks in Langford Ginibi's *Don't Take Your Love to Town*, *My Bundjalung People* and *Haunted By the Past* deal with the same material. A sense of finalisation regarding particular political and traumatic issues is not comprehensively achieved, rather there are repeated approaches to deal with the same traumatic events. LaCapra offers an insight into why this is the case:

the radical ambivalence of repetition — its 'undecidability' if you prefer — implies the possible role of counter-vailing forces that may not entirely heal wounds but that allow mediated ways of surviving survival — forces such as mourning itself, where grief is repeated in reduced, normatively controlled, and socially supported form. (*Representing the Holocaust* 199)

Repeated approaches towards traumatic material allow a space for the person experiencing traumatic material to gain narrative and affective control over that material. As I have noted, traumatic material continues to irrupt into the sufferer's life and is a destructive force. Repetition in a "normatively controlled, and socially supported form" (199), like that of

testimonial life-writing narratives, allows greater purchase on traumatic material.

Testimonial life-writing becomes progressively more politicised through the process of repeated confrontation with personally traumatic material, as illustrated in Langford Ginibi's life-writing. Her writing moves from an engagement with the personal to an engagement with her cultural group to the nation as a whole, and back again, in a dialectical movement that broadens the stories' significance. LaCapra, citing J. Laplanche and J. B. Pontalis, writes: "[i]ndeed, for them 'working-through might be defined as that process which is liable to halt the repetitive insistence characteristic of unconscious formations by bringing these into relation with the subject's personality as a whole'" (*Representing the Holocaust* 209). Furthermore, as I have been arguing for the social, rather than strictly personal, significance of psychoanalytic theory, the process of writing-through trauma in testimonial life-writing not only brings traumatic material "'into relation with the subject's personality as a whole'", but also brings it into relation with the nation as a whole (209). In a post-colonial context the process of writing-through trauma is a process of specifying the material that needs to be reinscribed in post-colonial cultures. Importantly, it is also effective in countering neo-colonial and racist practices.

A similar process of repetitive engagement with traumatic material is seen in *My Place* in which Sally Morgan's grandmother initially resists discussing her Aboriginality because she is ashamed of it but progressively attains a sense of pride in it. For instance, the different colours of the grandmother, mother and grandchildren are a source of shame in the family. When Morgan's grandmother first describes herself as black, it is done in an emotionally-pained manner. The narrator, ostensibly Morgan, writes, "[s]he [Morgan's grandmother] lifted up her arm and thumped her clenched fist hard on the kitchen table. 'You bloody kids don't want me, you want a bloody white grandmother, I'm black. Do you hear, black, black, black!' With that, Nan pushed back her chair and hurried out to her room" (97). And later:

Mum and I had small conversations about the past, but they weren't really informative, because we tended to cover the same ground. Sometimes, Mum would try and get Nan to talk. One day, I heard Nan shout, 'You're always goin' on about the past these

days, Glad. I'm sick of it. It makes me sick in here', she pointed to her chest. 'My brain's no good, Glad, I can't 'member!' (145)

Such shame is transferred to the younger generations of the family. When Morgan discovers through her sister Jill that she is not Indian but Aboriginal, Morgan identifies her family's sense of shame in being Aboriginal. Jill describes her family in derogatory and racist terms, a consequence of internalising white racist views, an internalisation that is at conflict with their Aboriginal identity. Morgan quotes her sister: "You still don't understand, do you', Jill groaned in disbelief. 'It's a terrible thing to be Aboriginal. Nobody wants to know you [...]. You can be Indian, Dutch, Italian, anything, but not Aboriginal! I suppose it's all right for someone like you, you don't care what people think. You don't need anyone, but I do!" (98). Yet, through Morgan's insistence throughout the text on confronting and acknowledging the family's Aboriginality, there are moments of breakthrough in the process of working-through in which the acknowledgement of Aboriginality as an act of object specification leads to a sense of pride in Aboriginal identity:

About this time, Nan's favourite word became Nyoongah. She'd heard it used on a television report and had taken an instant liking to it. To Nan, anyone dark was now Nyoongah. Africans, Burmese, American Negroes were all Nyoongahs. She identified with them. In a sense, they were her people, because they shared the common bond of blackness and the oppression that, for so long, that colour had brought. It was only a small change, but it was a beginning.

In a strange sort of way, my life had new purpose because of that. (138)

Likewise, the family's journey up the West Australian coast to connect with their Aboriginality is an act of working-through a sense of lost identity. Morgan recounts the journey on which she was accompanied by her mother, husband and children. On meeting two older Aboriginal women, Topsy and Nancy, it takes some time for these women to identify the connection between them all. In fact, they grew up with Morgan's grandmother and great aunt. They tell Morgan about her aunt and their early life at Corunna Downs. The discovery of this information about Morgan's family history is an instance of working-through important and difficult material connected with Aboriginal identity. Morgan writes:

I pointed to the photo containing Nanna as a young girl and got them to look at it carefully. Suddenly, there was rapid talking in Balgoo. I couldn't understand a word, but I knew there was excitement in the air. Topsy and Nancy were now very anxious about the whole thing.

Finally, Gladys [Gladys Lee, Morgan's interpreter] turned to me with tears in her eyes and said, 'If I had have known Daisy's sister was Wonguynon, there would have been no problem'.

'Who's Wonguynon?' I asked.

'That's Lilla's [Morgan's great aunt] Aboriginal name. We only knew her by Wonguynon. [...] She was related to my father. I am your relation, too'.

Topsy and Nancy began to cry. Soon, we were all hugging. Gladys and I had tears in our eyes, but we managed not to break down. [...] 'They lived as one family unit in those days', Gladys explained. 'They lived as a family group with Daisy and Lily and Annie. This makes them very close to you. They are your family. Daisy was sister to them. They call her sister, they love her as a sister.'

By this time, we were all just managing to hold ourselves together. I tried not to look at Gladys as she explained things, because I was trying to keep a tight lid on my emotions. It wasn't that I would have minded crying, it was just that I knew if I began, I wouldn't be able to stop. It was the only way to cope.

Later, we retraced our steps back down through the Reserve [...]. By the time we reached the other end of the Reserve, we'd been hugged and patted and cried over, and told not to forget and to come back.

An old full-blood lady whispered to me 'You don't know what it means, no one comes back. You don't know what it means that you, with light skin, want to own us.'

We had lumps in our throats the size of tomatoes, then. I wanted desperately to tell her how much it meant to us that they would own us. My mouth wouldn't open. I just hugged her and tried not to sob.

We were all so grateful to Gladys for the kind way she helped us through. Without her, we wouldn't have been able to under-

stand a word. Our lives had been so enriched in the past few days. We wondered if we could contain any more. (228–29)

Finally, on their return to Perth, a different and more complete sense of their relationship to their own Aboriginality is experienced:

That afternoon, we reluctantly left for Perth. None of us wanted to go, Paul [Morgan's husband] included. He'd been raised in the North and loved it. We were reluctant to return and pick up the threads of our old lives. We were different people, now. What had begun as a tentative search for knowledge had grown into a spiritual and emotional pilgrimage. We had an Aboriginal consciousness now, and were proud of it.

Mum, in particular, had been very deeply affected by the whole trip.

'To think I nearly missed all this. All my life, I've only been half a person. I don't think I really realised how much of me was missing until I came North. Thank God you're stubborn, Sally.'

We all laughed and then, settling back, retreated into our own thoughts. There was much to think about. Much to come to terms with. I knew Mum, like me, was thinking about Nan. We viewed her differently, now. We had more insight into her bitterness. And more than anything, we wanted her to change, to be proud of what she was. We'd seen so much of her and ourselves in the people we'd met. We belonged, now. We wanted her to belong, too. (233–34)

A similar sense of completion is identified when on leaving Morgan's uncle Arthur's wife's house, Morgan writes, "We felt very full inside when we left. It was like all the little pieces of a huge jigsaw were finally fitting together" (232).

There is always a risk involved in working-through post-colonial trauma of falling into totalising redemptive narratives or impasse-oriented racial and cultural divisions. The failure to work-through racial and cultural conflict is described by LaCapra in a psychoanalytic sense:

Here deceptive transfiguration is necessarily supplemented if not displaced by what may be an equally deceptive disfiguration or disarticulation. This reaction becomes particularly compelling in

a posttraumatic context, particularly when the object of mourning is concealed or foreclosed and the process of mourning is arrested by (or even identified with) continual melancholy and the acting out of a repetition compulsion. (*Representing the Holocaust* 192)

However, writing on the benefits and risks of working-through trauma and by extension of testimonial life-writing, LaCapra suggests that the nonfetishistic narrative that resists ideology would involve an active acknowledgment and to some extent an acting out of trauma with the irredeemable losses it brings, and it would indicate its own implication in repetitive processes it cannot entirely transcend. But it would also attempt to conjoin trauma with the possibility of retrieval of desirable aspects of the past that might be of some use in counteracting trauma's extreme effects and in rebuilding individual and social life. (199)

In the language of Holocaust Studies:

One may agree with the view that the Holocaust is, in a manner that would have to be further differentiated, 'a communal wound that cannot heal.' But does this view entail that countervailing tendencies in the lives of victims — and by seeming implication in modernity in general — are merely constitutive of a surface life or murmur that is somehow less authentic than what is argued to lie beneath? (196)

Similarly, I argue for a non-totalising view in the manner of LaCapra, one that posits a mutable array of presences and silences, different Reals for different Symbolics, and is capable of identifying the different successes and failures involved in working-through post-colonial trauma. LaCapra cites Phillip K.'s (a testifier for the Fortunoff Video Archive for Holocaust Testimonies at Yale) testimony, which argues that "there are as many ways of surviving survival as there have been to survive" (197).⁴ LaCapra writes that Phillip K.'s observation "points to the danger of homogenizing or overgeneralizing about the experience of victims and survivors. I think one may also argue that it indicates the danger of massive generalizations about modernity and points instead to the importance of careful compar-

⁴ Phillip K.'s last name is withheld by the Fortunoff Video Archive for Holocaust Testimonies to protect his privacy.

ative history” (197). LaCapra further argues that Lawrence Langer (an important theorist of Holocaust trauma) “may go too far in the opposite yet complementary direction” towards salvationist, heroic narratives of surviving the Holocaust (197).⁵ In place of either extreme, LaCapra argues that

values have to a significant extent been jeopardized by trauma and evacuated by banalization, and they may be invoked as mere clichés or rhetorical topoi by those who do not believe in them and may not be shocked when they are radically distorted or transgressed. In this respect, there is a need for a discourse on values that is not purely transcendental or detached from social and historical inquiry but critically related to problems of empirical research as well as to the rebuilding of agency, which is required for the situational transcendence of existing relations toward more desirable possibilities. (201–202)

As LaCapra argues:

One may nonetheless suggest that certain discursive movements [...] indicate how one might approach the issue of working-through in its relation to acting-out. A principal conceptual means would be the relation of the Imaginary to the Symbolic (with the notion of the Real defetishized to allow for other possibilities in the response to trauma). (207–208)

I contend that testimonial life-writing and its theoretical explication in this article can be viewed as such a discursive movement. Aboriginal testimonial life-writing defetishises the Real through its faith in the political and therapeutic efficacy of the writing process, while this study theoretically defetishises the Real by insisting on its specificity and thereby the potential for it to be leveraged in different ways at different times. The relationship between working-through and acting-out in testimony and theory provides the opportunity to extend vocabularies and imaginaries for responding to post-colonial trauma. The off-setting of working-through and acting-out, in relation to trauma recovery, is therapeutically and in-

⁵ LaCapra criticises Langer for his ‘strategy of reversal’, his ‘opposite yet complementary’ approach to redemptive narratives. LaCapra writes: “He [Langer] explicitly states that historical investigation of the Holocaust ‘cannot promote life’” (*Representing the Holocaust* 198). However, on page 202, LaCapra cites Langer to illustrate that Langer often holds a less absolute position.

tellectually valuable. However, there is always the risk of re-traumatising subjects by off-setting working-through with acting-out and by not providing adequate conceptual tools through which to specify traumatic objects and establish narrative control over the traumatic material being activated. Yet, when such object-specification is achieved, a sense of closure may result.

However, Aboriginal testimonial life-writing and the theory examined in this article is not interested in working-through post-colonial trauma simply to close it off. It is also about opening out traumatic experiences on to the world and through doing so enriching Aboriginality and tracing the progressions and regressions of social imaginaries. Closure, as employed in this article, does not signify the presentation of a final story. Indeed, testimonial life-writing presents the disjunctions between what can be phrased now and what is yet to be phrased; a disjunction that creates a dynamic identity rather than a rigid and illusory authenticity. The concept of closure is better understood as the increased descriptive and exegetic power of language whereby what was not phrased but needed to be phrased can now be phrased. Closure is concerned with object-specification, not conclusiveness.

The concept of trauma itself is an example of a concept/object that has proved a useful tool for thinking through the effects of colonial dispossession and has increased the vocabulary available to Aboriginal peoples for better articulating their experiences. Trauma is also a useful concept for literary and interdisciplinary critics who wish to better explicate the processes involved in testimonials. What once was not phrased and which now can be better phrased assists in establishing narrative and affective control over traumatic experience and, thereby, crucially, assists in establishing identity and agency.

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Trojan Genes and Trojan Laws: When the Polluter Doesn't Pay

EMMA ISSATT*

Aquaculture which uses genetically modified fish is nearly market-ready. As a totally new industry it holds implications for society and the environment, and therefore it should be subject to a legislative regime that is, in terms of precaution, adequate if not rigorous. This paper is a brief look at the state of regulation in the EU for one of the potential hazards of genetically modified fish. It postulates an inability to act on an inability to legislate adequately and begins an analysis of why that is so.

I. Trojan Genes

As a new industry, the benefits and detriments are hypothesised, rather than known. They are considered in the report “Future Fish? Issues in Science and Regulation of Transgenic Fish” (2003). The report was produced by the Pew Initiative on Food and Biotechnology, an independent organisation which aims to obtain and disseminate factual information on biotechnology in order to facilitate policymaking and debate. Another source of information is the FAO/WHO Expert Consultation on the Safety Assessment of Foods Derived from Genetically Modified Animals, Including Fish (2003). Despite both being several years old, these documents are still the most comprehensive sources available.

* PhD student currently applying to University of Bergen, Norway. This paper has emerged from a presentation given at the annual workshop, ‘Post-normal science and its ethical aspects: Doctoral projects and other projects in the making’, at the ASFPG Centre for environmental and technology ethics. I would like to thank Matthias Kaiser for the invitation to the workshop, and to my fellow participants for their very useful feedback. I would also like to thank Valerie KERRUISH for her exceptional guidance and feedback on the writing of this paper.

The perceived benefit is that it could relieve the growing global demand for fish as foodstuff, while relieving the pressure on wild fish stocks. Unlike conventional aquaculture, genetic modification can lead to fish that grow twice as quickly, have inbuilt resistance to disease which should reduce local water pollution from use of pesticides and antibiotics and have improved food conversion so that they consume fewer fish as they grow or consume vegetable matter instead (Pew 2003).

Given these advantages, and the fact that many of the development projects are sited in areas that are socio-economically disadvantaged, such as China and Cuba, it seems that GM aquaculture could become a textbook example of the environmental principle of Sustainable Development, with its emphasis on inter-generational equity (it preserves fish stocks for future generations) and intra-generational equity (the benefits are shared with the developing countries).

The process is not without its perceived detriments, however; for example, the idea of modifying a living animal is held by many people to be unethical and repugnant; there may be human health risks in foodstuff composed of genetic material from different species which could not have cross-bred naturally due to lack of genetic similarity (FAO/WHO 2003).

A further detriment for consideration is that aquaculture uses open water sea pens, which leads to the risk of fish escape, and environmental pollution in the potential loss of genetic diversity (Pew 2003). Fish are no respecters of boundaries, and the spread of genetically modified fish would be difficult if not impossible to contain. These risks, particularly the one just mentioned, turn the concept of GM aquaculture as a model sustainable industry, on its head. For this reason, I am using this previously unimaginable environmental risk as a starting point in my research into how traditional laws are evolving in response to developments in biotechnology.

The risks and uncertainty suggest that GM aquaculture could therefore become a textbook example of an industry requiring precautionary legislation. This would be fairly inarguable — although as we will see there are counter factors at work — given the increasing acceptance of the Precautionary Principle (PP) as a legal norm, and its increasing legitimacy. For example, the introduction of the Principle into discussions at the 1992 United Nations Conference on Environment and Development,

led to its inclusion in the subsequent 1992 Rio Declaration on Environment and Development, a set of principles intended to steer future global development.

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities.

The 'precautionary approach' is defined in the following sentence.

Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation (Rio Declaration 1992, Principle 15).

The PP also influences EC legislation on environmental matters, according to the Treaty Establishing the European Community.

Community policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Community. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay. Environmental protection requirements must be integrated into the definition and implementation of other Community policies (Art. 130r(2)).

The PP is subject to interpretation, and although a suggested nineteen versions of it have been identified (Wiener and Rogers 2002), it seems to take three main forms. The first form is the wide interpretation which is essentially an approach: the presence of scientific uncertainty does not allow for inaction, so that traditional methods of postponement of action pending further information are no longer acceptable. The second form encourages action, in that scientific uncertainty and risk of harm lead to the taking of precautionary measures. The third form of PP is an interpretation which allows the reversal of the traditional legal burden of proof. Prior to this, for example, an environmental NGO or other claimant would have to prove that the acts of a State or corporation were harming, or would harm, the environment. With this interpretation of the PP, it may now fall to the State or organisation to prove that their acts are not harming or will not harm the environment.

This new legal thinking may be observed in the case of an appeal to the European Court of Justice in 1996 by the United Kingdom against the European Commission's ban on UK beef exports during the BSE crisis. In *United Kingdom of Great Britain and Northern Ireland v Commission of the European Communities* the UK argued that the burden of proof should lie, as is traditional, on the Commission, as it stated that "there is no scientific basis for the ban on exports" (Transcript of the Court Order, 'Position of the Parties', para. 47). But the case was judged with the PP reversal and the burden placed on the UK to prove the safety of its beef, as had been originally argued by the Commission, as the Court found that "there are still scientific uncertainties" (Transcript of the Court Order, 'Findings of the Court', para. 69) Thus the PP has the potential to modify traditional legal rules in response to environmental risk.

Bearing this in mind, it is interesting to consider the relevant EC Directive for potential GM fish escapes, Directive 2004/35/EC on environmental liability with regard to the prevention and remedying of environmental damage. The PP should influence the preventative nature of the Directive in accordance with its inclusion in the EC Treaty, but the Directive states:

The prevention and remedying of environmental damage should be implemented through the furtherance of the 'polluter pays' principle, as indicated in the Treaty and in line with the principle of sustainable development. The fundamental principle of this Directive should therefore be that an operator whose activity has caused the environmental damage or the imminent threat of such damage is to be held financially liable, in order to induce operators to adopt measures and develop practices to minimise the risks of environmental damage so that their exposure to financial liabilities is reduced (Preamble (2)).

The Polluter Pays Principle, another principle of sustainable development, aims to internalise the external costs of pollution that may be borne by a third party, society in general, or the environment, by allocating the costs back to the polluter. This is achieved through a system of taxes, charges or liability regimes, and operates on the presumption that there is a monetary cost, that it is quantifiable, and manageable.

Although the PP has at least the potential to reverse the burden of proof, the polluter pays liability regime appears to retain the traditional

burden of proof on the claimant. The Directive combines both strict and fault liability; within it is a list of specific hazardous occupational activities (Annex III) and it is stated in Article 3 ('Scope') that the Directive is applicable to

environmental damage caused by any of the occupational activities listed in Annex III, and to any imminent threat of such damage occurring by reason of any of those activities (Art 3(1)(a)).

This appears to be strict liability, particularly as the second statement of the Directive's application is to

damage to protected species and natural habitats caused by any occupational activities other than those listed in Annex III, and to any imminent threat of such damage occurring by reason of any of those activities, *whenever the operator has been at fault or negligent* [my emphasis] (Art 3(1)(b)).

The explicit statement that damage outside the list cited in Annex III, is subject to fault liability suggests that where fault liability is being considered, a wider, more approach-based interpretation of the PP is being used.

The emphasis within the Directive on liability raises the question of how far the Polluter Pays Principle facilitates new thinking and a move away from traditional liability mechanisms.

The current standard for liability in English tort law is *Caparo Industries plc v Dickman* (1990) and the Directive may be read in the light of this standard. The *Caparo* test is based on three elements; firstly proximity: the relationship of injured to injurer. Proximity is defined in the Directive such that potential claimants are those "affected or likely to be affected by environmental damage or having sufficient interest in environmental decision-making" (Art. 12(1)). The Directive suggests that the latter would mean NGOs as opposed to individuals claiming sufficient interest, in line with the limitations that are set by a proximity test of the *Caparo* kind. The second element is foreseeability: whether it could be reasonably foreseen that harm would occur as a result of a certain act or failure to act. The Directive (Preamble (20)) states that the agent should not bear the costs "in situations where the potential for damage could not have been known when the event or emission took place." The third *Caparo* element is fairness, or the limits to liability. Annex I of the Directive states

The following does not have to be classified as significant damage:

- negative variations that are smaller than natural fluctuations regarded as normal for the species or habitat in question,
- negative variations due to natural causes or resulting from intervention relating to the normal management of sites, as defined in habitat records or target documents or as carried on previously by owners or operators,
- damage to species or habitats for which it is established that they will recover, within a short time and without intervention, either to the baseline condition or to a condition which leads, solely by virtue of the dynamics of the species or habitat, to a condition deemed equivalent or superior to the baseline condition.

So although the Directive employs the Polluter Pays Principle to remedy or prevent environmental harms, the legislation also seems to be substantively similar to the principles of English tort law.

The Precautionary Principle is also liable to an interpretation that is remarkably similar to a particular theory of tort law, namely economic analysis. The Rio Declaration 1992 Principle 15, for example, states that

lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

That the measures are to be cost-effective is of course practical and realistic, but it also is a reflection of the economic theorists' viewpoint. As described by Jules Coleman:

Economic analysts focus primarily on the concept of negligence. Negligence is the failure to take adequate care and adequate care consists in taking cost-justified precautions. Precautions are cost-justified whenever their cost is less than the costs of the harm risked (by not taking precautions) discounted by the probability of the harm's occurrence (Coleman 2003).

According to this theory, he adds, “[a]n agent will be at fault only if the costs of precautions are less than the costs of the harm discounted by the probability of occurrence”.

That emerging legal principles show signs of assimilation into existing legal principles is perhaps unsurprising given the role played by the continuity and predictability of law as a legitimating factor, and the need for legitimacy of the laws themselves, such, for example, as is bestowed by democratically elected law-makers in a Parliament. But the question remains as to the adequacy of their application, considering the magnitude of the new risks for which policy makers should be creating legislative instruments. There is something rather sadly optimistic about the phrase “environmental liability directive” suggesting an ordered world where transgressions are minor, measurable and punishable.

To return to Directive 2004/35/EC, and its relevance for the potential pollution issues with GM aquaculture: the “Net Fitness Methodology” created by Muir & Howard (Pew 2003), uses computer simulation to hypothesise that modified fish that escape into the wild will behave in one of three ways. They may breed successfully and alter the genome of the wild population; they may fail to breed and die out leaving the wild population unaffected; or they may trigger local population extinction. This last scenario is due to possession of a “Trojan Gene”; the destroyer lurking within. Trojan Gene fish would appear to be viable, attractive with good reproductive success, but contain within some latent unviability, causing them to die out quickly. In this way, each generation of Trojan Gene fish would attract mates at the expense of their less glamorous but healthier natural competitors, reproduce, then die out in vast quantities. Within a few generations, or a few years, the population would be extinct.

That this is ecosystem damage is evident, but equally evident is the fact that a disappearance of fish is neither concrete nor quantifiable. The fish may simply be elsewhere. Therefore it is very likely that in litigation following such a scenario, a causal link would not be found, and liability could not be established.

II. Trojan Laws

Extinction of species, as a fundamental threat to ecosystems, with a potential accumulative negative effect on the viability of the planet, is a cost that cannot be externalised. Therefore it may be considered one of the most pressing of environmental risks that requires precautionary policy decisions.

Action to prevent the possibility of the spread of Trojan Gene fish might still be available under 2004/35. As with remedies for environmental damage, prevention of damage is implemented according to the Polluter Pays Principle. Preventative measures may be taken by the potential polluter, or by the affected Member State with subsequent recovery of the costs incurred. Such measures could include injunction to suspend or cease certain potentially polluting activities. As with remedies for damage already caused, the potential liability for threat of damage is split in two, with strict liability for the activities listed under Annex III, and fault liability for other activities. Such action would only be available if the test for proximity were satisfied, though who is not proximate in the case of species extinction?

The Directive however acknowledges the impossibility of liability in cases where pollution of such a nature has already occurred; it is

not a suitable instrument for dealing with pollution of a wide-spread, diffuse character, where it is impossible to link the negative environmental effects with acts or failure to act of certain individual actors (Preamble (13)).

It is my contention that the unsuitability of liability mechanisms as a substantive feature of environmental law is clear. Negligence is an outmoded concept that is effective in traditional cases of measurable damage, but has a limited utility that courts have long recognised. In the *Caparo* case, Lord Oliver alluded to the need for the tort of negligence to be redefined to allow a more sophisticated consideration of the limits of responsibility and liability. The tort originated with *Donoghue v Stevenson* (1932), a case where physical damage, via a contaminated ginger beer bottle, occurred to the claimant due to the negligent act of the defendant. The application of the tort developed through cases of increasing subtlety, and in *Caparo* it was being considered for a case of pure economic loss, due to the publication of incorrect company accounts. Although Lord Oliver is speaking about cases of economic loss, the fact that environmental legislation is looking to the principles of negligence, renders his speech pertinent:

The opportunities for the infliction of pecuniary loss from the imperfect performance of everyday tasks upon the proper performance of which people rely for regulating their affairs are illimitable and the effects are far reaching. A defective bottle of

ginger beer may injure a single consumer but the damage stops there (632).

Acknowledging the futility of trying to manage species extinction on ginger beer bottle legislation is one thing, but the danger is that the lack of a clear principle to guide legislation for unmeasurable environmental risks will be rendered normal through an acceptance of the state of affairs. With legislation such as 2004/35, it could be argued that Trojan Laws are being created; ones that implicitly or explicitly acknowledge that they do not legislate for the most serious of risks, so that with time, the lack of legislation, the deadly gap in the Act, becomes a social and legal norm and no-one need feel that it requires remedying.

It appears that policy makers are suffering from an inability to act upon the inability to legislate adequately, which may be due to several factors. Firstly there is the variation in the value judgements that we hold about nature, society and the interplay between them. A member of an environmental NGO for example, would probably feel that nature was fragile and that society was robust, and could therefore bear the cost of increased precaution. Policy makers on the other hand, may be more inclined to think the exact opposite.

Secondly there is variation in our perceptions of what constitutes acceptable risk. There may be natural and wholly rational scepticism of scientific estimates of risk (along with totally irrational scepticism) as the estimate may conceal other interpretations, vested interest or incomplete analysis. Also as Scott Veitch has pointed out, citing the observations of Ulrich Beck, risks are open to social definition which may influence perceptions. Veitch cites Jonathan Schell's observation that the discussions about the use of nuclear weapons were conducted with "insane calmness" as if anxiety or fear were *infra dig* (Veitch 2007 at 124). It would appear that the greater the risk, the greater the calmness and the lesser the legislation. An individual will be prosecuted if their dog fouls the pavement, but corporations, or legal individuals, can destroy whole ecosystems without being called to account.

Thirdly, there is also a possibility that tolerance of risk varies according to exposure to previous like risk. The EC was strongly precautionary towards the import of US hormone-added beef in the WTO *Beef Hormones* case and banned its import as there was scientific uncertainty about risks to human health. The continuation of the ban, in the face of

an appeal to the WTO by the USA and Canada, was no doubt due to the material facts of the case, but possibly also because the EC had very recently encountered a similar risk with BSE in British beef.¹ No significant aquaculture disaster has happened yet. We don't know if the seas are boiling with healthy fish or completely depleted, because we can't see. This 'out of sight out of mind' mentality is perhaps the reason that both conventional aquaculture and fisheries legislation have been so patchy and reactive. For policy makers who do not live in fishing communities, fishing may conjure up sentimental sepia-tinted images of oilskin-clad men on Fleetwood trawlers, and not, as the writer Mark Kurlansky observed, the reality of the modern factory processing ships "pulling trawls with openings large enough to swallow jumbo jets" (Kurlansky 1997 at 140).

Finally, another possible reason for the eerie calm of the Trojan Law is that it must be someone else's responsibility. Veitch postulates that legal institutions are capable of not only failing to legislate against irresponsible behaviours but actually to promote and organise them. In certain cases, human suffering and environmental disaster can become legitimated by the acceptance of them as norms. He cites Stanley Milgram's descriptions of the "fragmentation of the total human act" allowing harm to happen in a systematic discrete manner where no one person is responsible (Veitch 2007 at 45).

We can all find examples of this from history. Perhaps this fragmentation can be found to explain in part the creation of laws like 2004/35 which toss the hot potato of risk responsibility on to the next legislation. As long as it can keep being someone else's responsibility, then we don't have to worry about it.

Conclusion

The initial aim of my PhD research was to investigate the legislation for GM aquaculture from the perspective of precaution and responsibility, but at present the direction seems to be widening to consider the state of the field of Biotechnological Law in general; it does not appear to be a field that is burdened with regulation, which seems to reinforce the postulation that lawmakers are failing to legislate adequately for the new risks.

¹ See the discussion of *United Kingdom of Great Britain and Northern Ireland v Commission of the European Communities* above at p.72.

It is of particular interest to consider in what way legal thinking needs to evolve in response. This will probably involve an in-depth investigation of the application of the Precautionary Principle in case law to date, and investigation of legal commentary on the relationship between law and risk. This paper looks at the exemplar of EC Directive 2004/35, but there is perhaps also a need to consider the relationships between various pre-existing national legislation of EC Member States and 2004/35, and between the EC and other countries, for example the US, the biotechnological legislation of which consists of pre-existing legislation, interpreted in the light of new risks.

Legislation

Directive 2004/35/EC on environmental liability with regard to the prevention and remedying of environmental damage

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:143:0056:0075:EN:PDF>

Rio Declaration on Environment and Development 1992

<http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>

Treaty Establishing the European Community

<http://europa.eu/abc/treaties/archives/en/entoc053.htm>

Cases

'Beef Hormones case': WTO Case DS26: *European Communities-Measures Concerning Meat And Meat Products(Hormones)*

http://www.wto.org/english/tratop_E/dispu_e/cases_e/ds26_e.htm

Caparo Industries plc v Dickman [1990] 2 AC 605

Donoghue v Stevenson [1932] AC 562

United Kingdom of Great Britain and Northern Ireland v Commission of the European Communities Case C-180/96

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But what's it got to do with *law*?

VALERIE KERRUISH

ABSTRACT. Hegel's idea of a dialectical and speculative logic sets reason the practical–theoretical task of deriving thought's logical foundation: a dynamic and incomplete mapping of logical space. That task involves a derivation of the categories of metaphysics and a critique of the 'logic of the understanding', the classical formal logic which Kant described as a complete and perfect science. This paper engages Hegel's attribution of personality to the absolute Idea in the final chapter of the *Logic*.

1. Introduction

For Kant, designating the Old Testament creation myth as 'the fall' bespeaks a moral point of view, a point of view for which the history of nature begins with goodness for it is the work of God, but that of freedom begins with evil for it is the work of man.¹ The comment — in marked contrast to his metaphysics of right — is facetious, made in the context of an ironic refutation of Herder's view that humankind derives its destiny from nature and therefore needs no master.² Yet Kant was sure of his moral ground on other grounds, so his comment can serve to cue a contention.

There is a wrong of law and it works to maintain this moral point of view. It maintains judging, blaming and shaming, not only as *law's* response to harm and suffering but, prescriptively, 'imperationally' in Bentham's term, as the proper response *of us all*. It holds thought numb. For whether, in legal thought, the prescription is disowned and displaced to morality or utility in the instant of its issue or represented as authorised or as balanced by it, this wrong secures law's right — indeed its obligation — never to allow itself to be surprised in thinking itself as right.

¹ [Kant 1991] at 227.

² [Reiss 1991] at 197.

If a legal theory seeks to engage the politics of law, it does not much help to shift moral into ethical points of view for the ethos in question is already shaped and formed by this wrong. The basis and actuality of that shaping and forming must be taken into account and that, in my view makes it necessary to think the ‘wrong’ of the wrong of law before law has asserted its jurisdiction over it.

Yet is it not just this necessity that is rendered impossible by the actuality referred to? How, short of a transcendent or god-like or sectarian standpoint can conscious and self-conscious thought step outside the environment which has shaped and formed it? What can there be that is before a law which is the law of and for a particular social formation — call it ‘global capitalism’ — and which, as part of being what it is and doing what it is does, claims its right as the universal which justifies its enforcement? What is to be expected from such an idea as the wrong of law (right)? That the judge, just as she is about to sentence the thief, experiences an epiphanous revelation of cultural guilt and sentences herself to a ten years hard-labour?

Surely then the theorist of law who acknowledges that what is reasonable is actual if not that what is actual is reasonable can only set about pointing out in one mode and another “how pitiful and full of contradictions” actuality is? Surely she should join a young Marx in reproaching Hegel for reproaching “ordinary consciousness for being discontent with the satisfaction of [his] logic, for being unwilling to see actuality dissolved into logic by arbitrary abstraction?”³

My reservation on these ‘surelys’ begins with their premised rejection of the second stanza of Hegel’s formulation of the relation between the actual and the reasonable.⁴ The social relations and institutions of European modernity (‘ethical life’ (*Sittlichkeit*) in Hegel’s terms) are doubtless intended by the phrase and a distinction, built in by Hegel at the logical level, between the concepts of ‘existence’ and ‘actuality’ such that the former is “in part mere appearance (*Erscheinung*)”,⁵ can hardly be thought to dispose of the problem without a great deal more.⁶ Rather, I go back

³ [Marx 1970] at 64.

⁴ [Hegel 1991] at 20; [Hegel 1821] at 33. [Hegel 1975] §6 at 9; [Hegel 1830]: “What is reasonable is actual; and what is actual is reasonable.”

⁵ [Hegel 1975]; [Hegel 1830] at §6.

⁶ The conceptual distinction is one thing: its application, assigning this to appearance and that to actuality is another.

here to a more basic, metaphysical assumption of Hegel's thought, the unity of being (or extension) and thought, which while complemented by the equally basic premise of his idealist dialectic, namely the idea that thought separates itself from extension — flies free to lead and mislead — opposes the analytic separation of actuality and Idea that is vested in the “imperative ‘ought’”.

A ‘materialist’ dimension of Hegel's dialectic, especially evident (as Lenin comments) in his *Logic*,⁷ is lost if only one side of this formulation is taken. The materiality of fetish phenomena — strange objects of thought's own creation — in and to human thought and action is ignored, or, what is hardly better, characterised as an illusory appearance located in religious belief or other primitive social practices. Reasoning (or thinking) that is structured by the predicative form of (some) languages, inevitably and inescapably creates such ‘objects’ when it turns a predicate or concept into a subject or object: when it turns ‘is red’ to ‘redness’ for example. It is a mode of abstraction which Hegel deploys.⁸ This is the theoretical target of Marx's comment quite as much as the reactionary character of the Estates is his political target. The theoretical question here is: if these objects are inevitably and inescapably created, what is the point of calling them arbitrary?

The development that will answer that question came after Hegel and after Marx. Shifted from grammar to mathematical logic, this mode of abstraction — passing from a concept or predicate to its extension — leads and lead Frege, all unawares, into paradox.⁹ For classical logic then, nothing could be more arbitrary, for such paradoxes in that logic yield antinomies that trivialise it: make everything and anything provable and foil what any formal logic must maintain, a truth preserving capacity. But then, as the new discipline thrived, it also emerged that classical logic was not the only formal logical system and then that arithmetic itself was incomplete and incompleteable and then that classical first order logic is undecidable.

This goes very wide and very fast. It can only be taken as a stroke or squiggle indicating an approach which aligns Hegel's abstract idea of and

⁷ [Lenin 1914] at 231.

⁸ This claim is supported in [Kerruish 2006] at 34f and related to Frege's ‘ideal calculus’ in [Kerruish and Petersen 2006] at 72.

⁹[Kerruish and Petersen 2006] at 70f.

for a formal science of logic to contemporary mathematical logic.¹⁰ But it has to be there, and that so soon, because the approach is born of the persuasion that thinking or reasoning which would get at the ‘wrong’ of the wrong of law before law has asserted its jurisdiction over it should go by way of Hegelian dialectic. What there can be that is before the law, to put it contentiously, is thought’s dialectical and speculative logical foundation

This ‘before’ is not temporal and the ‘foundation’ is not a substrate which guarantees the certainty of existing knowledge. The foundation is the result of a practice of formal reasoning that takes account of assumptions and seeks to establish dependencies. It shares with any foundational approach a belief in and concern to investigate the objectivity of scientific knowledge, but concepts of objectivity are relative to the conception of foundation to which the enterprise is committed. A dialectical and speculative logical foundation is intensional (not extensional), sceptical (of established scientific knowledge) and gappy. It includes the objectivity of illusion within its concept of objectivity and starts out from an unavoidable ambiguity or double-character of ‘objects’ that foils favourite notions of classically foundationalist thought, such as denotation (reference), pre-set type-distinctions and banned ‘use-mention confusions’.

If an eye is had to developments in twentieth century and contemporary mathematical logic, to the struggle in foundations of logic and mathematics that the appearance of paradoxes in set theory and higher order logic set in train, and to the development of logics which can handle and put paradoxical objects (‘fixed-point constructions’ or products of logical self-reference) to effective use, it is Marx not Hegel who on the theoretical or logical side of things sticks to a classical position. That does not make Marx wrong and Hegel right or vice versa, but it does open a space between the theoretical and political dimensions of Marx’s critique of Hegel’s thought. With all sympathy for Marx’s political inclinations, my persuasion is that getting at the ‘wrong’ of the wrong of law, before law has asserted its jurisdiction over it, needs go by way of an up-dated but not inverted version of Hegelian dialectic.¹¹

This paper engages a problem met along that way: the personality of the absolute Idea. It is quite some time ago since, bringing Hegel’s

¹⁰ See *ibid* and [Petersen 2007]. See further below at n.103.

¹¹ [Kerruish 2007] esp. at 44f.

Phenomenology of Spirit reading of the *Antigone* together with his reconstruction of the person as the subject of formal right or legality in *The Philosophy of Right*, I argued that Hegel would not have portrayed the state as it is without reproducing the justificatory mumbo jumbo that surrounds it and its law.¹² I remain of that view though I would now want to say first, that ‘justificatory mumbo jumbo’ is a bit rough, if only because of a difference and intrigue between justification and legitimation in legal reasoning;¹³ second, that I did not there consider the *Philosophy of Right* in the light of the problem mentioned and since met. If ‘personality’ inheres in the absolute Idea then, given first that the absolute Idea *is* thought’s dialectical and speculative logical foundation and, second, that personality is a basic concept in Hegel’s notion of legality (or Abstract Right), how can it be contended that that foundation is ‘before the law’?

That is the question of this paper. The approach I have taken has been to engage it, in the text of the 1812–16 *Science of Logic* so to speak, blindfolded; as if unaware of the meaning and role of ‘persons’ in Hegel’s legal and political philosophy and as if his ‘derivation’¹⁴ of thought’s logical foundation were not influenced by views already formed on the realisation of that foundation in ethical life. My aim has been to make sense of the presence of ‘personality’ in the *Logic*, in terms of its (the *Logic*’s) subject-matter — the determinations of pure thought — and the foundational claim Hegel made for it. The following three sections of the paper pursue that strategy. The concluding section, takes off the blindfold and attempts an answer to the question.

2. Tarrying with the absolute Idea

The first paragraph of the concluding chapter of the *Logic* ‘The Absolute Idea’ reads in full:

The absolute Idea has shown itself to be the identity of the theoretical and the practical Idea. Each of these by itself is still one-sided, possessing the Idea itself only as a sought-for beyond and

¹² [Kerruish 1996] at 171.

¹³ [Kerruish 2008] at 16f.

¹⁴ Hereafter I shall drop the scare quotes from ‘derivation’ when that term is applied to Hegel’s reasoning. I include them here to indicate the difference from formal logical derivation as it is now done.

an unattained goal; each therefore is a *synthesis of endeavour*, and has, but equally has *not*, the Idea in it: each passes from one thought to the other without bringing the two together and so remain fixed in their contradiction. The absolute Idea, as the rational Notion that in its reality meets only with itself, is by virtue of this immediacy of its objective identity, on the one hand the return to *life*; but it has no less sublated this form of immediacy, and contains within itself the highest degree of opposition. The Notion is not merely *soul*, but free subjective Notion that is for itself and therefore possesses *personality* — the practical, objective Notion determined in and for itself which, as person is impenetrable atomic subjectivity — but which, none the less, is not exclusive individuality, but explicitly *universality* and *cognition*, and in its other has its *own* objectivity for its object. All else is error, confusion, opinion, endeavour, caprice and transitoriness; the absolute Idea alone is *being*, imperishable *life*, *self-knowing truth*, and is *all truth*.¹⁵

“Hegel”, J. N. Findlay writes with an imperturbability as remarkable as the passage cited, “may be forgiven the extreme gorgeousness of this passage: its import is perfectly clear”.

To conceive things with adequacy and truth is to see them as having no other meaning or function but to call forth the intellectual and practical efforts of conscious persons, beings who are and must remain atomically separate in their self-enclosed personality, but who also share an endless open horizon of rational enterprises, for which the rest of the world provides no more than the stepping-off place or the stimulus. There is no reference here to any absolute, timeless or supra-individual experience: the Absolute Idea is merely the categorial form of self-conscious Spirit, something we all exemplify when we admire art, practise religion or cultivate philosophy.¹⁶

One of the things I appreciate in Findlay’s Hegel interpretation is his enthusiasm for his subject: for Hegel’s “surpassing, saving, philosophical genius” as he puts it elsewhere.¹⁷ Perhaps that can come only from

¹⁵ Ibid at 824; 327–8.

¹⁶ [Findlay 1958] at 265.

¹⁷ [Findlay 1971] at vii.

sympathy with each of the modes of the absolute Idea.¹⁸ Findlay gives a sense for the passage which makes enough sense to approach it, but it is a troubling sense. The absolute Idea is the categorial form of self-conscious spirit. With this I agree. But does the idea of there being such a form entail the intellectually raised, elevated attitude to the material world, to that which sustains life and knows death as ‘no more than a stepping off place’ for the aesthetic, religious and philosophically cultivated pursuits of some? That may have been Hegel’s attitude, even his motivation. But I do not think it is necessarily entailed by the idea of thought’s dialectical and speculative logical foundation.¹⁹

I make sense of the absolute Idea in the first place by relating it back to the standpoint of absolute knowledge reached at the end of *The Phenomenology*. As the ‘result’ of the theory of knowledge or justification or counter-epistemology which *The Phenomenology* is, it is a standpoint or epistemic position which takes as proven the refutation of an oppositional disjunction between knowing subjects and known objects. It is also the abstract concept of a pure science of logic, conceived but not yet realised.²⁰ In this latter dimension it sets Hegel to the practical–theoretical task of deriving that foundation: the work of the *Logic*. The opening claim for the absolute Idea as having ‘shown itself to be’ the identity of theoretical and practical reason can be read as the accomplishment or result of the *Logic* or, as the following sentence indicates, that of its last transition, the overcoming of one-sidedness of theoretical cognition (the Idea of the true) and practical volition (the Idea of the good) taken as distinct and separate ways of thinking.

Tied back to that transition the claim responds to the third of Kant’s four cosmological antinomies in his first *Critique* — of causation (necessity) and freedom — and the transition is in partial correspondence with

¹⁸ Hegel’s system covers three realms, logic or pure reason, nature and spirit. Nature and spirit are modes of the *existence (Dasein)* of the absolute idea. Art, religion and philosophy are different modes in which it apprehends itself and gives itself an adequate existence. Philosophy shares their content and end but, “it is the highest mode of apprehending the absolute Idea, because its mode is the highest mode, the Notion” ([Hegel 1969] at 824; [Hegel 1816] at 328).

¹⁹ What might a “resource conscious” (cf. [Troelstra 1992] at 2) logic in its care for assumptions bring and mean for the way in which the resources of the material world are dealt with?

²⁰ [Kerruish 2006] at 33f.

the task which Kant set himself in his *Critique of Judgement*, restoring unity to philosophical reason split between its theoretical and practical exercises in consequence of the resolution (*Auflösung*) of that antinomy.²¹ It is however only a partial correspondence because Hegel's point of departure — the “absolute” or “presuppositionless” beginning of the *Logic* — presupposes or is based on his satisfaction with the *Phenomenology*'s refutation of a Kantian standpoint. If, in terms of a theory of knowledge or justification that is brought down to refutation of the subject-object distinction, the identity of theoretical and practical reasoning will not, as in Kant, rest in *judgement* but in a dynamic inherent in reason itself: a dynamic inherent in ‘logic’ conceived as an organon or tool for the “production of objective insights” rather than as a canon of reason.²²

Dieter Henrich claims that as Hegel's thought moved on from its earlier grounding in ethical relations, it involved a renewal of Leibniz's vision of logic as *characteristica universalis*.²³ In a comment in the *Logic* Hegel does not separate that vision from the *calculus ratiocinator*, “a language of symbols in which each notion would be represented as a relation proceeding from others or in its relation to others” and dismisses at least the latter as an “immature” idea.²⁴ Should then a ‘renewal’ be claimed here? Is the method of doing logic part of the conception of logic? For Hegel, while a distinction between the exposition and treatment of his new science and the actual practice of derivation is marked in the structure of the text, the answer must be yes. The method is internal to the conception. Exposition of the “true method” of philosophy falls *within* the “treatment of logic itself” (theory) but is *outside* the actual derivations (practice) which deploy the method.²⁵ Whether then a ‘renewal’ is properly claimed rather depends on whether the claim makes company with Hegel's dis-

²¹ Cf. “The task assigned to the *Critique of Judgement*, as its Introduction makes explicit, is to restore unity to philosophy in the wake of the severe “division” inflicted upon it by the first two *Critiques* ([Lyotard 1994] at 1). And further at 39f. for an elegant summary of relations with the antinomies of the first *Critique*.”

²² [Hegel 1969] at 590; [Hegel 1816] at 23.

²³ [Henrich 1976] at 211.

²⁴ [Hegel 1969] at 685; [Hegel 1816] at 147.

²⁵ “The exposition of what alone can be the true method of philosophical sciences,” Hegel has written in the general Introduction to the *Logic*, “falls within the treatment of logic itself; for the method is the consciousness of the form of the inner self-movement of the content of logic” ([Hegel 1969] at 53; [Hegel 1812] at 51).

missal of mathematical methods in favour of philosophical hermeneutics or not. Henrich, a student of Gadamer, evidently does make such company and not without cause. Hegel *did* imagine his logic as a purely formal and universal science and, consistently with the theory/practice distinction within logic noted, he turns, shortly after the paragraph cited to consider the method of his logic, designated as the “universal aspect of the form”.²⁶

Now this again threatens to run wide because it is the very point on which I think a radical revision of Hegel is needed if his idea of thought's speculative and logical foundation is to be brought to bear on contemporary theory. It is however fully germane to the cited paragraph because Hegel's conception of ‘logic’ as a formal and universal science takes us back to the sense in which the opening claim is, but is not *just* a reference back to the final transition; not *just* a response to Kant's third antinomy but also a summary statement of the whole endeavour and accomplishment of the *Logic*. The continuation of the paragraph brings this out. The practical-theoretical character of the task set by the standpoint of absolute knowing, to use another metaphor, is a dynamic and mutable mapping of logical space, a mapping that follows and finally totalizes over all the steps of an expansive, self-moving form, the absolute Idea. The rest of the chapter is written from this standpoint.

If the *Logic* is thought to end with the transition from the Idea of the good to the absolute Idea, this chapter hardly comes into the way in which the absolute Idea is thought. The critical move in the transition is the practical Idea grasping its own limitation and in so doing giving up its own view or opinion (*Ansicht*) of itself as having all truth and value within itself.²⁷ The absolute Idea is then the self-corrected Idea of the good and ‘end’ as *telos* and end as *fnis* come nicely together.

In this result *cognition* is restored and united with the practical Idea; the actuality found as given is at the same time determined as the realized absolute end; but whereas in questing cognition this actuality appeared merely as an objective world without the subjectivity of the Notion, here it appears as an objective world

²⁶ [Hegel 1969] at 825; [Hegel 1816] at 329.

²⁷ “[W]hat still limits the objective Notion” Hegel writes, “is its own *view* of itself, which vanishes by reflection on what its actualization is *in itself*. Through this view it is only standing in its own way, and thus what it has to do is turn, not against an outer actuality, but against itself” (ibid at 822; 325–6).

whose inner ground and actual subsistence is the Notion. This is the absolute Idea.²⁸

If however it is thought to end at the conclusion of the final chapter the perspective on the absolute Idea of that chapter comes into play. The description in the paragraph beginning the chapter amplifies the passage just cited, opening onto the the modes of the absolute Idea previously noted. The chapter then turns to a consideration of method which leads, at the *very* end, into the passage to nature or the thinking of ‘being’ as nature.²⁹ Equivocation on where or when the *Logic* ends, matches equivocation on where or when it begins and both concern the distinction, noted in the context of Henrich’s claim, between the science or theory of logic and its practice of derivations.³⁰

As a practice of derivation the *Logic* ends with the transition to the absolute Idea, but as a science of logic it ends only with the transition to the philosophy of nature: when, having completed the practical-theoretical task set by the standpoint of absolute knowing, that is having opened and entered the logical realm and explored it for its fill of determinations of pure thought, it then closes it by elucidating how it comes about that it has done what it has done. “By virtue of the nature of the method just indicated, the science exhibits itself as a *circle* returning upon itself, the end being would back into the beginning, the simple ground, by the mediation”.³¹ On the basis and ground of this closure, of a last result, the passage to nature is obtained.

In conclusion there remains only this to be said about this Idea, that in it, first the *science of logic* has grasped its own Notion . . . But in the Idea of absolute cognition the Notion has become the Idea’s own content. The Idea is itself the pure Notion that has itself for its subject matter and which, as running itself as sub-

²⁸ Ibid at 823; 327. Cf. Gillian Rose’s re-writing of the *Logic* as a phenomenology of philosophical consciousness within which the absolute Idea is the idea of absolute ethical life and the final chapter is taken as a justification of the abstractness of the end in [Rose 1981] ch.6.

²⁹ [Hegel 1969] at 843; [Hegel 1816] at 353.

³⁰ It would be in accordance with something of a fashion in philosophy and social and legal theory to give that distinction in terms of object theory and metatheory; doing logic and talking about, reflecting on it. Since I think the distinction much abused I don’t use it.

³¹ [Hegel 1969] at 842; [Hegel 1816] at 351.

ject matter through the totality of its determinations, develops itself into the whole of its reality, into the system of the science [of logic], and concludes by apprehending this process of comprehending itself, thereby superseding its standing as content and subject matter and cognising the Notion of the science. Secondly, this Idea is still logical, it is enclosed within pure thought, and is the science only of the divine *Notion* . . . Because the pure Idea of cognition is so far confined within subjectivity, it is the *urge* to sublimate this, and pure truth as the last result becomes also the *beginning of another sphere and science*.³²

The expression is anthropomorphic, the passage to nature is notoriously ‘dark’,³³ ‘the divine Notion’ is reminiscent of the ‘mind of God before he created the world’ *but* the salient point is to say that the *Logic* ends only when it has reached a concept of ‘logic’. *That* question is still debated, still a theatre of ideological debate and to my mind still a very basic theoretical question.³⁴

My question is for the sense and function of ‘personality’ in here. If it is taken for granted principle of the whole enterprise of Hegelian philosophy which without even a show of a deduction, pops up as an attribute

³² Ibid at 843; 352.

³³ See e.g. [Wandschneider 1990].

³⁴ In contemporary terms, Hegel’s conceives logic as a theory of concept formation. That this is not the standard conception of formal logic is admitted, but that it is in no sense ‘logic’ at all is not. On the contrary, both Frege and Gödel, hardly insignificant figures in the development of contemporary mathematical logic, seem to have held this view. Hao Wang, after noting the defensibility of the traditional (within mathematical logic) view that first order predicate logic is logic ‘properly so called’ ([Wang 1996] at 16) suggests that a theory of pure concepts can be envisaged as also part of logic. This view of logic, Wang contends, agrees with “Frege’s intention and Gödel’s declaration” (ibid at 170), that is, “what Frege wanted logic to be” and (it seems) the following: “Logic is the theory of the formal. It consists of set theory and the theory of concepts . . . set is a formal concept. If we replace the concept of set by the concept of *concept*, we get logic. The concept of concept is certainly formal and, therefore, a logical concept . . . A plausible conjecture is: Every set is the extension of some concept . . . The subject matter of logic is intensions (concepts): that of mathematics is extensions (sets)” (Gödel, ca. 1976) (ibid at 247 and further at 264f). Gödel’s further comment, as reported by Wang, that “[f]or the empiricist, the function of logic is to allow us to draw inferences” (ibid at 267) brings out what I take to be the case, that conceptions of logic are also expressions of metaphysical commitments. On this last point see [Troelstra 1991] at 1, and on the ‘what is logic’ question [Wang 1994].

of what has been deduced — and that as universality and cognition — then Marx’s characterisation of the Idea as a demiurgos that is outside the system is not to be wondered at. One might rather wonder what the point of the whole long, tedious business of writing the *Logic* is. Evidently I don’t defend Hegel’s method, but short of making method everything (or nothing), that does not answer the question. Tarrying is barely begun and my question divides into the sense and function of ‘personality’ in the passage opening the chapter ‘The absolute Idea’ and the conditional: is it a or even the taken for granted principle of Hegel’s philosophy?

3. Between the Objective and Subjective Logics

There are very few references to personality in the *Logic* prior to its final chapter. It is certainly not a category of the Objective Logic. If it can be said to figure at all within the practice of derivation of the *Logic*, that would be as a principle inherent in the moment of individuality in the Notion. Apart from that, so far as I can see, there are just three other references. The first, in a remark on Spinoza and Leibniz in the Doctrine of Essence, a second in the Introduction to the Subjective Logic, and a third in the chapter ‘Mechanism’ in the Subjective Logic. The first, made pursuant to criticism of Spinoza’s “standpoint of substance” asserts that as a consequence of its defects “substance lacks the principle of personality”.³⁵ The second, designates individual personality as a moment of the Notion in Hegel’s use of that term. The third, is not more than a mention of the person and personality as possible objects of mechanical processes in thought and human behaviour as distinct from physical interaction. It makes the observation that “personality is an infinitely more intense *impenetrability* (*Härte*) than objects possess”³⁶ but apart from that it is not a significant reference and I shall not deal further with it.³⁷

The Spinoza comment in the Objective Logic follows the first chapter ‘The Absolute’ of the last section ‘Actuality’ of its second book, ‘The Doctrine of Essence’. It is appended to the sub-section of the chapter on ‘The Mode of the Absolute’. That is, as Hegel defines it, the absolute’s

³⁵ [Hegel 1969] at 537; [Hegel 1812] at 672.

³⁶ [Hegel 1969] at 716; [Hegel 1816] at 187.

³⁷ Other examples are used in the *Encyclopaedia Logic* ([Hegel 1975]; [Hegel 1830] §195).

“own reflective movement, a *determining*; but a determining which would not make it an *other* but only that which it already *is*”.³⁸ Spinozism is defective, Hegel asserts, because it is an “external thinking” which contains and dissolves all determinateness in *one* substance, an indivisible totality, reducing all images and distinctions to mere *positedness*. *Determinateness is negation* is the “absolute principle of Spinoza’s philosophy” Hegel writes and he affirms it as the “true and simple insight” which establishes the unity of substance. But Spinozan negation stops short at determination, does not proceed to “self-negating negation” and while seeing thought as contained in substance holds it as such “only in its *unity* with extension, that is not as *separating* itself from extension, hence in general not as a determinative and formative activity, nor as a movement which returns into and begins from itself”.³⁹ One consequence is that “substance lacks the principle of *personality* — a defect which is the main cause of hostility to Spinoza’s system”. The other is that cognition remains a matter of external reflection which “does not derive from substance that which appears as finite, the determinateness of the attribute and the mode, and generally itself as well” but takes the determinations as given, traces them back to the absolute but does not begin from the absolute. Hegel’s criticism of Spinoza is inseparable from his objection to Spinoza’s employment of axiomatic method. “Profound and correct” as Spinoza’s definition of substance as ‘cause of itself’ and as that the essence of which includes existence is, it is, so Hegel, a *mere* definition, immediately assumed or taken as given as is characteristic in mathematics and “other subordinate sciences”.⁴⁰

The second reference to personality occurs, a few pages into the Introduction to the Subjective Logic, as Hegel seeks to give the reader a sense for his use of the term ‘Notion’. As deduced in the Objective Logic, the reader is told, it is really the Notion of the Notion (*der Begriff des Begriffs*: the concept of concept): a usage divorced from ordinary understanding but having been proven by “immanent deduction” not the worse for that. But then Hegel admits that it should be recognizable in principle in what others say of it, and to this end, writes:

³⁸ [Hegel 1969] at 535–6; [Hegel 1812] at 671.

³⁹ *Ibid* at 536; 672.

⁴⁰ [Hegel 1969] at 536–7; [Hegel 1812] at 672–3.

The Notion when it has developed into a *concrete existence* that is itself free, is none other than the *I* or pure self-consciousness.⁴¹

In Hegel's usage, this *I* is given as a pure self-related unity achieved by abstraction from all determinacy and content, as universality;

As such it is *universality*; a unity which is a unity with itself only through its *negative* attitude, which appears as a process of abstraction, and that consequently contains all determinedness dissolved in it.⁴²

Secondly, in its self-related negativity, as absolutely determined individuality "opposing itself to all that is other and excluding it — it is *individual personality*."

This absolute *universality* which is also immediately an absolute *individualization*, and an absolutely determined being, which is a pure positedness and is this *absolutely determined* being only through its unity with the *positedness*, this constitutes the nature of the *I* as well as of the Notion. Neither the one nor the other can be truly comprehended unless the two indicated moments are grasped at the same time both in their abstraction and also in their perfect unity.⁴³

It must be emphasised that the context here is explanatory of the sense of Hegel's use of 'Notion'. The derivation of the Notion has been done and the reference to its development into a free and concrete existence is a reference to that derivation. It is not a phenomenological remark but a logical one, indicative of the stage which the *Logic* is at in its business of moving through successive determinations of the absolute, each of which, will show its untruth — until the absolute Idea is reached.⁴⁴ We, readers, are being addressed at a stage that is between the Objective Logic and the Subjective Logic. Hegel is, as ever, concerned to say that these titles are mere matters of aid and convenience,⁴⁵ but if no type-distinction is to be supposed here, the topic does change, has changed with the 'immanent deduction' of the Notion. It is then a 'concrete exis-

⁴¹ [Hegel 1969] at 583; [Hegel 1816] at 13–14.

⁴² Ibid at 583; 14.

⁴³ Ibid.

⁴⁴ The absolute Idea then would be the grasping of that truth.

⁴⁵ Ibid at 575; 3.

tence' relative to being and essence but, as the concept of concept and as only just emergent from the sphere of essence, it is a first, most *abstract* form of the Idea.⁴⁶ What now remains to be done is

the *second* aspect, to the treatment of which this Third Book of the Logic is devoted, namely the exposition of how the Notion builds up in and from itself the reality that has vanished in it.⁴⁷

This will go through the moments of the Notion, universality, particularity and individuality and the forms of the Notion's activity (subjectivity), judgement and syllogism, into its categories of objectivity, mechanism, chemism and teleology, before making its transition into the Idea — the realised, true or adequate concept of concept.

It is now, in the first part of this sequence, the moments of the Notion, that it might be possible to say that personality finds its place within the practice of the *Logic*.⁴⁸ Hegel's standpoint is that universality, particularity and individuality/the individual are distinguishable moments of the unitary and (relative to substance) concrete Notion. That is, it would seem, its concreteness at this stage. After sections on the universal and the particular concepts, individuality appears first as the return from the otherness to universality which particularity is into "an *other* again" which however, is not other to the Notion, but its reinstating itself as "self-identical, but in the determination of *absolute negativity*".⁴⁹ This return, so Hegel, is twofold, since the negative in the universal which is a particular is a "twofold illusory being", both within the universal and, through

⁴⁶ "The present standpoint to which this development has lead is that the form of the *absolute* which is higher than being and essence is the *Notion*. Regarded from this aspect, the Notion has *subjugated* being and essence, which from other starting points include also feeling and intuition and representation, and which appeared as its antecedent conditions, and has proved itself to be their *unconditioned ground*" (ibid at 591; 25).

⁴⁷ Ibid.

⁴⁸ Thomas Hoffmann comments that the *Logic* "knows" the concept 'I' and "so to say" the "pure concept of the person", but that the full concept of personality can never be contained in the logical realm. An actual competence of defining itself logically via the non-logical (nature) belongs to that 'full concept' and this can only be matter for the philosophy of spirit ([Hoffmann 2004] at 404).

⁴⁹ [Hegel 1969] at 618; [Hegel 1816] at 60. Terry Pinkard calls attention to the section headings of the Chapter, 'The universal concept' and 'The particular concept', in contrast to the third subsection 'The individual' ([Pinkard 1979] at 222). I attach a different significance to this than he does, but agree that it is of significance.

a reference outwards, a determinate. *Either* the return goes through ‘abstraction’ which forms ever broader generalities by dropping particulars — “abstraction which lets drop the particular and rises to the *higher* and the *highest genus*’ — *or* in tune with the Notion, it goes through “the *individuality* to which the universal in the determinateness [of the particular] descends”.⁵⁰ We have here a doubling in ways of concept formation in the sense of forming universals, which Hegel now characterises in normative or justificatory register as false and true ways of abstracting.⁵¹ The universals formed by the first mentioned ‘false’ way of abstraction (which might be termed ‘generalisation’ and matches, I think, what is often thought of as abstraction), become ever more destitute of content. This way of abstracting is an external activity “which holds its universal *away* and *opposite* it”; treats the negativity of the universal as a mere condition, because it “despises” the individuality in which, actually, the Notion grasps and posits itself.

Life, spirit, God — the pure Notion itself, are beyond the grasp of abstraction, because it deprives its products of singularity, of the principle of individuality and personality, and so arrives at nothing else but universalities devoid of life, spirit, colour and filling.⁵²

What follows now is an analysis, made from premise of the “indissoluble” unity of the Notion, of what happens as the dialectic of the twofold illusory being within the particular plays out. The subject-object of the sequence is throughout the Notion, moving, restless, further determining itself in a play of its moments: a play within which individuality is productive, effective of a concrete content, “the individual”. This now is the loss of the Notion; its entry into actuality, to become a “*one* or a *this*”.⁵³ The Notion then, not only returns to itself through individuality, but loses itself in the individual. Abstraction, as “the *soul* of individuality” is the negativity immanent in the universal and the particular and through it they become the individual. As this negativity, individuality is *differentiation* which, reflecting the difference between the universal and

⁵⁰ Ibid at 619; 60.

⁵¹ “Here is where the false path branches off and abstraction strays from the highway of the Notion and forsakes the truth” (ibid).

⁵² Ibid.

⁵³ Ibid at 621; 63.

the particular into itself, fixes it. The individual becomes *a-being-for-self*, a this or a one which is *exclusive* of the many other ones, the plurality which, just as much as exclusivity, is within it. As a Remark on the relevant paragraph of the *Encyclopedia Logic* makes clear, 'the individual' at this stage is not yet determined to an individual thing or human. It is *just* a 'this' or a 'one'.⁵⁴ It cannot be conceived only pointed to and as the loss of the Notion results in its original partition (*ursprüngliche Theilung*) to posit itself as judgement (*Urtheil*).⁵⁵

Hegel can be allowed his claim to have the true approach to concept formation. It is not different in character from, for example, Derrida's claim that deconstruction is justice:⁵⁶ an expression of commitment to the value of a philosophical endeavour being pursued. That the value claim here is truth rather than justice may be thought to distinguish a logical from an ethical endeavour, or an explicitly foundational approach from one which sees itself as neither foundational nor anti-foundational.⁵⁷ Its content is a claim to be thinking with the Notion in its self-determining, self-realising activity. The critical point is the Notion's return to and loss of itself in the individual and the resolution of this contradiction in the transition to judgement.⁵⁸ Hegel's logic is a logic of action, here the action of the Notion in its first self-determining move. The implication, as regards the principle of individuality and personality said to be absent from the way of forming universals which takes only one side of thought's doubled return from particularity to universality is doubtless that this principle is not lacking from thought that follows the path of the Notion. *Why* that is so is also indicated: the Notion 'descends' into individuality which, if conceptually distinct from personality, has one and the same

⁵⁴ [Hegel 1975]; [Hegel 1830] §163R.

⁵⁵ *Ibid* at 622; 65.

⁵⁶ [Derrida 1989] at 15.

⁵⁷ *Ibid* at 8.

⁵⁸ Should it be thought, anachronistically to my mind, that Hegel's use of an either-or here brings the truth-values of classical, first order predicate logic into his thinking, the game is up. Hegel has lost his challenge to classical logic, the matter having been wisely adjudicated by philosophers who would gladly believe, although they know not why, that *there is no alternative* to classical logic 'at the meta-level'. "We are facing a *transcendental* explanation of logic '*The rules of logic have been given to us by Tarski, which in turn got them from Mr Metatarski*' something like '*Physical particles act in this way because they must obey the laws of physics*'" ([Girard 1999] at 220).

principle. As individualization, it is an act or function of the Notion, on which individuals and persons depend.

If it is asked at this point, what the difference between individuals and persons is, no answer is found in this passage. If, for the question is an important one, we go back to the passage in the Introduction to the Subjective Logic in which Hegel gives the sense of his use of ‘Notion’, part of an answer is given: neither the Notion nor the *I* can be comprehended, so Hegel tells us, unless the latter in its two moments as universality and as individual personality are grasped ‘at the same time’ in their abstraction (or separatedness) and unity. It is only however *part* of an answer because implicitly, what is being asked is whether it is not the normativity of this thought, the *principle* of individuality and personality, in which there is no difference — in which the difference is suppressed or alternatively from which it has not yet emerged — that is, so to speak, leading the dance.

A provisional balance may be drawn thus: the second part of the question posed at the end of the previous section of this paper — is the principle of personality a or even the taken for granted principle of the whole enterprise of Hegelian philosophy which, without even a show of a deduction, pops up as somehow or another within the the absolute Idea? — should be modified to acknowledge the normative unity of individuality and personality. On the other hand the difference between individuals and persons remains a question. We have come far enough to say that there is a derivation within the practice of the logic for the ‘individual’ part of ‘individual personality’ and to see that it is produced within the dynamic of moments of the Notion. *But* personality finds its place here only by virtue of a normative principle which ties the *dubiously* logical notion of personality to traditionally logical notions of universality, particularity and individuality. It is only from the passage in the Introduction to the Subjective Logic that we gain the sense in which Hegel regards *individual personality* as inhering in his use of the Notion. To that should be added the metaphysics of the comment on Spinoza: the affirmation and critique of the standpoint of substance. Neither the one nor the other disposes the dubiously logical character of personality for both are discursive: the former a matter of meaning; the latter of standpoint, the epistemic or ethical (political, religious or moral) attitude, commitment or certainty which precedes the practical undertaking of the *Logic*.

This provisional balance or partial answer brings a shift. The following section proceeds from the view that this is *why* personality appears in the *Logic* as contextualized by the retrospective on method in the chapter on the absolute Idea. Personality and its realisation in persons *is* a presupposition of the *Logic*, legitimately so, as at least included in the standpoint of absolute knowing reached at the end of the *Phenomenology*. The question thus becomes whether it gains a recognizably logical disposition.

‘Legitimately so’ that is, on a reading of the relation between the *Phenomenology* and the *Logic* that takes the former as the openly presupposed theory of knowledge or justification which calls for the practical-theoretical task of the *Logic*.⁵⁹ That is then to take the standpoint of the *Logic* and it should be acknowledged here that, particularly within the post-structuralist Hegel reception, it is a common view that the *Phenomenology of Spirit* stands rather outside the system (of which the *Logic* is undoubtedly part) or does not quite fit it.⁶⁰ Legitimacy is a tricky thing and there is need for caution here if I am not to beg my own question. The relation between the political philosophy of the *Philosophy of Right* (equally part of the system) and the foundational endeavour of the *Logic* is also implicated. Bluntly (too bluntly for Nancy’s thought on it): is the answer to the questions I have been posing not staring us in the face as the person of the Hegelian monarch? Is it not *only* the blindfold assumed that blinds me to this obvious truth? I can only say: to a point, yes, but as one which forecloses on the question I am asking, it is not one I accept.

Moreover, and further adding the burden of caution, if my standpoint is that of the *Logic*, my approach has a revisionary perspective for which Hegel’s ‘logical’ method is not adequate to the practical-theoretical task called for by the theory of justification of the *Phenomenology*. The risk here is of missing a clear sense in which personality as possessed by the absolute Idea is an insert made to ‘ground’ in groundlessness the person and dignity of the constitutional monarch.⁶¹ Subsumed under an ‘inadequate’ method the political reaction of *The Philosophy of Right* is not properly accounted for and my question is again begged, or perhaps

⁵⁹ [Hegel 1969] at 68; [Hegel 1812] at 71. See further [Kerruish 2006] at 33-4.

⁶⁰ E.g. [Nancy 1993] at 121-2.

⁶¹ Cf. [Hegel 1991] §279 and 279R (at pp 317-8), and §280 and 280R; [Hegel 1821] (at pp 381-3).

rather it is already answered and it is *only* my revisionary alignment Hegel's idea, quite contrary to his views on the matter, to mathematical logic that removes the problem. This would be like saying: 'Ah yes, there is this unfortunate political dimension of Hegel's philosophy, but it is taken care of by methodological considerations.' That is not at all what I think and not at all what I am saying. But it is proximate and should that be doubted a reminder that, historically, it was logical positivism and empiricism or some versions of neo-Kantianism with their 'overcomings' of metaphysics in which logic's shift from philosophy to mathematics gained its first philosophical reception.⁶² The 'recognizably logical disposition' referred to must then be at least translatable into Hegel's thought.

4. Opening and Closing the Logical Realm

The chapter on the absolute Idea is a review of the method that has been used to derive the content of the *Logic*: the absolute Idea. It ends with the Idea's passage or transition to nature: a transition, we are told that is neither a becoming nor a further determination of the Notion as in the transitions of the Subjective Logic. It is an act — "the Idea *freely releases* itself [from the enclosure of pure thought] in its absolute self-assurance and inner poise" — in which no transition takes place.⁶³ What the review of method contributes to this 'transition', it would seem, is that absolute self-assurance and inner poise. No doubt it is an immanent characteristic, already 'there' within the absolute Idea and only brought to expression by reflection on how, from immediate, contentless 'being' in its identity and difference with 'nothing', the absolute Idea has unfolded itself as the unity of theoretical and practical Ideas. Yet, as we have seen, this reflection does yield a 'last result': the Idea "concludes by apprehending this process of comprehending itself, thereby superseding its standing as content and subject matter and cognising the Notion of the science".⁶⁴

⁶² [von Wright 1994]; [Friedman 2000] ch.3 and differently [Rose 1981] ch.1. But cf: "One bad effect of logical positivism is its claim of being intimately associated with mathematical logic. As a result other philosophers tend to distance themselves from mathematical logic and therewith deprive themselves of the benefits of a way of precise thinking. Mathematical logic makes it easier to avoid mistakes — even for one who is not a genius" (Kurt Gödel per [Wang 1996] at 173–4).

⁶³ [Hegel 1969] at 843; [Hegel 1816] at 353.

⁶⁴ Above p.91.

It is on the strength of this result that the ‘transition’ takes place: as a closing of the logical realm and an opening of that of nature; or as the formation of a concept of the science of logic and the opening of nature *to philosophy* (as against Newtonian physics). In either description, it would seem that the transition is a necessity of ‘system’: of the system of (pure) logic and the system of philosophy.⁶⁵ In more metaphysical terms the transition is the transformation of the absolute Idea from its logical or universal mode to its mode of existence as nature.

A second explicit reference to personality occurs in the context of consideration of the method as a “*system of totality*”. On the one hand, so Hegel, what has been observed is an advance or progress of the dialectic whereby each determinateness, each result is a new beginning. Cognition “rolls on from content to content” each content becoming “*richer and more concrete*”. The result “contains its beginning” and enriches it.

The *universal* constitutes the foundation; the advance is therefore not to be taken as a *flowing* from one *other* to the next *other*. In the absolute method the Notion *maintains* itself in its otherness, the universal in its particularization, in judgement and reality; at each stage of its further determination it raises the entire mass of the preceding content, and by its dialectical advance it not only does not lose anything or leave anything behind, but carries along with it all it has gained and inwardly enriches and consolidates itself.⁶⁶

This expansion, positively, is a wealth of content to which the universal is communicated by the method.

But the relationship also has its second negative and dialectical side. The enrichment proceeds in the *necessity* of the Notion, it is held by it and each determination is a reflection-into-self. Each new stage of *forthgoing*, that is of *further determination*, is also a withdrawal inwards, and the greater *extension* is equally a higher *intensity*. The richest is therefore the most concrete and most *subjective*, and that which withdraws itself into the simplest depth

⁶⁵ Cf. “[Hegel] does think this: that the truth is total or it is nothing (and this is what the word ‘system’ means for Hegel: it is the holding together of the whole of truth)” ([Nancy 2002] at 8).

⁶⁶ *Ibid* at 840; 349.

is the mightiest and most all-embracing. The highest most concentrated point is the *pure personality* which, solely through the absolute dialectic which is its nature, no less *embraces and holds everything within itself*, because it makes itself supremely free — the simplicity which is the first immediacy and universality.⁶⁷

I find pure personality as a highest most concentrated point utterly dubious, but what is salient here is its place and role in the *Logic*. As ‘pure personality’ I take it to be Hoffmann’s ‘so to say pure concept of the person’,⁶⁸ a further specification of the personality which the absolute Idea has that is made or reached in the course of this review or consideration or reflection on method.

To begin with the method is described in various ways. It is the universal aspect of the form which the absolute Idea is. It is the manner of the process of cognition that this formal science of logic is. This formal science has demonstrated, that any content given from outside, assumed as self-subsistent, is not so. “Its entire course, in which all possible shapes of a given content and of objects came up for consideration, has demonstrated their transition and untruth.”⁶⁹ The method has thus emerged as “*the self-knowing Notion that has itself* as the absolute, both subjective and objective, *for its subject matter*, consequently as the pure correspondence of the Notion and its reality, as an existence (*Existenz*) that is the Notion itself”.⁷⁰ It is the movement of the Notion itself.

‘To begin with’: that is, to begin with the reflection on method at or after the end of the *Logic*. Actually, we have been told, before ever it began, in the Introduction to the work as a whole, that “the method is the consciousness of the form of the inner self-movement of the content of logic”.⁷¹ We have been told that the simple and essential insight

is the recognition of the logical principle that the negative is just as much positive, or that what is self-contradictory does not resolve itself into a nullity, into abstract nothingness, but essentially only into the negation of its *particular* content, in other words,

⁶⁷ Ibid at 841; 349.

⁶⁸ Above at n.48.

⁶⁹ [Hegel 1969] at 826; [Hegel 1816] at 330.

⁷⁰ Ibid.

⁷¹ Above n.25.

that such a negation is not all and every negation but the negation of a specific subject matter which resolves itself . . .⁷²

And we have been told that Hegel is absolutely certain — self-assured one might say — of his, that is of philosophy's, hitherto unfound method:

I could not pretend that the method which I follow in this system of logic — or rather which this system in its own self follows — is not capable of greater completeness, of much elaboration in detail; but at the same time I know that it is the only true method.⁷³

It is less Hegel's *certainty* that his method is the only true method, than his equivocation that is of interest here. The system in its own self rather (more) than Hegel in his own self follows the method. This, for surely it is this on which the self-realising, self-justifying or demiurgos-like character of the Idea rests, is “a point that must not wait to be established within *logic* itself but must be cleared up *before* that science is begun”.⁷⁴ Hegel thinks it has been cleared up: by the *Phenomenology*. There the dialectical method was applied to consciousness. Here it is to be applied to shapes (*Gestalten*) of consciousness.⁷⁵ And now, to come back to the concluding chapter, that that has been done, what remains for consideration is how it was done and, equivocally, who or what did it.

In Gillian Rose's re-writing of the *Logic* as a phenomenology of philosophical consciousness, the last chapter of the *Logic* is taken as justifying the merely abstract level at which the unity of the theoretical and practical Ideas has been established. “The end” she writes, referring to the transition from the Idea of the good to the absolute Idea,

is abstract like the beginning.

The first paragraph of ‘The Absolute Idea’, the last chapter of the *Logic*, and the rest of the chapter, admits and *justifies* this abstraction in the exposition of absolute method.⁷⁶

The end (*that end*) is abstract like the beginning for it is in both cases a concept or Notion and, further, as ‘Notion of the science [of logic]’ it has *superseded* its standing as content and subject matter, and returned into itself. This justificatory function of the reflection on method removes the

⁷² [Hegel 1969] at 54; [Hegel 1812] at 51.

⁷³ *Ibid.*

⁷⁴ [Hegel 1969] at 586; [Hegel 1816] at 18.

⁷⁵ [Hegel 1969] at 53–54; [Hegel 1812] at 51.

⁷⁶ [Rose 1981] at 201.

explicitly *unjustified* character of the *resolve* or *decision* (*der Entschluss*) to begin,⁷⁷ and replaces it with *this* other or second ending which, by virtue of the “method of truth”

knows the beginning to be incomplete, because it is a beginning; but at the same time it knows this incompleteness to be a necessity because truth only comes to be itself through the negativity of immediacy.⁷⁸

It is thus that, “by virtue of the nature of the method” the end is wound back into the beginning.⁷⁹ In this dimension the method takes its description as the movement of the Notion: its going out of and returning into itself.

Yet if it is by virtue of the nature of the method that this, so to say, happens, pointing out *that* it happens is what Hegel is doing here. Considered under that description, and keeping in mind that Hegel thinks this to be part of the science of logic *and* that logic is foundational to a systematic philosophy, its abstraction stands in no need of justification. On the contrary, abstraction, in one manner (Hegel’s) and another (traditional formal logic) or another (Kant’s transcendental logic) is the activity of thinking that logic is. I suggest then that the reflection on method is not only justificatory and that it works also, a closure that constitutes the independence or autonomy of the logical realm.⁸⁰ This closure is of the kind that is meant when a class or universe of objects (say ‘number’) is

⁷⁷ “Here [that is, on the presupposition of *The Phenomenology* (VK)] the beginning (*das Anfangende* — literally that which begins) is made with being which is represented as having come to be through mediation, a mediation which is also a sublation of itself; and there is presupposed pure knowing as the outcome of finite knowing of consciousness. But if no presupposition is to be made and the beginning (*der Anfang*) itself is taken *immediately*, then its only determination is that it is to be the beginning of logic, of thought as such. *All that is present* (vorhanden) *is simply the resolve*, (*der Entschluss*) *which may also be considered as arbitrary, that we propose to consider thought as such* (my emphasis). Thus the beginning (*der Anfang*) must be an *absolute*, or what is synonymous here, an *abstract* beginning: and so it *may not presuppose anything* must not be mediated by anything nor have a ground; rather it must be itself the ground of the entire science” ([Hegel 1969] at 69–70; [Hegel 1812] at 73).

⁷⁸ [Hegel 1969] at 841; [Hegel 1816] at 350.

⁷⁹ Above at p.90.

⁸⁰ Alternatively, the distinction being grasped at here is between the justificatory function of logic as foundation and the practice of logical derivation.

said to be closed under a particular function (say subtraction) so as to include within the class or universe, the values of that function (negative numbers). It is then an inclusive function or operation which brings 'objects' — possibly 'strange' ones; certainly the antinomies which classical logic wants to and must exclude from its universe — into a realm.⁸¹ Certainly Hegel will have no truck with mathematical methods. Certainly the admittedly justificatory function of the reflection on method works a closure of the kind that excludes that manner of abstraction which takes the 'false path' of dropping particulars and thus deprives its products of the principle of individuality and personality.⁸² But just as certainly, the logical realm for Hegel has an autonomy, a being, essence and life of its own.

Hegel has elicited this autonomy in the Introduction to the Subjective Logic.

[T]he Notion is to be regarded not as the act of the self-conscious understanding, not as the *subjective understanding*, but as the Notion in its own absolute character which constitutes a *stage of nature* as well as of *spirit*. Life, or organic nature, is the stage of nature at which the Notion emerges, but as blind, as unaware of itself and unthinking; the Notion that is self-conscious and thinks pertains solely to spirit. *But the logical form of the Notion is independent of its non-spiritual and also of its spiritual, shapes* (my emphasis). The necessary premonition on this point has already been given in the Introduction. It is a point that must not wait to be established within *logic* itself but must be cleared up *before* that science is begun.⁸³

The 'necessary premonition' given in the Introduction, refers to the remarks on method and the relation between the *Phenomenology* and the *Logic* in terms of the subject-matter to which the method is applied.

To my mind, the sense in which Hegel thinks the autonomy of logic is both the least understood and the most difficult to credit aspect of

⁸¹ This is then the difference between re-writing the *Logic* as a phenomenology of philosophical consciousness and reading it, for its abstract idea of thought's dialectical and speculative logical foundation, which gains contemporary relevance by alignment to contemporary mathematical logic.

⁸² Above at p.96.

⁸³ [Hegel 1969] at 586; [Hegel 1816] at 18.

Hegel's idea of thought's dialectical and speculative logical foundation. If we are back here to the equivocations, of beginning and ending *and* of who or what follows the method *qua* "consciousness of the form of the inner self-movement of the content of logic", we also have the context of the, no less difficult, designation of 'pure personality' as the highest most concentrated peak of a process of enrichment and expansion that proceeds, in its second dialectical side "in the *necessity* of the Notion." Its withdrawal inwards to the highest most concentrated point that is 'pure personality' *happens* for Hegel "because [the Notion] makes itself supremely free". It *yields* "the simplicity which is the first immediacy and universality"⁸⁴ and it *is* the ungrounded "ground of the entire science".⁸⁵

To my mind this is Hegel's logical disposition of the normative principle of individuality and personality: the principle *lacking* from Spinoza's system; lacking in *all* thinking that takes the 'false path' of despising the individuality into which the concept descends, *present* in the "higher standpoint" of Kant's first *Critique*, but only as a moral and psychological principle and, as such burdened by subjectivity.⁸⁶ Hegel's (even 'higher'!) standpoint, with debts to and struggles with Fichte, is the *Phenomenology's* standpoint of absolute knowing. The absolute dialectic which is the nature of pure personality is pure self-reference. Figured again in the last description of the method as "the pure Notion that relates itself only to itself",⁸⁷ it has the sense of pure self-determination ('it makes itself supremely free'): a capacity or power exhibited in the Idea's transition to nature.

⁸⁴ Above p.102.

⁸⁵ Above at n.77.

⁸⁶ "The complete transformation which philosophical thought in Germany has undergone in the last twenty five years and the higher standpoint reached by spirit in its awareness of itself have had but little influence as yet on the structure of logic" ([Hegel 1969] at 25; [Hegel 1812] at 13). The twenty five years takes us back to the second edition of Kant's *Critique of Pure Reason*.

⁸⁷ [Hegel 1969] at 842; [Hegel 1816] at 352.

5. Threads of Wrong in Right

Was der Geist will, ist, seinen eigenen Begriff zu erreichen, aber er selbst verdeckt sich denselben, ist stolz und voll von Genuss, in dieser Entfremdung seiner selbst.⁸⁸

“The basis of right is the *realm of spirit* . . . its precise location and point of departure is the *will* [and] the will is *free* . . .”.⁸⁹ As immediate, as the “*inherently individual* will of a *subject*” the free will has personality for its concept and what distinguishes a person from the subject that it also is, is that it is conscious of itself as a completely abstract ‘I’.⁹⁰ The juridical person is only the subject-object of abstract right or legality, the barest most minimalistic and formal moment of right: legalism indeed if taken as the be all and end all of law, which is most certainly not how Hegel takes it. Personality, developed to the absolute right of the state as its personality, has its truth and actuality as a person, the monarch, indeed the hereditary monarch.⁹¹

Personality (and subjectivity in general), as infinite and self-referring, has its *truth* — and indeed its proximate and immediate truth — simply and solely as a person, i.e. as a subject which has being for itself; and that which has being for itself is also and simply *one*. The personality of the state has actuality only as a *person*, as *the monarch*.⁹²

It is less the political concept of sovereignty that motivates my concern with personality in Hegel’s system than the role of personality in determining the basic juridical notion of ‘wrong’. How the relation between the *Philosophy of Right* and the foundational endeavour of the *Logic* is thought, depends on the relation between the *Phenomenology* and the *Logic*. Further, even given the limitations of Hegel’s actual accomplishment as regards his aim of replacing metaphysics by a formal science of logic, in principle the categories of abstract right or legality as abstract

⁸⁸ [Hegel 1837/40] at 91. “What Spirit wants is to attain its own concept, but it stands in its own way, is proud and full of self-satisfaction in this alienation from itself” (my translation). Cf. [Hegel 1991] at 55.

⁸⁹ [Hegel 1991]; [Hegel 1821] §4.

⁹⁰ *Ibid* §§33–35.

⁹¹ *Ibid* at §279.

⁹² *Ibid* §279R.

universals which become concrete in the ethical life of a particular time and place have and retain a shaping force in legal theory.⁹³

Developed via the concepts of the free will and its accidental embodiment in human subjects to the full concept of personality, the ‘truth’ of personality as the first category of legality is a person, an individual, an ‘I’, which, like the Notion of the *Logic*, ‘makes itself supremely free’: “I am finite, yet totally pure self-reference and thus know myself in my finitude as *infinite, universal and free*”.⁹⁴ My social and cultural identity as a person is gained, as Hoffmann puts it, in the actual capacity to define myself ‘logically’ against what is not-logical, nature.⁹⁵ a capacity that all humans have but which, Hegel thinks, has been most fully realised in the course of the social and cultural history of Europe. It is Spirit embodied in social relations and institutions of European ethical life.

As constitutive of the concept and basis of legality, personality brings with it modern law’s imperational moment: “*be a person and respect others as persons*”⁹⁶ and that, as both reasonable and actual turns what is abstractly wrong into what is abstractly right. Force or coercion (*Zwang*), so Hegel, abstractly considered, are contrary to right. But since the merely natural, uncivilised will is itself a force against freedom, a second coercion aimed at canceling it out is necessary. As an imperative of freedom and reason the *right* of “pedagogic coercion, or coercion directed against savagery and barbarism” to bring (presumably) children and ‘savages’ to personhood rests on it.⁹⁷

Speaking, as for Hegel I should, in my identity as an Australian citizen the question that has prompted this paper, the problem met along the

⁹³ If the aim of the *Philosophy of Right*, namely the reconciliation of subjective freedom with the state as the historical embodiment of objective freedom, is read as the aim of the system, then my methodological blindfold will appear perverse. To my mind however this reading, in all innocence of fetish phenomena as a dialectic of form and content in the sensuous-supersensuous or social realm, substitutes a consequence of the system (or if you will a particular result) for the system. As I read him, Hegel reconceives objectivity from the premise of subject-object interpenetration established by the *Phenomenology* so as to include the objectivity of illusion. The legitimacy of the state falls under such an illusion. It is a fetish phenomenon.

⁹⁴ *Ibid* §35.

⁹⁵ [Hoffmann 2004] at 404.

⁹⁶ [Hegel 1991]; [Hegel 1821] §36.

⁹⁷ *Ibid* §93R.

way of getting at the ‘wrong’ of the wrong of law,⁹⁸ could be thus phrased: what has personality as attributed to the absolute Idea to do with the dead bodies of the peoples whose ‘cancellation’ just over two hundred years ago grounded the state of which it is my highest duty to be a member?⁹⁹ What has it to do with continuing destruction of a culture intimately bound into the environment from which it emerged? Hegel tells me that all this suffering and harm is necessary, ‘right’ indeed and not just in its limited juristic sense but “as the actual body of all the conditions of freedom”.¹⁰⁰ He tells me that the derivation of this concept is to be found in his *Philosophy of Spirit*.¹⁰¹ It is a derivation I do not accept, logically or politically.

But now how in the face of all this could it ever be contended that an updated but not inverted version of Hegelian dialectic is needed to think the ‘wrong’ of the wrong of law before law has asserted its jurisdiction over it? Certainly, by revising Hegel on the issue of the method needed to realise his idea of replacing metaphysics by a new science of logic, that is to present such a foundation. It is Hegel who said:

Philosophical thinking in general is still concerned with concrete objects—God, nature, spirit: but logic is concerned only and solely with these thoughts *as thoughts*, in their complete abstraction”.¹⁰²

⁹⁸ Above p.84.

⁹⁹ If it is objected here that pedagogic coercion is not aimed at death, I would say that the objection abides with a distinction between intended and unintended consequences of action which generates the exculpatory notion of ‘collateral damage’ or suffering for which no-one is responsible. Cf. [Veitch 2007] at 86f discussing Hobbes’ distinction between injury and damage.

¹⁰⁰ [Hegel 1971]; [Hegel 1845] §486.

¹⁰¹ In the finite realm of Objective Spirit, the concept of right, freedom, receives “*the form of Necessity* (ibid §484). Its actuality is the unity of the rational and the individual or single will. Since this principle (of unity) belongs to thought “the content has its right and true character only in the form of universality.” It (the content) is law (*Gesetz*) “when invested with this character for the intelligent consciousness, or instituted as authoritative power”. It exists as custom (*Sitte*), as the “habit, temper and character” of a people when, in the course of their history their practices of social and cultural life have been “freed from the impurity (*Unreinheit*) and fortuitousness” of practical feelings and drives (ibid at §485).

¹⁰² [Hegel 1969] at 34; [Hegel 1812] at 24.

The question of method is the question of how, with what means and according to which procedures, that abstraction ('complete' it need not be) can be attained? Hegel's judgement that the German language and the resources of philosophy are adequate to the practical-theoretical or practical-technical task of realising his idea is that of a partisan for philosophy's mastery or sovereignty of logical space in a war with mathematics.¹⁰³

But that answer does not encompass the full measure of the matter. A merely methodological (neo-Kantian or formalist) resolution of the problem of this paper is not what I am proposing and would miss my mark: legal persons and the principle of abstract equality *as a problem* of the modern form of law; a problem as tricky and as basic to questions of the value of law as are commodities in theories of economic value. Let me put it this way: how is it that fetish phenomena attaching to commodities under the label 'commodity fetishism' have acquired the indelible sense of 'bad' fetishes, while similar phenomena attaching in legal and ethical discourse to persons attract no such prejudice? One could of course blame Marx for that. Theoretically, however, given only a willingness to acknowledge the problem, one place to begin would be the "responsibility transference" facilitated by the discursive construction of economic and political spheres as discrete, with its consequences for legal thought.¹⁰⁴ Put shortly and in terms of my question: is it not that once and as a condition of the law asserting its jurisdiction over the meanings of 'right' and 'wrong', legal persons with their indissociable tie to property (for

¹⁰³ Revising that judgement entails an alignment of Hegel's idea to mathematical logic: not a formalisation of his *Logic*, but the construction of a formal system of mathematical logic that takes the *name* 'dialectical and speculative' in acknowledgement of its inspiration ([Kerruish and Petersen 2006] at 76). The method substituted is that of strict formalisation, largely developed in the Hilbert school of mathematics in the early decades of the last century. Proof theory — the logic of logic as it has been called — rather than a philosophical hermeneutics becomes the theoretical home of the practical-theoretical or practical-technical endeavour ([Kerruish 2006] esp. at 53f). As regards Hegel's 'war with mathematics', perhaps Tarik Kochi's idea, presented in the context of a war of ideas in theories of war, of a praxis of recognition aimed at "recognising the ethics of the other's war" ([Kochi 2009] at 249f), adapted to educational praxis would bring some hope to the misery of philosophical receptions of traditional logic's mathematical turn.

¹⁰⁴ [Veitch 2007] at 60f.

the observation of which Hegel could be blamed!) become sacred objects: 'good' fetishes?

To get at that question at the level of metaphysics and logic, the inquiry of this paper has been pursued in metaphysical and logical terms. Pretending unawareness of the determinations of personality in Hegel's legal and political philosophy, I have inquired after the sense and function of personality as attribute of, or as attributed to, or as always already inherent in the *Logic's* absolute Idea, seeking answers in its terms.¹⁰⁵ What came out is not what I expected. I expected to find a conceit: an *ex post facto* attribution that would function to contain (in the sense of hold within itself) contradiction and take care of the 'reason' part of a political constitution which, for Hegel is the existence of reason in history. What came out is that personality, as possessed by the absolute Idea, is a presupposition of Hegel's logic, a presupposition of the 'higher standpoint' of philosophy inaugurated by Kant's *Critique of Pure Reason*, which relies for its logical disposition on the reflection on method. That reflection yields the 'other' end of the *Logic* and the sense in which, for Hegel, the science of logic ends only when a concept of 'logic' has been reached. Hegel's judgement on method was poor. A reflection on method as that which brings to the surface 'pure personality' as the ungrounded ground of Hegel's system and, bringing closure to the logical realm, yields a concept of 'logic' is ingenious. In so far as, in contemporary terms, that is a concept of logic *qua* theory of concept formation, it is 'recognizably logical' in a philosophical sense.¹⁰⁶ The integration of 'pure personality' into the science of logic that is worked by this reflection falls away with revision of Hegel's method. The reflection on method in closing the logical realm and opening that of nature to philosophy does not fall with it. What does fall away is its justificatory dimension. Confined, as I think that is, to justifying Hegel's 'presuppositionless' or 'absolute' beginning of logic, it becomes redundant if no such beginning is claimed. What appears in its stead is the question of my title set into a conception of logic as theory of concept formation that will *replace* metaphysics using

¹⁰⁵ The determinative moments of jurisdiction, application, decision and final determinations of the laws, are absent from the logical realm (cf. [Hegel 1991]; [Hegel 1821] §3).

¹⁰⁶ That is heresy in a mainstream fed by basic logic courses dealing only with classical propositional and first order predicate logic, but as noted it is a concept that is not without its famous protagonists.

methods deployed in contemporary mathematical logic. That is a project, of Hegelian inspiration with some chance of succeeding where Hegel failed.

It may well be asked: does not Hegel's theory of law and the state depend on that integration for its claim to be logically founded? If that dependency falls away with the revisionary alignment envisaged are we not left with strategies of bringing Hegelian dialectic to bear on critical legal theory, such for example, as are pursued by Nancy or Gillian Rose: strategies that pursue the negative dialectic, the 'restlessness of the negative' or the aporetic reading of a 'broken middle' but drop or re-write the positive or speculative dialectic of the *Logic* in that totalisation of the concluding chapter that yields its 'last result'?¹⁰⁷

I think that the justificatory and legitimative endeavour of the *Philosophy of Right* is dependent on that integration. It is also the case that I am indebted in different ways, to both Nancy's and Rose's appropriations of Hegel's thinking. The negative dialectic traces the limitation of 'right' determined by existing relations and institutions of ethical life. It is however my persuasion that a positive or speculative dialectic which affirms a logical foundation gives the possibility of conceiving the 'wrong' of the wrong of law before law has asserted its jurisdiction over it. That is a possibility which the justificatory and legitimative deployments of personality and its instantiations in the *Philosophy of Right* opts to subordinate. It *is*, as Badiou says "the path of thinking, that is its method" that displays the conception of logic as the theory of concept formation. But it is *not* "nothing other" than method.¹⁰⁸ In my understanding of

¹⁰⁷ Cp. [Badiou 2009] at 142–4. Badiou's summary of this passage departs from mine in the claim that "what displays the Whole within thought is *nothing other* than the path of thinking, that is its method" (142, my emphasis). Badiou wants "in the name of a materialist dialectic to do justice to our father: the master of the 'idealist' dialectic" (141). 'Our father' is not a name on which I wish to call and masters belong to hierarchies of authority in schools and sects. It is the very opposition between materialist and idealist dialectic, vested as I think it is in the metaphysics which Hegel sought, unsuccessfully, to replace with his science of logic that I would like to dissolve. That metaphysics, so far as I am concerned is the old wardrobe. My differences with Badiou are metaphysical, logical and political. Badiou, as I understand him, proposes Zermelo Fraenkel set theory as fundamental ontology. Extensionality is an axiom of this theory ([Badiou 2005] at 60–61) whereas the *failure* of extensionality is basic to the foundation proposed here. See further below at p.115. A modest consideration of Badiou's thought in legal studies is found in [Widen 2008].

¹⁰⁸ [Badiou 2009] at 142.

it, dialectical reasoning thinks its object as inseparable from the subjective, active component of its having been thought and (the question of method) of how it has thought it. That is Hegel's insight and Marx credits it as such. Contra Hegel, that is not altered if mathematical means and methods are deployed in formal logic. Mathematics is 'external' to philosophy, as Badiou puts it, but I would add *in the current, ruling, disciplinary and institutional division of intellectual labour*. I take that as a problem of our times which will not last for ever. I do not think that theory alone can change that but I do think it incumbent on theory to think through and past the twentieth century's philosophical receptions of logic's mathematical turn. Basic to that, to my mind, is Hegel's *idea* of thought's speculative and logical 'foundation' as a composite of theory of knowledge or justification and logic as theory of concept formation. The remainder of this paper attempts to fill out somewhat these ideas.

My premises are that the *realisation* of Hegel's idea of thought's dialectical and logical foundation becomes the mathematical logical enterprise of constructing a formal system of dialectical and speculative logic and using it for a derivation of categories in a sense of 'derivation' conforming to contemporary mathematical logical practice. The possibility of actually replacing metaphysics by logic (rather than a hermeneutic reconstruction) lies there in mathematical logic practice.¹⁰⁹ Now, that is, within my own legal theoretical enterprise: taking 'metaphysics' as encompassing what has latterly been sundered,¹¹⁰ ontology *and* epistemology, 'standpoint' comes in to this idea of foundation. Acknowledging Kant's inauguration of German idealist philosophy with the increased reflexivity of his 'Copernican Revolution'¹¹¹ but as re-worked by the *Phenomenology*, it is a standpoint that accepts the standpoint of absolute knowing reached at the end of the *Phenomenology*, reading it as having a double character: (counter-)epistemological and (abstractly) logical.¹¹²

¹⁰⁹ For these premises I am reliant on the work of Uwe Petersen.

¹¹⁰ By the almost indelible imprint of neo-Kantian thought on twentieth century philosophy in the Kantian tradition.

¹¹¹ Referring to [Kant 1929] at 22; [Kant 1781/87] at 20.

¹¹² [Kerruish 2006] at 33. "It is a standpoint of a journeying consciousness which has experienced a range of attitudes to its desires and their reversal, and knows itself as the recollecting totality of that experience. It is also the abstract concept of a pure science, of 'logic' in Hegel's sense, conceived but not yet realised by a derivation of the determinations of pure thought."

“[E]verything turns on grasping the True not only as *Substance* but also as *Subject*” Hegel writes in the Introduction to the *Phenomenology*.¹¹³ Pursuing first the logical dimension of this standpoint, reaching back then to the second, third and fourth sections of this paper with their focus on Hegel’s *Logic*, let me come back the critique of Spinoza and the charge that his philosophy lacks the principle of personality. That critique is followed up in the *Logic* by a ‘refutation of Spinozism’. Placed in the Introduction to the Subjective Logic, this passage complements engagements with Kant and his successors in delineating the standpoint of that second book of the *Logic*. In it, Hegel affirms the criticisms made in the Spinoza comment but takes aim at those critics of Spinoza who pursue an external critique from assumptions that are inconsistent with those made by Spinoza.¹¹⁴ Its point is to affirm his, Hegel’s, exposition of substance as the “sole and genuine refutation of Spinozism” and this involves recognising the standpoint of substance as intrinsically rich enough to yield the freedom and self-subsistence of the self-conscious subject; as indeed “essential and necessary” and to that extent true, *but* defective in the manner previously discussed. It is then a standpoint that must be raised “to the higher one through its own immanent dialectic”.¹¹⁵ Substance thus becomes “something higher, the *Notion*, the *subject*”.¹¹⁶

Hegel’s claim that the standpoint of substance is essential and necessary, and only defective in not being “the highest standpoint”; his assertion that the “true system” cannot stand in a relation of mere opposition to it but “as the higher, must contain the subordinate system within itself”,¹¹⁷ use a figure of elevation that signals, at best, a conviction of the value — for Hegel it is truth — of his own approach.¹¹⁸ Related as it is to a critique of Spinoza which is inseparable from the latter’s use of axiomatic

¹¹³ [Hegel 1977] at 9–10; [Hegel 1807] at 22.

¹¹⁴ The thing is not furthered, as Hegel puts it, by attacking one’s opponent “where he is not” ([Hegel 1816] at 11). Pashukanis, citing Marx’s critique of bourgeois economy, makes a similar point when he writes of the need to “venture into enemy territory” ([Pashukanis 1978] at 64).

¹¹⁵ [Hegel 1969] at 581; [Hegel 1816] at 11.

¹¹⁶ *Ibid* at 580; 9.

¹¹⁷ *Ibid* at 580; 10.

¹¹⁸ Hegel is by no means alone in this usage. Claims, commonly enough made, regarding the ‘depth’ or ‘profundity’ of a particular insight deploy the same rhetorical figure. A certain egalitarian ethos characteristic of frontier or colonial settler societies, will condemn such claims. ‘I’m as good as you mate’ as they say in Australia. I suggest

method, it is discordant. There is however a different and critical point at stake. Going back to my premises: extensionality *fails* in a formal system of dialectical and speculative *mathematical* logic.¹¹⁹ And returning: acknowledging the differing meanings of 'extensionality' in mathematical and metaphysical contexts I nonetheless relate that failure to Hegel's criticism of Spinoza (without the 'self-negating negation' of his method).¹²⁰ Thought separates itself from extension.¹²¹ In my terms, thought, in its freedom, flies free of the mundane world, leads and misleads, and it is this with which Kantian and Hegelian dialectic and Marx's fetish phenomena in differing ways have to do.¹²² In formal logical terms the failure of extensionality demands an intensional logic the *construction* of which, while seeking to minimise assumptions, makes no claim to an 'absolute' or 'presuppositionless' beginning of logic.

Hegel did make that claim. He was consciously and strongly committed to it. As far as I can see it is part and parcel of his rejection of mathematical methods and reasoning and, as twice remarked, his Spinoza critique is inseparable from it.¹²³ That is more than discordant. It is cause for revision. *But first*, if the charge laid against Hegel is as noted, vicious circularity or impredicativity, that is not an issue in a formal system of logic which can handle and put antinomies generated by logical self-reference to constructive use. *And second*, the event of paradoxes turning up at very basic levels of mathematics and logic had not yet happened in

this is an ethos born of denial of the societal hierarchy established by appropriation of the lands and non-recognition of the law and culture of indigenous peoples.

¹¹⁹ [Petersen 2000] and cf. [Petersen 2007] at 128f.

¹²⁰ Above p. 93. Whether that criticism does justice to Spinoza I cannot say.

¹²¹ Where Hegel's beginning gives inspiration to the formal logical system referred to is, specifically, in the idea of two concepts ('being' and 'nothing' but the names are irrelevant) which are extensionally equal (both empty) but intensionally different, that is, contrary to set theoretical and logical orthodoxy, equal but not identical. The construction of two such objects is the proof of the failure of extensionality in the system referred to. If there are superficial similarities in my approach and Badiou's this difference should dispel them.

¹²² [Kerruish 2007].

¹²³ According to Stephen Houlgate, Hegel's mathematician colleague, one Pfaff, thought Hegel's system viciously circular and recommended an artificial system of notation and the explicit formulation of a limited number of postulates or premises as admitted presuppositions ([Houlgate 2006] at 72). Though I wonder at the notion of 'vicious circularity' being about at that time, the point is that the problem of a presuppositionless beginning was squarely put to Hegel.

Hegel's time and he had no occasion to think *that* it had happened *within a mathematical enterprise*.

That changes things quite a lot if account is now taken of the standpoint of absolute knowing in its epistemic dimension as that of a journeying consciousness or subject.¹²⁴ One issue that comes to the fore is what, 'pure personality' as 'pure self-reference' in Hegel's *Logic* has to do with self-reference of the kind that gives rise to logical antinomies in a broad but contemporary sense.¹²⁵ A second point, and the one I pursue here, is a further *experience* of Spirit which can be taken into account quite consistently with this aspect of Hegel's standpoint of absolute knowing and, as I will contend, his idea of 'foundation'. That is where revising Hegel's views on method is not at all outrageous and one might rather wonder why philosophers have failed to do so.¹²⁶ Staying away from that particular side-track (interesting as it is), I am saying that Hegel's idea of 'foundation' is a composite of a theory of justification (the *Phenomenology*) and a theory of concept formation (the *Logic*) *requiring an effective method for its realisation*, that is, an actual derivation of categories. Such a science would not leave everything in its place.¹²⁷

The theory of justification and concept formation — the counter-epistemology that is Hegel's *Phenomenology* and his logic — which method serves (or disserves), joined in the idea that substance becomes subject, are the theories which maintain the contention that thought's dialectical and logical foundation is before the law. Once the differing undertakings of a theory of knowledge and logic as theory of concept formation are acknowledged the apparently aporetic or paradoxical claim that makes the *Phenomenology* the presupposition of a presuppositionless logic¹²⁸ dissolves. Thought flies free of the mundane world. It flies free and creates figures and fantasies, concepts and illusions. It leads and it misleads. It is in excess of the material, habitual, finite world of everyday life. It cannot escape its own being as being at odds with itself but it can, by artifice, bracket out the world it has flown and abide with its own makings and

¹²⁴ Above n.112.

¹²⁵ On the hazards of depictions of self-reference see [Petersen 2007] at 97f.

¹²⁶ One party stays with Hegel's bad judgement on method and the other wipes him from the 'canon' of (analytic) philosophy on account of it.

¹²⁷ Has not left everything in its place. The first derived category after 'being' is modality ([Petersen 2000] and see below, this volume p.178).

¹²⁸ [Hegel 1969] at 69–70; [Hegel 1812] at 73.

doings. If this is the impulse to turn metaphysics to a science of logic that will replace metaphysics, the bracketed space, 'the formal' is the excess objectified, separated by artifice from material life.

Hegel, seeing only through a glass darkly, utilizes the formal mode of abstraction which turns a concept or predicate to an object or (grammatical) subject: the *substantivierte Aussageform* (propositional form turned noun) as Henrich describes it.¹²⁹ Yet in his certainty as regards method and his equivocation of who or what follows his method, he seems want to deny the artifice deployed. Marx's *logical* quarrel with Hegel goes to this artifice, but is devolved, unfortunately to my mind, onto a metaphysical opposition of materialist and idealist dialectic, even as he grasps at their interplay in fetish phenomena. The *political* quarrel is of a different character. It is not reducible to logic, but the question here is how far normative commitments to one logic or another or, indeed, to 'logical pluralism', affect reasoning in political and thus legal theory. From the perspective of this paper, the relation between metaphysics/logic and politics should not be foreclosed by the classical view that formal logic, as empty of content, consists in universally valid 'laws of thought' applicable to each and every content.

As I have said, my political sympathies are with Marx. 'Pure personality' as the 'highest most concentrated point' of the absolute dialectic which is its nature is by no means an arbitrary 'container' of negative dialectic in Hegel's system. I would still say that Hegel could not have portrayed the state as it is without reproducing the justificatory and legitimative dimensions of its juridical and political discourse. I would now add that Hegel consciously reproduces an intrigue between justification and legitimation which is one of the techniques of constitutional reasoning.¹³⁰ The critical perception of the bad infinite of modern civil society is

¹²⁹ [Henrich 1978] and above n.8.

¹³⁰ "The *truth concerning right, ethics and the state*" is at any rate as old as its "*exposition and promulgation in public laws and in public morality and religion*. What more does this truth require, in as much as the thinking spirit is not content to possess it in this proximate manner? What it needs is to be *comprehended* as well, so that the content which is already reasonable in itself may also gain a reasonable form and (my emphasis) *thereby appear justified* (gerechtfertigt erscheine) *to free thinking*" ([Hegel 1991] at 11; [Hegel 1821] at 22). The enigmas of 'appearance' are built in. On the intrigue between justification and legitimation see [Kerruish 2008] at 16–24.

subordinated in that intrigue,¹³¹ as is the contempt of the particularity of actual persons that is inherent in legal personality.¹³² That subordinating moment in his thinking is not divorced from the first ending of the *Logic* with its affirmation of Kant's "absolute postulate" of the realised good.¹³³ Nor is it fully relieved by the reflection on method which constitutes the second ending. Hegel's commitment to 'personality' as the ungrounded ground of his system is inseparable from a philosophical narrative which as a philosophy of history is a (protestant) Christian theodicy.¹³⁴

That opens another front. So let me draw back here to an issue touched on throughout this paper: normative or ideological commitments in metaphysics and logic as they appear in contemporary mathematical logic.¹³⁵ For all the differences between logical and legal thought and practice, the situation there is not so different from that which pertains in law. Practitioners know the game and are interested in playing it. Metaphysical questions don't loom large or at all. Practice is pragmatic: if this system, this technique, that trick does the job, use it. Yet, if an ideology of pragmatism gains hold in the very disdain of such questions, or indeed as a commitment to logical pluralism, normativity enters mathematical logic in ways that have been more finely observed. With the emergence in the course of the twentieth century of a plurality of formal logical systems, or to put it otherwise, with the collapse of the idea that traditional or modern classical logic, even (perhaps especially) viewed as a normative discipline, is the 'one true logic' embodying universally valid laws of thought, normative or ideological commitments previously disguised by that idea appear as commitments to one logic or another. These commitments play out in full force in foundations of logic and mathematics. As A. S. Troelstra, a doyen of the Dutch school of intuitionist mathematics and mathematical logic puts it:

Constructivism is a point of view (or attitude) concerning the methods and objects of mathematics which is normative: not only does it interpret existing mathematics according to certain prin-

¹³¹ Ibid at §§244, 245.

¹³² Ibid at §35A; on both issues see [Kerruish 1996].

¹³³ [Hegel 1969] at 820; [Hegel 1816] at 323. For the designation of this postulate as Kant's (rightly or wrongly) [Hegel 1975]; [Hegel 1830] §55.

¹³⁴ For the influence of that narrative on the derivation of 'right' in the system see [Hegel 1971]; [Hegel 1845] §§481–2.

¹³⁵ In particular above p.117.

ciples, but it also rejects methods and results not conforming to such principles as unfounded or speculative (the rejection is not always absolute, but sometimes only a matter of degree: a decided preference for constructive concepts and methods). In this sense the various forms of constructivism are all 'ideological' in character.¹³⁶

Normative or ideological commitments, I am saying, can rule in default, in the vain belief that an approach is free of them, in indifference, in the self-satisfaction of successful practice, or they can be the subject of reflection as in Troelstra's equation and acknowledgement of them in his own attitude and approach. In that last case, as theoretical commitments they are, lived, learned, abandoned and modified. They bind by virtue of a theorist's own allegiances as an active component of the theory being done. They are honed in experience of success and failure in attaining or failing to attain desired goals, solving and failing to solve problems. They are ideal and they are practical. If the role and function of a method that facilitates mechanisation could be freed from its philosophical demons and demonization; if it might be admitted that purely technical innovations — things which do the trick, solve a problem, bring something new to light or life — *as* purely ('merely'?) technical are witness to and expressions of a power in artifice that is unknown to the artificer (including 'the master') and that they may thus make common cause with mystical and magical objects and phenomena against ideas of complete and certain foundations of knowledge and its anti-foundationalist mirror, would the opposition of materialist and idealist dialectic survive? How could it not if that is the commitment? True, but must that be or is it, actually, just an impoverished remnant of the old wardrobe of the metaphysics and logic of the classical world? These are *questions* and what to my mind is wrong is to close them down and blame instead: the law's necessity and then also its wrong.

¹³⁶ [Troelstra 1991] at 1. The term 'speculative' has its own sense in that foundational discussion. It means 'non-constructive' (roughly, provable only with the aid of *tertium non datur* or an equivalent) and a formal system of dialectical and speculative logic is, if anything, more strictly committed to constructivity than intuitionistic logic.

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35 Thesen zur Grundlegung einer formalen dialektischen Logik — nebst Kommentaren

UWE PETERSEN

ZUSAMMENFASSUNG. Seit über hundert Jahren ist die Existenz von Antinomien in der (höheren) Logik zuverlässig nachgewiesen, ohne daß das jedoch eine nennenswerte Auswirkung auf die Entwicklung einer Theorie der Dialektik Hegelscher Observanz gehabt hätte. Philosophen scheinen nur sehen zu können, daß die Hegelsche Dialektik einer formallogischen Behandlung nicht zugänglich ist, nicht hingegen, daß sich umgekehrt angesichts der Widersprüche der (höheren) Logik die Möglichkeit ergibt, Hegels Idee der Dialektik auf die antinomische Struktur der (höheren) Logik anzuwenden.

1. Vorbemerkung

Im folgenden will ich versuchen, einige wesentliche Aspekte meiner Arbeit aus den letzten vier Jahrzehnten — seit meiner ersten Begegnung mit Hegels *Wissenschaft der Logik* — in Form von Thesen, ergänzt durch Kommentare, vorzustellen.

Meine Arbeit war vorrangig durch den Versuch bestimmt, in der modernen Logik — also wesentlich der Logik im Anschluß an Frege — ein Moment zu finden, das der Hegelschen Vision einer Entwicklung von Denkbestimmungen im und aus dem reinen Denken entgegenkommt, und zwar in einer Form, die den Ansprüchen an Exaktheit der mathematischen Behandlung der Logik genügt. Im Verlauf dieser Bemühungen hat sich mir die traditionelle Philosophie, sei sie transzendental-spekulativer oder aber analytischer Ausrichtung, in einem denkbar unvoreilhaftem Licht gezeigt. Das hat insbesondere zur Folge gehabt, daß ich die üblichen Begriffsexplikationen, wie sie zuhauf in der Literatur zur Dialektik und dialektischen Logik zu finden sind, beiseite gelegt habe, und entsprechend werde ich sie auch hier unberücksichtigt lassen. Zu ihnen gehört die Charakterisierung

der Dialektik als „Verfahren zur Gewinnung von Wirklichkeitserkenntnissen“¹ ebenso wie die Rede von der „Durchdringung der Widersprüche“, der „Einheit von Identität und Nicht-Identität“, der „Unmittelbarkeit und Vermittlung“, der „Negation der Negation“ und was da nicht alles in der Literatur zu Hegel und Dialektik zu finden ist. Eine Argumentation, daß es sich dabei um wenig mehr als abgestandene Redewendungen handelt, lohnt aus meiner Sicht nicht den Aufwand. Ich kann sie sich selbst überlassen und darauf vertrauen, daß sie sich in ihrer theoretischen Bedeutungslosigkeit leerlaufen. Was mein Projekt angeht, so reicht es, daß sie für die Behandlung der modernen Logik keine Konsequenzen haben. Ich werde hier auch keinen Versuch unternehmen, die Frage zu beantworten, was denn nun unter „Dialektik“ oder „dialektischer Logik“ berechtigterweise zu verstehen sei oder was verschiedene Autoren darunter verstehen bzw. verstanden haben. Mir geht es um Strukturen, die dem klassischen Denken verschlossen bleiben müssen, weil sich klassisches Denken einem begrifflichen Rahmen verschrieben hat, der die Möglichkeit eines Konflikts des Denkens mit sich selbst ausschließt. Dabei kommt mir gelegen, daß sich die mathematisch-logische Grundlagenforschung seit Anfang des zwanzigsten Jahrhunderts mit dem Phänomen der Selbstbezüglichkeit konfrontiert sieht und eine Fülle von Fregestellungen² und Methoden hervorgebracht hat, die für mein Anliegen wie geschaffen sind.

Nach diesen einleitenden Bemerkungen will ich mich den eigentlichen Thesen zuwenden. In einem darauffolgenden Abschnitt werde ich dann versuchen, durch Kommentare von weit größerem Umfang die einzelnen Thesen zu erläutern und gelegentlich zu ergänzen.

2. Die Thesen

THESE 1. Der klassischen formalen Logik, wie sie auf Aristoteles zurückgeht und die ihre heutige Gestalt im wesentlichen Frege verdankt, steht die Idee einer formalen *dialektischen* Logik (oder: dialektischen formalen Logik) gegenüber, die — gleich ihrem klassischen Gegenstück — festen Regeln gehorcht, die nur auf die *Form* der Aussagen Bezug nehmen, ohne dabei jedoch deren rigide Grundannahmen zur durchgängigen Zweierwertigkeit von Aussagen zu übernehmen.

¹ [26], S. 84. Man vergleiche Bubner unten auf S. 141.

² Freudscher Verschreiber; muß heißen „Fragestellungen“.

THESE 2. Der Hintergrund für die in These 1 umrissene Idee einer formalen dialektischen Logik ist der Hegelsche Gedanke der Dialektik, und zwar in ihrer doppelten Ausrichtung als negative und positive Dialektik: negativ, insofern Widersprüche auftreten, und positiv, insofern diesen eine konstitutive Rolle in der Begründung von Denkbestimmungen zukommt.

THESE 3. Der Versuch einer theoretischen Umsetzung der in These 1 umrissenen Idee einer formalen dialektischen Logik sieht sich mit einer grundsätzlichen Schwierigkeit konfrontiert: Eine solche Idee besitzt keine — auch nur annähernd — gesicherte Grundlage in der Philosophie, was dazu führt, daß in dem, was Philosophen über Dialektik und dialektische Logik sagen, nicht einmal ansatzweise ein gemeinsamer Nenner zu finden ist.

THESE 4. Aus der in These 3 dargelegten Situation ergibt sich, daß die Entwicklung einer formalen dialektischen Logik nicht den Weg einer Formalisierung von — zumindest halbwegs — gesichertem intuitivem Gedankengut beschreiten kann. Formalisieren kann man nur, was wenigstens ansatzweise als Theorie vorliegt, und so etwas wie eine Theorie der dialektischen Logik gibt es (bislang) nicht einmal in rudimentärer Form.

THESE 5. Auch wenn mangels einer vorgegebenen, hinreichend ausgearbeiteten Theorie keine Aussicht besteht, eine formale dialektische Logik auf dem Wege einer Formalisierung zu gewinnen, so bedeutet das noch lange nicht, daß es generell unmöglich ist, eine formale dialektische Logik der in These 1 angedeuteten Art zu entwickeln: Die Paradoxien, die beim Versuch einer logischen Grundlegung der Mathematik aufgetreten sind, stellen einen Ansatzpunkt für die Entwicklung einer Theorie der Dialektik bereit, indem sie einen Hinweis darauf geben, wie sich das Denken in Widersprüche verwickelt, wenn es versucht, das Absolute zu begreifen.

THESE 6. Zwischen den Antinomien, die Kant in der reinen Vernunft entdeckt zu haben glaubte, und jenen der (höheren) Logik, Mengenlehre und Semantik, besteht eine gewisse Verwandtschaft, die nahelegt, daß hier ein grundsätzlicher Aspekt begrifflichen Denkens aufscheint.

THESE 7. Was sich in den Paradoxien der (höheren) Logik, Mengenlehre und Semantik manifestiert, läßt sich im Sinne der Dialektik als unumgängliche Zweideutigkeit (Doppelcharakter sprachlicher Zeichen) in der

Logik auslegen, die eine Revision der (höheren) Logik erfordert, wobei die Forderung nach Typenfreiheit zur Charakteristik der (höheren) Logik gehört.

THESE 8. Die in der vorigen These 7 angesprochene Zweideutigkeit, die sich auf der Ebene der höheren Logik in Form von beweisbaren Widersprüchen manifestiert, zeigt sich in axiomatischen Theorien der ersten Stufe mit ausreichender arithmetischer Ausdruckskraft schon in Form von Unvollständigkeits- und Unentscheidbarkeitsresultaten.

THESE 9. Die vorgenannte Unvollständigkeit liefert einen ersten Hinweis auf die Möglichkeit einer synthetischen Wissenserweiterung: Beseitigung der Unvollständigkeit durch neue Axiome. Dadurch eröffnet sich ein Ausblick auf die in These 1 angesprochene Ableitung von Denkbestimmungen.

THESE 10. Hegel hat die in These 7 angesprochene Zweideutigkeit als logisch-ontologische Dimension mit der sich aus ihr ergebenden Möglichkeit einer erfahrungsunabhängigen Wissenserweiterung in genialischer Weise erahnt, war aber nicht in der Lage, sie anders als in metaphorischer Weise zum Ausdruck zu bringen.

THESE 11.³ Die Philosophen haben Hegels Idee der Dialektik nur verschieden interpretiert, es kömmt darauf an, sie theoretisch umzusetzen.

THESE 12. Die logisch-ontologische Dimension der in These 7 angesprochenen Zweideutigkeit ist zu subtil, um allein mit herkömmlichen philosophischen Denkweisen (seien sie aus der Transzendentalphilosophie oder aber der analytischen Philosophie) erfolgreich angegangen werden zu können. Sie zeigt sich erst richtig auf der Grundlage einer präzis formulierten Sprache. Anders gesagt, erst eine kompromißlos unzweideutige Sprache vermag das Moment der Zweideutigkeit und deren Rolle im begrifflichen Denken zutage zu bringen.

THESE 13. Mit dem Auftauchen von Antinomien in den Grundlagen der Mathematik, Logik und Semantik dreht sich der Spieß um: Jetzt geht es nicht mehr darum, daß sich die Dialektik in der ein' oder anderen Weise der Maßgabe einer mathematisch-logischen Form fügen soll, sondern darum, daß eine Form der Dialektik (beweisbare Widersprüche, Antinomie) im mathematisch-logischen Bereich in Erscheinung tritt.

³ Wie kommt es nur, daß dies These 11 ist?

THESE 14. Wenn dem, was ich in den vorhergehenden Thesen gesagt habe, Rechnung getragen werden soll, wird ein Methodenwechsel in der dialektischen Logik und spekulativen Philosophie unumgänglich, und zwar in Richtung mathematischer Grundlagenforschung: formaler Objekttheorie und mathematischer Metatheorie.

THESE 15. Wenn man die Paradoxien der höheren Logik für die Grundlegung einer Theorie der Dialektik nutzen will, so bietet sich die Substantivierung der Aussagenform, die in der (höheren) Logik als „Abstraktion“ gefaßt ist, als geeignete Grundoperation der dialektischen Logik an, wobei die logische Grundrelation die der Inklusion ist, die (nicht nur) in der deutschen Sprache (ebenso wie die Prädikation, was mancherorts Verwirrung gestiftet hat) durch das „ist“ gefaßt ist, wie etwa in „Der Wal ist ein Säugetier“. Dieses „ist“ muß unterschieden werden von dem „ist“ in „Sokrates ist eitel“.

THESE 16. Dialektische Logik ist vorrangig dadurch bestimmt, daß sie eine unbeschränkte Begriffsbildung sinnvoll zuläßt.⁴ Widersprüche sind eine Folge der unbeschränkten Begriffsbildung und nicht primär ein Kriterium der dialektischen Logik.

THESE 17. Die sinnvolle Zulassung der uneingeschränkten Abstraktion ist nur auf der Grundlage einer nichtklassischen Logik möglich; dann bleibt jedoch die Frage zu beantworten, wie denn die klassische Logik eingeschränkt werden kann, um das zu ermöglichen.

THESE 18. Eine einfache Lösung des Problems, wie die klassische Logik eingeschränkt werden kann, um eine unbeschränkte Abstraktion widerspruchsfrei zulassen zu können, besteht darin, in Gentzens Sequenzenkalkül **LK** die Zusammenziehungsregeln wegzulassen.

THESE 19. Aus der Perspektive der in These 18 erwähnten Einschränkung der klassischen Logik (Preisgabe der Zusammenziehungen) ist es keine besondere Satz- oder Urteilsform, die für sich genommen als *spekulativ* zu gelten hat, sondern ein *Schließen*. Es ist das Schließen, das der Eigentümlichkeit der durch die unbeschränkte Begriffsbildung erzeugten Zweideutigkeit der Sprache Rechnung tragen muß, nicht eine besondere *Form der Aussage*.

⁴ Was hier „sinnvoll“ heißt, ist im Kommentar auf S. 167 ausgeführt.

THESE 20. Das Konzept einer Semantik, wie es vor allem in der analytisch ausgerichteten Philosophie dominiert, eignet sich in seinen gängigen Formen nicht für eine Anwendung auf die dialektische Logik, da es auf einer festen Zuordnung von Wahrheitswerten basiert, d.h. ein einmal zugeordneter Wert bleibt durch eine Folge von Schlüssen hindurch unverändert erhalten.

THESE 21. Aus These 18 ergibt sich für das hier verfolgte Projekt einer formalen dialektischen Logik ein Berührungspunkt mit der theoretischen Informatik. Dort spielen typenfreie Systeme wie λ -Kalkül und eine nicht-klassische Logik (Logik ohne Zusammenziehungen) mit uneingeschränkter Abstraktion eine nicht unbedeutende Rolle in dem Versuch, Programmiersprachen zu entwickeln, in denen jede Funktion in einer „realistischen“ Zeit (polynomial time) berechenbar ist. Dabei kommen Fixpunkte zur Anwendung, d.h. Konstruktionen, die in der klassischen Logik zur Trivialität führen können und dort deshalb ausgeschlossen werden müssen.

THESE 22. Die universelle Fixpunkteigenschaft ist das „Markenzeichen“ der hier vorgeschlagenen formalen dialektischen Logik. Sie ermöglicht eine schärfere Form der Unvollständigkeit als die in These 8 genannte Unvollständigkeit der Arithmetik. Sie befreit, sozusagen, die Unvollständigkeit aus ihrem arithmetischen Korsett. Selbstbezüglichkeit ist nun in direkter Form, wie beispielsweise im λ -Kalkül, möglich.

THESE 23. Die Beweisbarkeit einer universellen Fixpunkteigenschaft hat zur Folge, daß trotz Preisgabe der Zusammenziehungen eine ganze Reihe klassischer Annahmen verletzt werden, unter anderem auch die Annahme der Extensionalität, was für die dialektische Logik von besonderer Bedeutung ist.

THESE 24. Die Preisgabe der Zusammenziehungen erfordert ein Überdenken bzw. eine Neuformulierung der formalen Definition des Unendlichen in der Form der Menge der natürlichen Zahlen: ohne Zusammenziehungen erhält man mit der üblichen Definition nur, daß 0 und 0' natürliche Zahlen sind. Mit anderen Worten, eine unendliche Iterierung (wie beispielsweise eine Erzeugungsoperation von der Art der Nachfolgeroperation) kann nicht mehr einfach durch Zusammenziehungen bewerkstelligt werden; das ist eine direkte Folge ihrer Preisgabe.

THESE 25. Die in der vorangehenden These 24 angesprochene Unmöglichkeit, eine unendliche Iterierung durch Zusammenziehungen zu bewerkstelligen, kann durch eine Fixpunktkonstruktion ausgeglichen werden, d.h. ein Fixpunkt nimmt die Stelle einer Zusammenziehung ein. Dabei handelt es sich um einen Term, der auf sich selbst angewandt sich selbst und eine gewünschte Formel erzeugt. Auf diese Weise kann eine unendliche Gesamtheit \mathbf{Z} erzeugt werden.

THESE 26. Die volle Entfaltung der Möglichkeiten, die durch die unendliche Gesamtheit \mathbf{Z} bereitgestellt werden, wird erst durch Erweiterungsschlüsse von der Art der \mathbf{Z} -Schlüsse geleistet, die ich in [98] eingeführt habe. Dadurch wird in etwa das erreicht, was durch das Unendlichkeitsaxiom in der axiomatischen Mengenlehre oder die Reflektionsprinzipien in der Arithmetik geleistet wird.

THESE 27. Mit der Möglichkeit, eine unendliche Iterierung ausdrücken zu können, werden auch intensionale Begriffe definierbar, die den Charakter von modalen Operatoren haben. Es handelt sich dabei nicht um sprachliche Erweiterungen, sondern um reine Definitionen. Erst bei der Bestätigung der modalen Eigenschaften werden zusätzliche deduktive Mittel (wie die \mathbf{Z} -Schlüsse) benötigt.

THESE 28. Die in These 22 angesprochene Befreiung (von der Notwendigkeit einer arithmetischen Kodierung, um Selbstbezüglichkeit zu erhalten) kann zur Grundlage einer positiv-dialektischen — oder spekulativen — Logik eingesetzt werden. An die Stelle der sogenannten „reflection principles“ treten dann Erweiterungsschlüsse von der Art der \mathbf{Z} -Schlüsse.

THESE 29. Die Frage „Wie ist eine Synthesis *a priori* möglich?“ kann im Sinne von These 28 durch Hinweis auf die Möglichkeit einer rein theoretischen Wissenserweiterung — über die „reflection principles“ der Arithmetik hinaus — als Feststellung der Widerspruchsfreiheit von \mathbf{Z} -Schlüssen und Schlüssen ähnlicher Art beantwortet werden.

THESE 30. Es gibt eine Wissenschaft, die das Wissen betrachtet, insofern es sich selbst zum Gegenstand hat, und die in der daraus resultierenden eigentümlichen Welt selbstbezüglicher Strukturen eine Grundlage für die Ableitung von Denkbestimmungen findet.

THESE 31. Die Manipulation von (offenen) Annahmen, wie sie in Gentzens Sequenzenkalkül durch die Strukturschlußregeln geregelt wird, birgt den Schlüssel zu den Gesetzen von Denkbestimmungen. Die Aufgabe der dialektischen Logik ist es dann, Methoden zu entwickeln, die es ermöglichen, über die Manipulation von (offenen) Annahmen Buch zu führen.

THESE 32. In der spekulativen Logik soll die Selbstbezüglichkeit im Zusammenhang mit der „Buchführung“ über Annahmen zur Grundlegung der Gesetze der Kategorien ausgenutzt werden.

THESE 33. Hegels *Wissenschaft der Logik* ist offensichtlich keine Logik im Sinne einer modernen formalen Logik — also im Sinne einer rein deduktiven Disziplin —, aber die ihr zugrundeliegende Einsicht, wie vage auch immer formuliert, betrifft die Logik (als deduktive Disziplin), wenn auch vorrangig nur in der Form der *höheren Logik*, d.h. einer Logik mit Prädikatenprädikaten.

THESE 34. Eine formale dialektische Logik muß sich daran messen lassen, ob und wie ihre Abweichung von der klassischen Logik zu überprüfaren Konsequenzen führt. Dafür bietet sich vor allem die Auswirkung der Preisgabe von Zusammenziehungen auf die Behandlung der Induktion an, die u. a. dazu führt, daß Verallgemeinerungen von Induktionen und Rekursionen deutlich von der klassischen Situation abweichen.

THESE 35. Das Konzept einer dialektischen Logik, wie ich es in den vorangehenden Thesen dargelegt habe, ist Teil eines breit angelegten Projekts der Grundlagenforschung, das darauf abzielt, Hegels Idee der Dialektik als Theorie der Entwicklung von Denkbestimmungen aus den Widersprüchen des reinen Denkens auf diejenigen Widersprüche und Unentscheidbarkeitsresultate anzuwenden, die sich aus Cantors Diagonalverfahren ergeben. Auf diese Weise sollen Logik, Metaphysik, Mathematik und theoretische Informatik in einer Tradition zusammenfinden, die mit dem Hilbertschen Konzept der Beweistheorie — oder Metamathematik im weitesten Sinne — ihren Anfang genommen hat.

3. Kommentare

Zur Vorbemerkung. Die Faszination, die ich bei meiner ersten Begegnung mit Hegels Logik verspürte, kann auf einen einfachen Punkt gebracht werden: Es war der Eindruck von einer äußersten Abstraktion, begrifflichen Reinheit und radikalen Neuheit im ersten Abschnitt der *Wissenschaft der Logik*.⁵ Bekanntlich beginnt Hegel mit dem reinen Sein, von dem er dann feststellt, daß es in seiner unbestimmten Unmittelbarkeit so viel ist wie das reine Nichts — und dennoch verschieden. In diesem Anfang schienen mir der inhaltliche Kern und das theoretische Problem der Hegelschen Dialektik so offen wie überhaupt möglich hervorzutreten. Entsprechend verstehe ich auch die folgenden Zeilen von Gadamer:

Der wirkliche Text, mit dem die ‚Logik‘ beginnt, macht nur wenige Zeilen aus, die aber die wesentlichen Probleme der Hegelschen ‚Logik‘ stellen: den Anfang mit der Idee des Seins, dessen Identität mit dem Nichts und die Synthese der beiden entgegengesetzten Ideen von Sein und Nichts, die das Werden sei. [...]

Die Frage, wie die Bewegung in die Logik kommt, wird sich von diesem Anfang aus beantworten müssen.⁶

Aber gerade diese Frage scheint vielen Philosophen Schwierigkeiten zu bereiten, und so flüchten sie sich in den Versuch, sie in einem Meer von Textstellen, die von irgendwoher Hegels umfangreichem — eigenem oder überliefertem — Opus entnommen sind, zu ertränken; als ginge es darum, davon abzulenken, daß hier ein Sachverhalt angesprochen ist, der einer logischen Analyse grundsätzlich zugänglich ist. So findet sich der Gedanke, mit einem inhaltsleeren Begriff anzufangen, auch bei einem renommierten formalen Logiker des 19. Jahrhunderts, von dem man wohl kaum sagen kann, daß er mit Hegel viel gemeinsam hat:

Wenn man die Sache ganz allgemein machen will, muß man einen Begriff aufsuchen, der allen Begriffen übergeordnet ist. Ein solcher Begriff, wenn man es so nennen will, kann gar keinen Inhalt mehr haben, indem sein Umfang grenzenlos wird; denn jeder In-

⁵ Das war mein anfänglicher Eindruck. Erst später lernte ich die logische Begründung der Arithmetik kennen und damit eine wirklich strenge Form der Ableitung.

⁶ [38], S. 61.

halt kann nur in einer gewissen Beschränkung des Umfangs bestehen.⁷

Und dann fährt dieser Autor fort:

Als solchen Begriff könnte man den des „Sich selbst gleichen“ wählen[.]⁸ [..]

Die Sprache hat sich anders geholfen. Zur Bildung eines Begriffes ohne Inhalt eignete sich vorzüglich die Kopula, d. i. die bloße Form der Aussage ohne Inhalt.⁷

Der Unterschied zu Hegel macht sich nun vor allem darin bemerkbar, welcher Stellenwert einem solchen Begriff zugeordnet wird. Besagter Autor sieht die Situation folgendermaßen:

Das Wort „Seiend“ ist nur eine Verlegenheitsschöpfung der Sprache, um die Form des partikulären Urteils zur Anwendung bringen zu können. Wenn die Philosophen von dem „absoluten Sein“ sprechen, so ist dies eigentlich eine Vergötterung der Kopula.

Das ist die Frage: Haben wir es hier tatsächlich *nur* mit einer „Verlegenheitsschöpfung der Sprache“ zu tun, oder verbirgt sich dahinter ein Problem, das eine nähere Beschäftigung lohnt? Hegel sieht es offenbar so:

Worauf es [..] bei dem Studium der Wissenschaft ankommt, ist, die Anstrengung des Begriffs auf sich zu nehmen. Sie erfordert die Aufmerksamkeit auf ihn als solchen, auf die einfachen Bestimmungen, z. B. des Ansichseyns, des Fürsichseyns, der Sichselbstgleichheit usf.;⁹

Daß hier tatsächlich eine Aufgabe für die Philosophie liegt, ist nicht zuletzt Gegenstand dieser Thesen.

Zu These 1. (1) Die häufig vertretene Ansicht, derzufolge formale und dialektische Logik einander antagonistisch gegenüberstehen, wobei der dialektischen Logik, im Gegensatz zur formalen Logik, ein gewisser in-

⁷ [36], S. 16.

⁸ Der Begriff des „Sich selbst gleichen“ kann in einer höheren Logik einfach genug ausgedrückt werden als $\lambda x(x = x)$, wobei man natürlich genausogut \equiv statt $=$ hernehmen kann.

⁹ [54], S. 54.

haltlicher Charakter zukommen soll, übersieht, daß der inhaltliche Charakter der dialektischen Logik aus ihrer Form entspringt und aus dieser *entwickelt* werden muß — zumindest, wenn sie Glaubwürdigkeit als eine ernstzunehmende Theorie erlangen soll, d.h. insbesondere nicht in sie hineingeredet werden darf. Die dialektische Logik ist ebenso wie die klassische („aristotelische“) Logik eine *formale* Logik, nur soll sie ihrer Formalität eben anders Rechnung tragen. Anders gesagt, die dialektische Logik betrachtet Form, insofern diese fähig ist, sich aus sich selbst heraus einen Inhalt zu geben. In den Worten Hegels:

Die Form [.] in ihre Reinheit herausgedacht, enthält es dann in sich selbst, sich zu bestimmen, d.i. sich Inhalt zu geben, und zwar denselben in seiner Nothwendigkeit, — als System der Denkbestimmungen.¹⁰

Und:

Der Inhalt der Logik sind die eigenthümlichen Bestimmungen des Denkens selbst, die gar keinen anderen Grund als das Denken haben. [.] Das Denken hat also einen Inhalt und zwar sich selbst auf autonome Weise.¹¹

Die Gegenüberstellung, die hier angesprochen werden soll, ist die zwischen einer ‚klassischen‘ und einer ‚dialektischen‘ Ausrichtung oder zwischen der Art und Weise, in der Wahrheit, die in der Form wurzelt, aufgefaßt wird. Klassisch kann diese Wahrheit nur als *tautologisch* begriffen werden. Die klassische Logik kann neben der Formalität keinen inhaltlichen Charakter sehen, der durch die Form gesetzt werden könnte. Aus dialektischer Sicht soll dagegen versucht werden, einen solchen Inhalt der begrifflichen Analyse zugänglich zu machen. Natürlich ist ein solcher Inhalt nicht so einfach zu sehen, wie ein Baum auf einer Wiese. Dialektiker bilden sich viel darauf ein, hier die Aktualität von etwas begriffen zu haben, deren Möglichkeit sich dem Zugriff des gewöhnlichen Denkens grundsätzlich entzieht. Dies scheint mir auch der Grund für das ewige Gerangel zwischen Dialektikern und jenen Philosophen zu sein, die sich einbilden, klar und deutlich zu sagen, was sie meinen.

(2) Eine dieser ersten These ähnlich klingende Position wird in [112], S. 303, vertreten, allerdings vor dem Hintergrund einer parakonsistenten Logik:

¹⁰ [56], S. 64.

¹¹ [55], S. 113.

Dialectical logic is commonly regarded as opposed to formal logic. But while there is indeed a sharp opposition between dialectical logic and classical logic, there is no such gulf separating dialectical and formal logic. Dialectical logic can be formalised, within the framework of formal non-classical logics, in much the way and to at least the extent that intuitionistic logic which was originally presented, and conceived, as an informal theory, has been formalised.

Auch wenn das der These sehr ähnlich klingen mag, so bleibt doch ein gewaltiger Spielraum, der sich daraus ergibt, welche Art von Widerspruch als zentral für eine dialektische Logik betrachtet wird. Danach richtet sich, welcher Art die nichtklassische Logik ist, die als „dialektisch“ angeboten wird. Routley (später: „Sylvan“) identifiziert (wie auch Priest und da Costa) den dialektischen Widerspruch mit dem kontradiktorischen Widerspruch $A \wedge \neg A$.¹² Hier macht sich bemerkbar, daß der Vergleich mit der Formalisierung der intuitionistischen Logik hinkt: Es gibt keinen intuitiven Hintergrund der dialektischen Logik, der sich in vergleichbarer Weise formalisieren ließe.

(3) Die mit einer Gegenübersetzung von formaler und dialektischer Logik einhergehende Lehrmeinung läßt sich durch folgende zwei Punkte charakterisieren:

1. Inhaltslosigkeit der formalen Logik (ohne Welt kein Inhalt!);
2. universelle Gültigkeit der formalen Logik.

Diese Punkte werden im weiteren Verlauf immer wieder auftauchen. Die Grundlegung einer formalen dialektischen Logik kann nur *gegen* eine solche Lehrmeinung Stellung beziehen. Auf alle Fälle gilt es, einen Anspruch auf universelle Gültigkeit von seiten einer (sogenannten) formalen Logik anzufechten.

(4) Die Vorstellung von der Inhaltslosigkeit der formalen Logik bzw. einer gewissen „Formalwissenschaft“ erfreut sich insbesondere in der positivistischen Tradition und ihren Ablegern großer Beliebtheit. So erklärt Carnap:

*Die Formalwissenschaft hat überhaupt keine Gegenstände; sie ist ein System gegenstandsfreier, gehaltloser Hilfssätze.*¹³

¹² In dieser Hinsicht finde ich die Passage auf S. 232 in [132], zweite Hälfte, sehr lesenswert.

¹³ Carnap zitiert nach [29], S. 335.

Dabei ist natürlich die Logik — wie übrigens auch die Mathematik — als Formalwissenschaft gefaßt. In bezug auf die Sätze der Logik klingt das bei Hans Hahn folgendermaßen:

[[D]er Satz des Widerspruchs [sagt]] über die Welt gar nichts aus, er handelt vielmehr von der Art, wie die verwendete Symbolik bezeichnen soll.

Und ebenso wie der Satz des Widerspruchs sagen auch die anderen Sätze der Logik über die Welt nichts aus.¹⁴

(5) Die Inhaltslosigkeit der Logik ist eine Lehrmeinung, der sich auch Kant verschrieben hatte und die ihm als Argument gegen Fichtes Versuch einer reinen Wissenschaftslehre diente:

[[In Beantwortung einer an mich ergangenen Aufforderung]] erkläre ich hiermit: daß ich Fichte's Wissenschaftslehre für ein gänzlich unhaltbares System halte. Denn reine Wissenschaftslehre ist nichts mehr oder weniger als bloße Logik, welche mit ihren Principien sich nicht zum Materialen des Erkenntnisses versteigt, sondern vom Inhalte derselben als reine Logik abstrahirt, aus welcher ein reales Object herauszuklauben vergebliche und daher auch nie versuchte Arbeit ist, sondern wo, wenn es die Transscendental=Philosophie gilt, allererst zur Metaphysik übergeschritten werden muß.¹⁵

Damit erübrigen sich wohl Spekulation darüber, was Kant von Hegels Metaphysik als Logik gehalten hätte. Wie dem auch sei, das ist es, worum es mir geht: Metaphysik als Logik.

(6) Zum Abschluß noch eine Leseprobe aus dem Brevier unserer ehemals fortschrittlichen Kräfte:

Das Problem der Existenz der dialektischen Logik und ihres Verhältnisses zur formalen Logik erregte in der UdSSR, in Polen und der DDR viele Auseinandersetzungen, die in den fünfziger Jahren besonders heftig waren. Allmählich überwog der folgende Standpunkt: wenn man von einer dialektischen Logik spricht, darf man dies nur im Sinne einer Theorie der Entwicklung von Begriffen und des ganzen Wissens. (Ich will bemerken, daß eine

¹⁴ [52], S. 57.

¹⁵ Erklärung in Beziehung auf Fichtes Wissenschaftslehre, in: Allgemeine Literatur Zeitung (Jena), Intelligenzblatt Nr. 109, vom 28. August 1799, Sp. 876–878. (Adickes: 0101 / Warda: 202) (AA XII: 370,10 – 371,33).

solche Theorie noch nicht ausgearbeitet worden ist.) Dialektische Logik kann jedoch keine Alternative zur formalen bilden. Die letztere hat eine universelle Gültigkeit und alle Erwägungen, auch die dialektischen, müssen ihren Regeln folgen. Dieser Standpunkt dominiert mittlerweile bei den Philosophen der erwähnten Länder, jedenfalls unter jenen, die direkt mit der Wissenschaft zu tun haben. Die Ansicht, es gäbe eine „höhere“ dialektische Logik, wird meistens als dogmatisches Überbleibsel angesehen und manchmal „Hegelei“ genannt.

Jetzt, während meines Aufenthalts in der Bundesrepublik, habe ich mit Erstaunen festgestellt, daß dieses Überbleibsel hier sehr lebendig ist! Viele westdeutsche Philosophen betrachten, wahrscheinlich der Hegelschen Tradition folgend, Dialektik als eine Alternative zur formalen Logik. Ich bin überzeugt, daß jede Entwertung der formalen Logik zu Unklarheit und Verwirrung führt.¹⁶

Das paßt nicht nur hübsch in eine Tradition der Ablehnung von Relativitätstheorie und Quantenmechanik durch eine offizielle Parteilinie, es zeigt auch die obengenannten charakteristischen Merkmale: stillschweigende Gleichsetzung von formaler und klassischer Logik und unanfechtbare Gültigkeit der klassischen (formalen) Logik.

Zu These 2. (1) Die Hegelsche Idee der Dialektik schließt an die Kantsche Philosophie an, ohne sich darauf zurückführen zu lassen. Als negative Dialektik hat sie ihren Ursprung in der Kantschen Kritik, als positive Dialektik in Hegels Kritik an der Kantschen Auflösung der Antinomie der reinen Vernunft:

Kant hat die Dialektik höher gestellt, und diese Seite gehört unter die größten seiner Verdienste, — indem er ihr den Schein von Willkür nahm, den sie nach der gewöhnlichen Vorstellung hat, und sie als ein nothwendiges Thun der Vernunft darstellte.¹⁷

Die Dialektik des begrifflichen Denkens gehört wohl zum Schwersten, was sich der menschliche Geist zumuten kann, und so mag es nicht weiter ver-

¹⁶ [86], S. 183.

¹⁷ [56], S. 54.

wundern, daß sie zum Tummelplatz von Schwätzern und Heilsverkündern geworden ist. Wie Atlantis ist sie überall und nirgendwo vermutet und vermeintlich dann auch „entdeckt“ worden.

(2) Es ist diese Dialektik, die so häufig als unvereinbar mit der Logik angesehen wird. Als Beispiel einer typischen Gegenüberstellung von Logik und Dialektik bietet sich folgende Passage von Robert Heiss an:

[[Der Logiker]] kann sich [[...]] nicht damit abfinden, daß auch in der *zweideutigen* und noch *nicht fixierten* Aussage schon Wahrheit ist.

Genau dies ist die Meinung der Dialektik. Hier liegt das dialektische Problem und die Gegnerschaft der Dialektik zur Logik. Wo immer die Meinung vertreten wird, daß auch bereits im Zweideutigen die Wahrheit zur Erscheinung kommen kann, da setzt der dialektische Gedanke ein.¹⁸

Und weiter schreibt Heiss:

Seitdem die formale Logik ihre Herrschaft angetreten hat, steht die Dialektik in ihrem Schatten. Zugunsten der eindeutigen, der fixierten, sicheren und gewissen Wahrheit des logischen Denkens muß das dialektische zurücktreten. Denken bestimmt sich als *logisches* Denken. Diesem ist die Wahrheit anvertraut; in der Dialektik wohnt keine Wahrheit.¹⁹

Wenn hier „formale Logik“ durch „klassische Logik“ ersetzt wird, oder eher „klassische formale Logik“, erhält man eine Charakterisierung, die sehr wohl mit meiner Position vereinbar ist. Allerdings wird damit auch ein grundsätzliches Hindernis für eine fruchtbare Auseinandersetzung sichtbar: Es gibt eine Menge Philosophen, die zwischen „formaler Logik“ und „klassischer Logik“ keinen Unterschied machen. Wenn man aber einmal von dem vagen Gerede über die „Gegnerschaft der Dialektik zur Logik“ absieht, so ist die Betonung der Zweideutigkeit beachtenswert. Dabei geht es einerseits um die Frage, ob und wie sich Zweideutigkeit überhaupt „logisch“ integrieren bzw. gesetzmäßig erfassen läßt; und andererseits darum, wie Zweideutigkeit überhaupt entsteht. Letzteres soll weiter unten angesprochen werden. Hier will ich nur einen Hinweis auf das Feld der Mög-

¹⁸ [67], S. 28

¹⁹ [67], S. 29.

lichkeiten geben, die ich verfolgen will: Man bildet eine Totalität, die dann in einer bestimmten Form wieder in ihrem eigenen Bereich auftritt.²⁰

Zu These 3. (1) Daß es sich bei der Dialektik Hegelscher Observanz keineswegs um gesichertes Gedankengut handelt, ist von verschiedener Seite hervorgehoben worden. So stellt beispielsweise Dieter Henrich fest:

Was ist Dialektik? Diese Frage, bezogen auf die besondere Bedeutung des Wortes, die Hegel ihm gab, ist bisher ohne Antwort geblieben. Nicht einmal ein Vorschlag für ein Verfahren, wie sich eine Antwort finden lasse, hat allgemeine Zustimmung erhalten.²¹

Ähnlich kann man bei Werner Flach lesen:

Der Hegelsche Gedanke der Dialektik oder, wie wir genauer sagen müssen, der dialektischen Methode bildet weder einen gesicherten Bestand der Philosophie noch ist er dem Vergangenen zuzurechnen. Obwohl man sich nach wie vor auf eben diesen Hegelschen Gedanken zu berufen pflegt, hat es die Hegel-Forschung noch nicht dahin bringen können, verlässlich anzugeben, was die dialektische Methode bei Hegel ist oder sein soll oder sein muß.²²

Andererseits aber betont Flach:

(1) Dem Hegelschen Grundgedanken der dialektischen Methode kommt ein Wahrheitsgehalt zu, der ihm seine fortdauernde Aktualität sichert; er betrifft ein systematisches Grundproblem der Philosophie. (2) Offensichtlich kennt die Philosophie dieses Problem nur in der besonderen Gestalt des in Frage stehenden Hegelschen Gedankens und nicht auch in seiner sachlich-systematischen Bestimmtheit.²²

Das heißt, es gilt als ausgemacht, daß Hegel einem systematischen Grundproblem auf der Spur war, aber niemand kann so recht sagen, worin es besteht — was kein Hindernis zu sein scheint, wenn es darum geht, Ansichten über Hegels Absichten zu verbreiten.

Hegel hat zum erstenmal wieder das Eigentliche der Dialektik darin gesehen, daß sie eine „Methode“ sei, nachdem gerade Kant

²⁰ Ein Vorgehen dieser Art ist in der mathematischen Logik auch als „imprädikativ“ bezeichnet worden, und es hat sich herausgestellt, daß es für viele Bereiche unentbehrlich ist.

²¹ [71], S. 208. Ganz ähnlich auch: [133], S. 12.

²² [33], S. 55.

sie als Scheinmethode bestimmt hatte. Andere sind ihm darin gefolgt, aber niemand hat genauer untersucht oder darzustellen versucht, worin denn eigentlich das Wesen dieser Methode bestehe. Wohl hat es Hegel selbst getan, aber alle seine Nachfolger sind so voll der Kritik an seiner methodischen Bestimmung der Dialektik, daß schließlich eine völlige Unklarheit darüber herrscht, was man unter dialektischer Methode versteht.²³

Und Pinkard faßt Pippins Einwände folgendermaßen zusammen:

Hegel's dialectic cannot live up to the robust claims Hegel makes for it. [...] The dialectic is [...] supposed to have a kind of logical rigor to it, completely analogous to the rigor of ordinary formal logic.

[...] The kind of rigor that Hegel claims for his dialectic [...] is not there.²⁴

Das ist die eine Seite der Medaille; die andere ist, daß Hegeladepten diese Situation bisher nur kommentieren, nicht aber beheben konnten.

(2) In der einschlägigen Literatur lassen sich die unterschiedlichsten Auffassungen über Hegels Logik/Dialektik finden, wobei auffällig ist, daß die meisten Autoren so tun, als sprächen sie für Hegel selbst.

Heidegger (v)erklärt Hegels Anliegen zur Onto-Theo-Logik.²⁵

Für Gadamer will Hegel mit seiner Logik die von Kant begründete Transzendentalphilosophie zur Vollendung bringen.²⁶

Von Theunissen heißt es, daß er „den interessanten Versuch unternimmt, Hegels »Logik« als universale Kommunikationstheorie zu deuten“.²⁷

Für Henrich ist Hegels Logik „wie bekannt, in Wahrheit eine ontologische Theorie“.²⁸

Bubner behauptet,²⁹ daß wenn „Dialektik irgend etwas ist, so ist es eine *Methode*“, und zwar „ein Verfahren zur Gewinnung von Erkenntnissen.“

²³ [66], S. 170.

²⁴ [102], S. 6.

²⁵ Vgl. „Die onto-theo-logische Verfassung der Metaphysik“, in: [64], 31–67.

²⁶ Vgl. [38], S. 50.

²⁷ [35], S. 11.

²⁸ [70], S. 214.

²⁹ [14], S. 129.

Für Kojève ist die Dialektik nicht eine *Methode* der Forschung, sondern die adäquate Beschreibung der Struktur des Seins,³⁰ und die dialektische Methode ist nichts anderes als die Methode des Dialogs.³¹

Dagegen glaubt Hintikka, daß man von der Logik der Dialektik erwarten könne, daß sie nichts anderes sei als die Logik des Dialogs — und zwar des Sokratischen Dialogs.³²

Pinkard glaubt, nichts von Hegels Theorie zu verlieren, würde man entscheiden, daß es so etwas wie eine spekulative Logik nicht gibt.³³

Bencivenga „introduces Hegel’s logic as a semantics of narratives“.³⁴

Und Wood erklärt: „Hegel’s system of dialectical logic has never won any acceptance outside an isolated and dwindling tradition of incorrigible enthusiasts.“³⁵

Das mag als Ausdruck eines gesunden Pluralismus in der Philosophie betrachtet werden, kann aber ebensogut als Armutzeugnis einer Begrifflichkeit ausgelegt werden, die sich nicht von den Buchstaben des Meisters lösen und zur Formulierung eines systematischen Problems gelangen kann. Der Gedanke, daß es sich bei Hegels Logik um die Morgenröte einer bislang unbekannt Form theoretischer Einsicht handeln könnte, verschwindet darin bzw. wird, wie von Wood, als absurd abgetan.

(3) 175 Jahre Hegelrezeption und keine logisch haltbare Argumentation in Sicht. Hegelinterpreten haben es seit Hegels Tod nicht geschafft, Hegels Idee der Dialektik aus dem subjektiven Kontext des „Verständlichmachens“ zu lösen. Schlimmer noch, sie haben die Sicht auf ein mögliches *systematisches Problem* vernebelt, indem sie es untrennbar mit einem Autor verknüpft haben.

(4) Erstaunlicherweise wird die Einsicht, daß es immer noch nicht gelungen ist, einem systematischen Gehalt der Hegelschen Idee der Dialektik

³⁰ Vgl. [82], S. 216

³¹ Vgl. [82], S. 143. Darüber hinaus vertritt Kojève die Ansicht, Hegels Methode sei keineswegs dialektisch und die Dialektik bei ihm etwas ganz anderes als eine Methode des Denkens oder der Darstellung (S. 142); ja man könne sogar sagen, daß Hegel in gewisser Weise der Erste gewesen sei, der die Dialektik als eine philosophische *Methode* aufgegeben habe.

³² Vgl. [74], S. 213.

³³ Vgl. [103], S. 25.

³⁴ [10], Klappentext.

³⁵ [140], S. 5.

auf die Spur zu kommen, ganz allgemein konstatiert, ohne jedoch erkennbare Auswirkungen auf die Praxis des Interpretierens zu haben. Es scheint der Glaube vorzuherrschen, es besser machen zu können.

(5) Was Hegel im einzelnen sagt, ist logisch unhaltbar und wird an Unsinnigkeit nur von dem übertroffen, was seine Interpreten sagen.

Zu These 4. (1) Das Konzept einer Formalisierung, wie es sich insbesondere durch Hilberts Programm der Beweistheorie und der Metamathematik am Beispiel der Arithmetik Geltung — und auch Eingang in die philosophische Diskussion — verschafft hat, läßt sich nicht einfach auf die dialektische Logik übertragen. Die Arithmetik existierte als axiomatische Theorie („Peano-Axiome“, die auf Dedekind 1888 [22] zurückgehen), bevor sie einer Formalisierung unterzogen wurde. Aber auch davor war die Arithmetik schon eine Theorie, die, anders als die dialektische Logik, über einen gesicherten Bestand an Definitionen, Theoremen und Beweisen verfügte.

(2) Es mangelt nicht an Autoren, die beanspruchen, mit ihren Arbeiten die dialektische Logik — oder zumindest Teile davon — in einer gewissen Weise zu formalisieren. Es gibt Interpretationen als „parakonsistente“ (oder „inkonsistente“) Systeme,³⁶ als Konfliktlösungsinstrument,³⁷ Logik des Dialogs,³⁸ Theorienentwicklung³⁹ oder — allgemeiner — Formalisierungsversuche, die auf eine gewisse Struktur der dialektischen Bewegung abzielen,⁴⁰ sowie einen Vorschlag zur vollständigen Revision des Wirklichkeitsbildes, indem Wahrheitswerte durch ontologische Stellen ersetzt

³⁶ So in da Costa [19], p. 508: „Dialectic logic is intimately connected with the theory of inconsistent systems“ und Routley [112], S. 304: „A necessary condition that a sentential logic be *dialectical* is that it is [...] simply inconsistent, i.e. contains contradictory theses of the form A and $\sim A$, but non-trivial, i.e. not every wff is a thesis.“ Derartige Systeme erlauben es nicht, aus einem Widerspruch der Gestalt $A \wedge \neg A$ Beliebiges zu folgern. Vgl. auch Priest in [104] und [105], Thomason in [127] und [128], Raggio in [109], Smolenov in [120] u.v.a.m.

³⁷ Z.B. Krabbe in [84] und [85], S. 191: „systems of formal dialectics are instruments for conflict resolution“.

³⁸ Z.B. Hintikka in [74], S. 213: „the logic of dialectic can be expected to be nothing but the logic of dialogue.“

³⁹ Z.B. Simon-Schaefer [119] (Popperscher Falsifikationismus) und Thagard [126] (Sneed/Stegmüllersche Theoriendynamik).

⁴⁰ Dazu gehören Kosok [83], Gauthier [39], Sabelli [114].

werden.⁴¹ Natürlich muß eine solche Liste aus praktischen Gründen unvollständig bleiben, aber als Kuriosität will ich zu schlechter Letzt noch die Existenz einer homöopathischen Interpretation der Hegelschen Dialektik erwähnen.⁴²

(3) All diesen Versuchen ist gemein, daß sie, wenn überhaupt, nur Aspekte von Hegels Logik aufgreifen und versuchen zur Darstellung zu bringen. So kann Henrich mit Recht sagen:

Ein bekanntes, häufig geübtes Verfahren bleibt [. . .] notwendigerweise unergiebig, das aus Hegels Logik irgendwelche Gesetze der Dialektik herleiten will, in denen doch zugleich das Spezificum von Hegels Theorieprogramm und logischem Konstruktionsverfahren außer acht gelassen werden soll. Verfäht man so, so hat man am Ende bestenfalls solche Sätze gewonnen, in Beziehung auf die sich Hegels Theorieprogramm auf irgendeine Weise bestätigt fand, ohne daß sie noch spezifisch zu diesem Programm und seiner Durchführung gehören. Ein solcher Satz ist zum Beispiel der vom Übergang der Quantität in die Quantität durch Umschlag.⁴³

Aber ist es denn so anders, wenn Henrich darangeht, aus Hegels Logik irgendwelche Grundoperationen der Dialektik herzuleiten? Natürlich wird Henrich für sich in Anspruch nehmen, „das Spezificum von Hegels Theorieprogramm“ vor Augen zu haben, aber angesichts der Unfähigkeit der Hegelexegeten, sich darauf zu einigen, worin das „Spezificum von Hegels Theorieprogramm und logischem Konstruktionsverfahren“ überhaupt besteht, ist dadurch wohl niemandem geholfen, dem an mehr als einem akademischen Diskurs gelegen ist. Oder, mehr im Duktus von Henrich: Ein bekanntes, häufig geübtes Verfahren bleibt notwendigerweise unergiebig, das aus Hegels Logik irgendwelche Einsichten herleiten will, in denen doch zugleich die Selbstinterpretation, die Hegel ihr gegeben hat,⁴⁴ außer acht gelassen wird. Da drängt sich der Verdacht auf, daß hier ein Interpret versucht, Hegel in den Kontext seiner eigenen Überzeugungen zu pressen. Deshalb will ich betonen: Aus meiner Sicht lassen sich aus Hegels Text sowenig Gesetze der Dialektik herauslesen wie Grund-

⁴¹ So verstehe ich Günther in [48].

⁴² Barth in [7].

⁴³ [70], S. 227.

⁴⁴ Vgl. [70], S. 226.

operationen oder ein logisches Konstruktionsverfahren. Anders gesagt: Die systematischen Komponenten der Dialektik (Gesetze, Grundoperationen, etc.) lassen sich sowenig durch eine Hegelinterpretation erschließen wie die Gesetze der Natur aus den Werken des Aristoteles.

(4) Insbesondere in einer mehr analytisch ausgerichteten Tradition der Philosophie scheint die Vorstellung von der „Formalisierbarkeit“ von Aussagen zu grassieren (unter der gewöhnlich nicht mehr verstanden wird als eine symbolische Ausdrückbarkeit, also noch keine Axiomatisierbarkeit). Dadurch wird das hier angestrebte Ziel, einen Aspekt des begrifflichen Denkens der theoretischen Analyse zugänglich zu machen, der dem gewöhnlichen Denken ungewohnt ist, erst recht dem Blick entzogen.

Zu These 5. (1) Was der Idee einer formalen dialektischen Logik so hartnäckig im Weg steht, ist eine vorherrschende Fixierung auf den Gedanken der „Formalisierung“ eines vorgegebenen „Inhalts“. Wenn es gelingt, den Gedanken der Wiedergabe einer intuitiven „Theorie“ in einer präziseren (als der ursprünglichen) Sprache — sei es als „Formation“ oder „Rekonstruktion“⁴⁵ oder gar „rationaler Rekonstruktion“⁴⁶ — zu überwinden, besteht Hoffnung, daß sich der Blick auf die Leibnizsche Formulierung öffnet:

Die Kunst der „Charakteristik“ ist die Kunst, Charaktere so zu bilden und anzuordnen, daß sie die Gedanken wiedergeben, d.h. daß sie unter sich dieselbe Beziehung haben wie die Gedanken unter sich.⁴⁷

Damit ließe sich das Problem einer formalen dialektischen Logik auf die Frage verschieben, welches die *Beziehungen* sind, die in einer Theorie der Dialektik wiedergegeben werden sollen, ohne daß die Objekte, zwischen denen diese Beziehungen aufgezeigt werden können, dieselben sein müssen wie die, von denen Hegel spricht bzw. zu sprechen beansprucht.

(2) Wenn wir das Leibnizsche Konzept der „Charakteristik“ aufgreifen und auf Hegels Begriffe „Sein“ und „Nichts“ und ihr Verhältnis zueinander

⁴⁵ Man denke an den Titel von [72].

⁴⁶ Man denke beispielsweise an [122]. Ähnlich unten im dritten Kommentar zu These 12 auf S. 158, wenn Stegmüller davon spricht, daß „nicht formalisierte intuitive gedankliche Operationen [...] gegenüber dem formalisierten Denken stets das grundlegende sind“.

⁴⁷ Zitiert nach O. Becker [8], S. 359.

anwenden wollen, so stellt sich als erstes die Frage, welche Gedanken hier wiedergegeben werden sollen, d.h. welche Beziehung Sein und Nichts unter sich haben. Diese Frage läßt sich leicht beantworten, wenn wir uns in Erinnerung rufen, daß Hegel über sie zunächst nicht mehr sagt, als daß die Begriffe „Sein“ und „Nichts“ gleich und doch unterscheidbar seien. Damit läßt sich folgende Behauptung aufstellen, in der die Begriffe „Sein“ und „Nichts“ nicht mehr auftauchen:

- (A) Es gibt zwei Begriffe, die bezüglich dessen, was unter sie fällt, identisch (d.i. gleich) sind, die aber dennoch wohlunterscheidbar, d.h. nicht identisch sind.

Eine solche Behauptung ist nicht nur in ihrer Formulierung sehr nahe an Hegel, sie stellt darüber hinaus auch eine echte Herausforderung an die Logik dar. Die Mengenlehre hat durch das Extensionalitätsaxiom von vornherein die Möglichkeit ausgeschlossen, daß es zwei solche Begriffe geben kann. Wir werden also die Behauptung genauer fassen müssen:

- (B) Es gibt in einer präzise gefaßten Theorie der (höheren) Logik zwei Terme, die bezüglich dessen, was unter sie fällt, identisch (d.i. gleich) sind, die aber dennoch in dieser Theorie wohlunterscheidbar, d.h. nicht identisch sind.

Damit haben wir ein Problem, das seinem Charakter nach so objektiv ist wie das Problem der Existenz von Lösungen mathematischer Gleichungen in einem bestimmten Zahlenraum.⁴⁸ Ich füge noch eine Version in gängiger logischer Symbolik bei:

- (C) $\exists x \exists y (\forall z (z \in x \leftrightarrow z \in y) \wedge \exists z (x \in z \wedge y \notin z))$.

Das läßt sich in jedem Basissystem der ZF-Mengenlehre widerlegen.⁴⁹

(3) Bekanntlich hat sich Hegel über Leibnizens Idee mokiert, und Generationen von Hegeladepten haben den Meister nachgeäfft. So scheint es zum Standardrepertoire der Hegelinterpreten zu gehören, die formalen Methoden der modernen Logik mit Hinweis auf Hegels Kritik des Formalen abzuweisen. Entsprechend kann man lesen, daß

Hegel die Ansätze zu einer formalen Deduktionstheorie bei Leibniz und die ersten Ansätze zu einer extensionalen Inter-

⁴⁸ Eine Lösung findet sich im ersten Kommentar zu These 23 unten auf S. 130.

⁴⁹ Deshalb kann auch Badiou's Ansatz in [6] nichts zu der hier verfolgten Strategie beitragen. Mit seinem mengentheoretischen Ansatz hat sich Badiou von vornherein auf das Extensionalitätsaxiom festgelegt.

pretation der Logik wiederholt verworfen hat. Sie ist eine begrifflose Weise, über den Begriff zu reden, bloßes Rechnen. Damit ist die moderne Logik für Interpretationen seiner Dialektik nicht geeignet.⁵⁰

Andererseits aber erklärt Henrich:

Hegel trat [...] entschieden ein für eine formale Entfaltung der Grundbegriffe der philosophischen Theorie, allem voraus, was Abstraktion oder Anwendung genannt werden kann. So hat er Leibniz' Programm einer allgemeinen Charakteristik erneuert, in der gleichfalls elementare Terme nach evidenten Regeln ganz formal zum Universum aller möglichen wahren Gedanken entwickelt werden sollten.⁵¹

Die Behauptung daß Hegel „Leibniz' Programm einer allgemeinen Charakteristik erneuert“ habe, mag ein wenig hoch gegriffen erscheinen, aber wenn Henrichs Sicht ernst genommen würde, hätte man einen vielversprechenden Ausgangspunkt, um mathematische Logik und Hegels spekulative Logik zusammenzubringen. „Abstraktion“ und „Anwendung“ als zentrale Begriffe einer Theorie: das ist die Idee, die Churchs λ -Kalkül und dessen variablenfreier Version der Kombinatoren von Curry zugrunde liegt. Aber wie ernst kann man Henrichs Bemerkung nehmen? Wenn Henrich die Wendung gebraucht, es seien „Terme nach evidenten Regeln ganz formal“ zu entwickeln, bedeutet das auch, daß diese Regeln explizit anzugeben sind? Meine Erfahrung ist, daß sich hier die Philosophen zieren, als wäre die Evidenz der Regeln im Bereich einer subjektiven Einsicht beheimatet und bedürfe keiner expliziten Angabe, oder könne dadurch sogar verfälscht werden könnte. Wie aber formal nach Regeln ein Universum irgendeiner Art entwickelt werden kann, ohne daß diese Regeln explizit angeben werden, bleibt im dunkeln.

(4) Tatsächlich ist das Auftauchen von beweisbaren Widersprüchen in der (naiven) Mengenlehre von Philosophen Hegelscher Observanz nicht ganz unbemerkt geblieben und sogar auch mit Hegel in Verbindung gebracht worden, wie das folgende Zitat belegt:

Hegel [hat] der Erscheinung des Widerspruchs einen systematischen Ort im Denken zugewiesen und hat das Schema des Wider-

⁵⁰ [118], S. 333.

⁵¹ [71], S. 211 f.

spruchs im Geschehen der Wirklichkeit nachzuweisen versucht. Aber er und auch die folgenden Denker haben sich nicht bemüht, das Phänomen deskriptiv zu erfassen. Unterdessen sind die Möglichkeiten einer deskriptiven Bearbeitung der Widersprüche gewachsen. Um nur eine zu nennen: in einem Zweig der Mathematik, der Mengentheorie, sind Widersprüche aufgetreten.⁵²

Das war 1932! Viel getan hat sich seither trotzdem nicht. Für mich bietet sich hier fraglos ein Ansatzpunkt, auch wenn es mir nicht so sehr um eine „deskriptive Bearbeitung der Widersprüche“ zu tun ist.

(5) Eine gewisse Affinität der Hegelschen Auffassung zur Mengenlehre wird durch folgende zwei Zitate nahegelegt:

Das Denken ist überhaupt das Auffassen und Zusammenfassen des Mannigfaltigen in der Einheit.⁵³

Und Cantor:

Unter einer ‚Menge‘ verstehen wir jede Zusammenfassung M von bestimmten wohlunterschiedenen Objekten m unserer Anschauung oder unseres Denkens $[[\dots]]$ zu einem Ganzen.⁵⁴

Der Unterschied: Cantor spricht explizit von „bestimmten wohlunterschiedenen Objekten“, was aus der Sicht vieler Grundlagenforscher dagegen spricht, ihn als Vertreter eines „naiven Standpunktes“ zu klassifizieren, demzufolge jedem einstelligen Prädikat eine Menge entspricht.⁵⁵ Hegel scheint den Objekten einer möglichen Zusammenfassung keine Einschränkung aufzuerlegen und steht damit der höheren Logik viel näher als der Mengenlehre.

Zu These 6. (1) Natürlich kann man eine solche These nicht beweisen — es ist eher eine Arbeitshypothese. Die Kantschen Antinomien sind nicht präzise genug formuliert, um einen Vergleich mit denen der logischen Grundlagenforschung zu ermöglichen. Es kann noch nicht einmal als sicher gelten, daß es sich bei Kants „Antinomien“ tatsächlich um *beweisbare* Widersprüche im Sinne eines explizit angebbaren und allgemein nachvollziehbaren Beweisbarkeitsbegriffs handelt.

⁵² [65], S. III.

⁵³ [55], S. 114.

⁵⁴ [18], S. 481.

⁵⁵ Hao Wang in [134], S. 188, spricht von „Cantor’s 1895 ‘genetic’ definition of set“.

(2) Es bleibt Kants überragendes Verdienst, unbeschadet der Mangelhaftigkeit in der Ausführung der Antinomien und ihrer Beweise, in seiner *Kritik der reinen Vernunft* einen Zusammenhang zwischen der metaphysischen Begriffsbildung (Idee der reinen Vernunft, Vollständigkeit der Reihe aller Erscheinungen) und Antinomien einer gewissen Art hergestellt zu haben.

(3) Es ist das zweifelhafte und anhaltende Verdienst der Philosophie — der transzendental ausgerichteten wie der analytischen —, die Möglichkeit einer Parallele zwischen den mengentheoretischen und den Kantschen Antinomien für eine theoretische Aufarbeitung ungenutzt zu lassen. Carnap hat uns gezeigt, wie man die mengentheoretischen Antinomien dazu heranziehen kann, die Metaphysik zu diskreditieren, ohne je auf Kants Antinomien zu sprechen zu kommen; und Heidegger hat demonstriert, wie man Kant und das Problem der Metaphysik abhandeln kann, ohne auf die Dialektik der reinen Vernunft einzugehen. Aber erst Wittgenstein hat unmißverständlich klargestellt, daß er es als seine Aufgabe betrachtet, an ihm ungelegenen Ergebnissen vorbeizureden.⁵⁶

(4) Es gibt nicht viele Autoren, die die Möglichkeit eines Zusammenhangs zwischen den Paradoxien der Mengenlehre und höheren Logik auf der einen Seite und Kants Antinomien auf der anderen Seite überhaupt gesehen haben. Vertreter der Fries'schen Schule zu Anfang des 20. Jahrhunderts wie Paul Bernays, Michael Kowalewski und Gerhard Hessenberg gehören hierher:

Das Paradoxon der Menge [aller Ordinalzahlen] erinnert an diejenigen Antinomien, die nach Kant entstehen, wenn wir die Natur als ein geschlossenes Ganze betrachten.⁵⁷

Und weiter:

Wenn die ultrafiniten Paradoxien, insbesondere die der Menge [aller Ordinalzahlen], nicht zu beseitigen sind, so liegt die Vermutung nahe, daß sie im Zusammenhang mit den Antinomien stehen, die Kant aufgestellt hat.⁵⁸

⁵⁶ [139], S. 383: „Meine Aufgabe ist es nicht, über den Gödelschen Beweis, z. B., zu reden; sondern an ihm vorbeizureden.“

⁵⁷ [73], S. 633.

⁵⁸ [73], S. 706.

Und bei Zermelo, dem Begründer der axiomatischen Mengenlehre, kann man lesen:

Auch wer wie der Herausgeber [[von Cantors Werk, Zermelo]] die Kantische Theorie der Mathematik, wonach alle mathematischen Sätze auf „reine Anschauung“ gegründet sein sollen, grundsätzlich *ablehnt*, wird doch zugeben müssen, daß in dieser Lehre von den „Antinomien“ eine tiefere Einsicht, ein Einblick in die „dialektische“ Natur des menschlichen Denkens zum Ausdruck kommt. Und ein eigentümliches Schicksal fügte es, daß gerade die „Antinomien der Mengenlehre“, deren mindestens *formale* Analogie mit den Kantischen nicht wohl in Abrede gestellt werden kann, ein ganzes Menschenalter hindurch der Ausbreitung und Anerkennung der Cantorschen Leistungen im Wege gestanden haben.⁵⁹

Zu These 7. (1) Es hat sich teilweise eingebürgert, die Paradoxien der Mengenlehre und Semantik als „gelöst“ zu betrachten (durch das iterative Mengenkonzept im Fall der Mengenlehre bzw. einer Unterscheidung von Sprachstufen im Fall der Semantik), während die intensionalen Paradoxien (der höheren Logik), wie von Gödel des öfteren hervorgehoben, nach wie vor ungelöst bleiben.⁶⁰ Darüber hinaus wird das, was hier unter „Logik“ gefaßt wird, häufig nicht als Logik im eigentlichen Sinn (Logik erster Stufe) betrachtet — so beispielsweise von Quine, der sie als eine „Mengenlehre im Schafspelz“ titulierte.⁶¹

(2) Insbesondere die Paradoxie des Lügners scheint eine ungebrochene Faszination auf philosophische Gemüter auszuüben, wobei der Wahrheitsbegriff bzw. das, was man sich in der analytischen Philosophie darunter vorstellt, im Vordergrund steht. Dabei wird ein Verständnis von „Lösungen“ von Paradoxien vorausgesetzt, das der hier angesprochenen Idee der Dialektik fern steht.

Zu These 8. (1) Seit Gödel [43] ist es klar, daß eine vollständige Formalisierung der Arithmetik unmöglich ist:

[[F]] or any well-defined system of axioms and rules [[. . .]] the proposition stating their consistency (or rather the equivalent number-

⁵⁹ [143], S. 377.

⁶⁰ Cf. [93], S. 129, [134], S. 188.

⁶¹ [108], S. 77.

*theoretical proposition) is undemonstrable from these axioms and rules, provided these axioms and rules are consistent and suffice to derive a certain portion of the finitistic arithmetic of integers.*⁶²

Voraussetzung der Gödelschen Unvollständigkeitssätze ist das Vorliegen einer Objekttheorie, die einer Arithmetisierung unterzogen werden kann.⁶³ Dies ist im allgemeinen durch eine formale Sprache gewährleistet, die sich in induktiver Weise definieren läßt und dadurch (primitiv-)rekursive Definitionen ihrer arithmetisierten Bestandteile (Terme, Formeln) zuläßt.

(2) Gödels Resultat wird nicht immer als Chance für die philosophische Grundlagenforschung gesehen. So schreibt Max Bense:

Wir müssen von einer Wissenschaft, genauer von einer wissenschaftlichen Theorie verlangen, daß ihre Sätze widerspruchsfrei und vollständig aufgebaut werden können. Es darf also nicht so sein, daß mit Hilfe der Regeln der Logik innerhalb einer Wissenschaft oder einer Theorie zwei einander widersprechende Sätze bewiesen werden können, und es darf weiterhin auch nicht der Fall sein, daß in einer solchen Wissenschaft oder Theorie plötzlich Sätze erscheinen, von denen es unmöglich ist zu entscheiden, ob sie wahr oder falsch sind. Denn es ist klar, daß das Auftreten von Widersprüchen und unentscheidbaren Sätzen das gesamte Gefüge einer Wissenschaft oder Theorie ins Wanken bringen würde.⁶⁴

Das ist eine ganze Reihe von Forderungen, deren Herkunft nicht verraten wird, die aber sicher nicht aus der Grundlagenforschung zur Logik und Mathematik stammen. Widerspruchsfreiheit, Entscheidbarkeit und Vollständigkeit werden wild durcheinandergeworfen. Unentscheidbare Sätze bringen nicht das ganze Gefüge einer Theorie ins Wanken, bestenfalls die dogmatischen Vorstellungen mancher Theoretiker.

Nun ist aber durch die beiden großen in Amerika lebenden Logiker und Mathematiker Kurt Gödel und Alonzo Church schon in den dreißiger Jahren [[des zwanzigsten]] Jahrhunderts bewiesen worden, daß diese wichtigen Ziele prinzipiell nicht erreicht werden können, daß es also immer die Möglichkeit gibt, in einer Theo-

⁶² [45], S. 308 f. Hervorhebung im Original.

⁶³ Um Mißverständnissen vorzubeugen: Es ist nicht nur die Sprache, die arithmetisiert werden kann, sondern auch der deduktive Apparat.

⁶⁴ [11], S. 688.

rie Widersprüche zu konstruieren, daß sie immer unentscheidbare Sätze enthält, also im strengen Sinne niemals vollständig aufgebaut werden kann.⁶⁴

Auf der Grundlage seiner verworrenen Vorstellungen von den metamathematischen Resultaten von Gödel und Church im Verein mit einem rigiden Theorieverständnis kommt Bense dann zu dem Schluß:

Für die philosophische Grundlagenforschung bedeuteten die berühmten negativen Theoreme von Gödel und Church geradezu eine intellektuelle Katastrophe.⁶⁴

Natürlich kann man auch sagen, daß der Big Bang (so es einen gab) eine Katastrophe war. Vielleicht war aber die größere Katastrophe, daß wir jemals die Bäume verlassen haben. Oder gar jener viel beschworene Apfel. Nur, wo wären wir ohne den Sündenfall? Adam und Eva liefen noch immer unschuldig in einem bestialischen Paradies herum, ohne die Freuden des sündigen Lebens zu kennen.⁶⁵ Was Max Bense hier als „intellektuelle Katastrophe“ bezeichnet, begreife ich als Befreiung von einem Joch, das uns dogmatische Vordenker beschert haben. Aber es gibt wohl immer genügend Leute, für die so ein Joch etwas Beruhigendes an sich hat, als Garant einer festgefühten Ordnung, ohne die, wie es immer so hübsch (häßlich) heißt, alles in Anarchie versänke. Es kann liebgewonnen werden, weil es Sicherheit verspricht, auch von jenen, die am benachteiligten Ende sitzen. Muß ich betonen, daß ich keinen Ehrgeiz habe, mich mit meiner Arbeit in dieses Bild einzufügen?

Zu These 9. (1) Anhänger rigider Paradiesvorstellungen mögen Gödels Resultat einfach nur als schmerzliche Beschneidung ihrer vermeintlichen Fähigkeiten empfinden, aber einem undogmatischeren — oder vielleicht einfach nur weniger narzistischen — Denken kann sich der Blick auf einen dynamischen Wissensbegriff öffnen.

To what extent can mathematical thought be analyzed in formal terms? Gödel's theorems show the inadequacy of *single* formal systems for this purpose, except in relatively restricted parts of mathematics. However at the same time they point to the possibility of systematically generating larger and larger systems whose acceptability is implicit in acceptance of the starting theory. The

⁶⁵ Mein Duden sagt zu Paradies: „aus dem Pers., eigtl. = Einzäunung, eingezäuntes (Stück Land)“. Also eine Art Zoogehege. Wie schön!

engines for that purpose are what have come to be called *reflection principles*. These may be iterated into the constructive transfinite, leading to what are called *recursive progressions of theories*.⁶⁶

Jede strikte Formalisierung der Arithmetik enthält unentscheidbare Sätze. Aus klassischer Sicht bedeutet das, daß es zu jedem formalen System der Arithmetik wahre, aber in ihnen unbeweisbare Sätze gibt. Dieses Phänomen wurde von Gödel als die „incompleteness or inexhaustibility of mathematics“ bezeichnet.⁶⁷ Gödels Ansicht wird von Hao Wang folgendermaßen kolportiert:

The human mind is incapable of formulating (or mechanizing) all its mathematical intuitions. I.e.: If it has succeeded in formulating some of them, this very fact yields new intuitive knowledge, e.g. the consistency of this formalism. This fact may be called ‘the incompleteness’ of mathematics.⁶⁸

Daraus entwickelte sich in den Grundlagenstudien der Mathematik der Gedanke einer Progression deduktiver Theorien, indem wahre, aber unbeweisbare Formeln als Axiome hinzugefügt werden, insbesondere sogenannte „reflection principles“, die im wesentlichen auf Konsistenzbehauptungen hinauslaufen.⁶⁹ Auch wenn das schon ganz vielversprechend klingen mag, will ich doch hinzufügen, daß es aus meiner Sicht nicht für eine Begründung von Denkbestimmungen ausreicht.

(2) Was die Möglichkeit einer nicht-empirischen Wissenserweiterung angeht, so sollte das vor dem Hintergrund der empiristischen Grundthese gesehen werden:

Die Grundthese des Empirismus ist diese: die einzige Quelle, die uns ein Wissen über die Welt, ein Wissen über Tatsachen, ein Wissen, dem Inhalt zukommt, liefern kann, ist die Erfahrung[.]⁷⁰

Was das „Wissen über die Welt“ betrifft, so läßt sich da aus meiner Sicht erst etwas sagen, wenn klargestellt ist, was das sein soll: „die Welt“. Entsprechendes gilt für „Tatsachen“. Das sind Wörter, deren Bedeutungen

⁶⁶ [28], S. 1.

⁶⁷ [29], S. 305 (Gödels Gibbs lecture 1951).

⁶⁸ [134], S. 324.

⁶⁹ Vgl. z.B. [130] und [27].

⁷⁰ [52], S. 55.

im allgemeinen in der analytischen Philosophie als gegeben hingenommen werden. Was ein „Wissen, dem Inhalt zukommt“ betrifft, so ist man da in der analytischen Philosophie seit Quines [106] („Two Dogmas“) deutlich vorsichtiger geworden, um nicht zu sagen penibel. Die Vorstellung von einer durchgängigen Unterscheidbarkeit von analytisch und synthetisch begründeten Wahrheiten, die dem logischen Empirismus zugrunde lag, hat sich nicht realisieren lassen. Demgegenüber stellt der transzendente Idealismus eine recht bescheidene Grundthese auf: Es gibt neben der äußeren Erfahrung auch eine nicht-empirische Form der Einsicht, die eine rein theoretische Erkenntnis ermöglicht.

(3) Das sollte auch vor dem Hintergrund folgender Bemerkung gelesen werden:

Es kann wohl kaum bestritten werden, daß Hegels Theorie in keinem Falle eine deduktive Form im strikten Sinne hätte annehmen können. Immer müßte sie auch auf eine Folgeordnung von Grundbegriffen Bezug nehmen, die sich faktisch einstellen und die sich auf die Weise semiotischer Prozesse fortbestimmen.⁷¹

Sicher wird sich Hegels Theorie nicht als deduktive Theorie „im strikten Sinne“ formulieren lassen — schon die Arithmetik tut das nicht. Nur bilden eben die Unvollständigkeit und Erweiterbarkeit im Falle von Hegels Theorie ein konstitutives Moment, wogegen sie sich in der Arithmetik als ein zunächst unwillkommenes und teilweise auch unerwartetes Resultat einstellten.

Es zeigt sich nämlich, daß bei einem systematischen Aufstellen der Axiome der Mathematik immer wieder neue und neue[re] Axiome evident werden, die nicht formallogisch aus den bisher aufgestellten folgen. [. . . E]ben dieses Evidentwerden immer neuerer Axiome auf Grund des Sinnes der Grundbegriffe ist etwas, was eine Maschine nicht nachahmen kann.⁷²

Wenn dieser Gedanke auf Hegels „Theorie“ übertragen werden soll, dann ist die Frage, *was* treibt eine solche Progression vom dialektischen Standpunkt an? An dieser Stelle macht sich die Schwäche von Henrichs Argumentation bemerkbar: eine vage Anspielung auf „semiotische Prozesse“ reicht einfach nicht aus, zumindest nicht, wenn ein theoretischer Stan-

⁷¹ [70], S. 254 f.

⁷² [46], S. 384.

dard angestrebt wird, der dem der mathematischen Logik nahekommt. In diesem Zusammenhang lohnt es sich, noch eine weitere Bemerkung von Gödel zu zitieren:

Ich möchte darauf aufmerksam machen, daß dieses intuitive Erfassen immer neuerer und von den früheren logisch unabhängiger Axiomen, welches zur Lösbarkeit aller Probleme selbst eines sehr eingeschränkten Gebietes nötig ist, prinzipiell mit der Kantschen Auffassung der Mathematik übereinstimmt. Allerdings sind die diesbezüglichen Äußerungen von Kant wörtlich verstanden unrichtig [. . .]. Ich glaube, es ist eine allgemeine Eigenschaft vieler Kantschen Behauptungen, daß sie wörtlich verstanden falsch sind, aber in einem allgemeineren Sinn tiefe Wahrheiten enthalten.⁷²

Etwas Entsprechendes will ich auch für Hegel in Anspruch nehmen.

(4) Turing formuliert die Sachlage folgendermaßen:

The well-known theorem of Gödel [[43]] shows that every system of logic is in a certain sense incomplete, but at the same time it indicates means whereby from a system L of logic a more complete system L' may be obtained. By repeating the process we get a sequence $L, L_1 = L', L_2 = L'_1 \dots$ each more complete than the preceding.⁷³

(5) Inwood formuliert die Frage mit der ganzen entwaffnenden Unschuld eines unbedarften Denkens:

Why should our thinking at any one level advance once we are engaged in it?⁷⁴

In Anbetracht des Gödelschen Unvollständigkeitsresultats wird die Antwort sein: weil Denken, das sich selbst artikuliert, seine Unvollständigkeit erkennt und auch die Möglichkeit, immer wieder diese Unvollständigkeit zu beheben. Aber böse Zungen würden hier wahrscheinlich sagen: Für philosophisches Denken trifft eine solche Fähigkeit zur Selbsterkenntnis gar nicht zu, und insofern hat Inwood ganz recht mit seiner Frage.

Zu These 10. Es gibt nicht viele Autoren, die einen Zusammenhang zwischen den Fragestellungen und Ergebnissen der Grundlagenforschung

⁷³[130], S. 155.

⁷⁴[76], S. 269.

in der Mathematik und höheren Logik der letzten hundert Jahre auf der einen Seite und Hegels Dialektik auf der anderen Seite überhaupt gesehen, oder zumindest erahnt haben. Dazu gehört auf alle Fälle Findlay [31].⁷⁵

Zu These 11. (00)⁷⁶ Da ich nun schon dabei bin, hier ist noch so ein Spruch: Es gibt Gelehrte, denen die Auslegung der Hegelschen Philosophie selbst ihre Philosophie ist.⁷⁷

(1) Anders gesagt: Hegels Idee der Dialektik erschöpft sich nicht auf einer historischen Ebene. Es gibt mehr als nur das, was Hegel gesagt und gedacht hat. Es geht hier nicht um Meinungsforschung. Weder die Meinung(en) von Hegel noch die seiner Anhänger sind gefragt, wenn es um eine theoretische Umsetzung der Idee der Dialektik geht.

(2) Wie schon in These 3 angesprochen, wird das Problem durchaus gesehen. Aber bei der Frage, worauf es denn nun „ankömmt“, scheiden sich die Geister. Bei Stekeler-Weithofer findet sich folgende Variante der These als Motto zu einem Aufsatz über die Grundbegriffe der Hegelschen Logik:

Die meisten Interpreten
haben Hegel nur paraphrasiert.
Es kommt darauf an, ihn zu begreifen.⁷⁸

Ein wesentlicher Bestandteil meiner Sicht von Hegel ist, daß er die Funktionsweise seiner Dialektik selber nicht so richtig begriffen hatte. Das mag als Sakrileg gelten und darf nicht gesagt werden, erhellt aber vielleicht, warum es aus meiner Sicht nicht darum gehen kann, Hegel zu „begreifen“. Das würde bedeuten, in der Unzulänglichkeit seiner Idee zu verharren. Dann bleibt aber immer noch die Frage, was „theoretische Umsetzung“ heißen soll. Was mir vorschwebt, ist eine Theorie, die sich an der mathematischen Logik orientiert, hinsichtlich der Präzision sowie der Anwendbarkeit in der theoretischen Informatik.

(3) Es scheint ein Wesenszug der Philosophen, daß die Möglichkeit von etwas, das sich ihrer Vorstellung entzieht, sich ihrer Vorstellung entzieht. Vielleicht erklärt sich so auch die Fixierung auf Vordenker und Autoritätä-

⁷⁵ Vgl. Zitat in [79], S. 78 f.

⁷⁶ Das habe ich Uwe Nitsche entlehnt: 00 Aufsehen, Beuys und Girls (<http://www.youtube.com/watch?v=Sngu4iNsH7Q>).

⁷⁷ Vgl. [78], S. 1 (255).

⁷⁸ [123], S. 139.

ten. Gedacht ist der Inhalt allemal; er muß nur noch in eine bestimmte Form gebracht werden. Die großen Denker haben es im Prinzip erledigt. Hegel hat der Dialektik eine vollständige theoretische Ausformung gegeben, auch wenn wir nicht sagen können, worin sie besteht. So kommt es zu Behauptungen der folgenden Art:

In den Händen von Hegel und Marx zumindest, ist die Dialektik keine bloße Zauberformel. Im Gegenteil, sie ist eine voll entwickelte, systematisch ausgearbeitete philosophische Theorie.⁷⁹

Philosophie, nicht zuletzt im Ausgang von Heidegger, bekennt sich zum Epigonentum. Neue Ideen können von Philosophen gar nicht wahrgenommen werden. Was ich dagegen halten will: Inhalt und Ort der Dialektik sind nicht ausreichend begriffen, ja noch nicht einmal ansatzweise erkannt. Mein Bestreben ist es, für die Dialektik einen systematischen Ort in einer (formalen) nichtklassischen höheren Logik zu finden, und zwar so, daß die Theorie, die sich daraus ergibt, nicht einfach eine Neu- oder Uminterpretation von etwas Bekanntem ist, sondern eine völlig neue Theorie, die mit neuen Schlußregeln einen Bereich erschließt, dessen Existenz vorher nicht bekannt war, wobei aber gleichzeitig vertraute Ergebnisse, wie etwa die Theoreme der rekursiven Arithmetik, beweisbar sind, oder zumindest als Grenzwerte gelten.⁸⁰

(4) Auch wenn Philosophen es nicht hören wollen, so lasse ich mich nicht davon abhalten, hier meiner Meinung Ausdruck zu geben, daß ein grundsätzliches Hindernis bei der Entwicklung einer Theorie der Dialektik die Unfähigkeit der Philosophen ist, abstrakt begriffslogisch zu denken — ungeachtet der Tatsache, daß sie sich so gern damit brüsten.⁸¹

(5) Eine theoretische Umsetzung der Hegelschen Idee der Dialektik kann sich nur in bewußter Abkehr von der Tradition der Hegelrezeption realisieren.

⁷⁹ [115], S. 32, meine Übersetzung.

⁸⁰ In diesem Sinn ist die Newtonsche Mechanik ein Spezialfall der speziellen Relativitätstheorie für Geschwindigkeiten, die gegenüber der Lichtgeschwindigkeit gering sind.

⁸¹ Das gilt auch und gerade für Philosophen in der analytischen Tradition, die sich wohl etwas darauf einbilden mögen, mal einen Grundkurs in Logik absolviert zu haben, deren Verständnis der Logik aber auf rudimentäre Aussagen- und Prädikatenlogik beschränkt bleibt und obendrein mit einer Ideologie der natürlichen Sprache infiziert ist.

Zu These 12. (1) Das mag erklären, weshalb den Versuchen, das Phänomen der Dialektik auf der Grundlage einer umgangssprachlichen Beschreibung zu erfassen, so wenig Erfolg beschieden ist.

(2) In diesen Zusammenhang gehört Bertrand Russells Bemerkung, daß
 common speech is full of vagueness and inaccuracy, and that
 any attempt to be precise and accurate requires modification
 of common speech both as regards vocabulary and as regards
 syntax.⁸²

Das Problem, das in den Paradoxien der (höheren) Logik aufscheint, ist zu subtil, um mit dem Arsenal von Wörtern, das uns in der Alltagswelt der natürlichen Sprachen zur Verfügung steht, analysiert werden zu können. Das zeigt sich insbesondere in den Unvollständigkeitsresultaten, die in den Thesen 8 und 9 angesprochen wurden.

(3) Das geht grundsätzlich gegen eine Vorstellung der Priorität des Gegenstandsbereichs wie sie beispielsweise im folgenden Zitat — in Bezug auf die Unterscheidung von analytischen und synthetischen Urteilen (oder Sätzen) — vertreten wird:

Die Unterscheidung ist bestenfalls unter Bezugnahme auf sogenannte formalisierte Sprachsysteme zu vollziehen. Für nicht formalisierte intuitive gedankliche Operationen, die gegenüber dem formalisierten Denken stets das grundlegende sind, kann sie nicht vorgenommen werden.⁸³

Da ist er, der Stein der Philosophen: „nicht formalisierte intuitive gedankliche Operationen, die gegenüber dem formalisierten Denken stets das grundlegende sind“ und — erlaube ich mir zu ergänzen — „dabei es der schalste Schwätzer mit dem gründlichsten Kopfe getrost aufnehmen und es mit ihm aushalten kann“.⁸⁴

(4) Man könnte versucht sein zu sagen: Erst eine kompromißlose Formalität vermag das inhaltliche Moment der formalen Logik zutage zu fördern. Dagegen spricht, daß wir noch gar nicht wissen, was der Inhalt hier sein könnte. Zunächst macht sich nur eine Unbestimmtheit bemerkbar. Es kommt darauf an in ihr einen Inhalt zu finden.

⁸² [113], S. 337. Erwiderung zu Strawson.

⁸³ [121], S. 7.

⁸⁴ [78], S. 6 (259). Kant bezieht sich auf den „gemeinen Menschenverstand“.

Zu These 13. (1) Es ist nicht so, dass das Konzept einer formalen Theorie zur Dialektik hinzukommt, sondern die Dialektik hat sich im Bereich formaler Theorien gezeigt, d.h. der Bereich des Formalen ist nicht so steril wie u.a. von Leibniz, Kant und Hegel angenommen. Würde es nicht so scheußlich klingen, könnte man sagen: Es geht nicht um eine Formalisierung der Dialektik, sondern um eine Dialektisierung des Formalen.

(2) Tatsächlich kann die Situation noch schärfer gefaßt werden: Es sind grundlegende logische Anschauungen, die sich als widersprüchlich herausgestellt haben. Oder, wie Gödel es formuliert hat:

By analyzing the paradoxes to which Cantor's set theory had led, [[Russell]] freed them from all mathematical technicalities, thus bringing to light the amazing fact that our logical intuitions (i.e., intuitions concerning such notions as: truth, concept, being, class, etc.) are self-contradictory.⁸⁵

(3) Für Findlay stellt sich die Lage so dar:

Dialectic is [[. . .]] forever safe from the formal logicians.⁸⁶

Aus meiner Sicht lenkt das von dem eigentlichen Problem ab: Die formale Logik ist nicht vor der Dialektik sicher; und das ist es, was ich als Grundlage für eine Theorie der dialektischen Logik heranziehen will. Damit befindet sich die (höhere) Logik in der Gesellschaft der Metaphysik (Kants Kritik der reinen Vernunft). Das metaphysische Virus (der Widersprüchlichkeit) hat auf die Logik und Mathematik übergreifen. Die Influenza der Inkonsistenz — die bei Philosophen zur verbalen Inkontinenz führt — hat die (höhere) Logik erfaßt. Als Frege die Logik revolutionierte, führte er sie geradewegs in die Widersprüchlichkeit; an dieser Widersprüchlichkeit kann sich die Idee der Hegelschen Dialektik bewähren. *Hic Rhodus, hic saltus*, hier sind die Widersprüche, hier tanze! Oder, um noch einen anderen Klassiker zu verwursten:

Warum in die Ferne schweifen,
sind die Widersprüche doch so nah?

(4) Ganz ähnlich liegt es mit folgender Bemerkung von Seebohm:

⁸⁵ [44], S. 131.

⁸⁶ [32], S. 140.

Im Rahmen der Logik des 20. Jahrhunderts nach der logischen Struktur der Hegelschen Dialektik zu fragen, ist ein vergebliches Unterfangen.⁸⁷

Im Unterschied dazu geht es mir nicht um die logische Struktur der Hegelschen Dialektik, sondern um die dialektische Natur der höheren Logik. Und, wenn ich das hinzufügen darf, nach der dialektischen Struktur der höheren Logik zu fragen, ist etwas ganz anderes, als nach der logischen Struktur der Hegelschen Dialektik zu fragen.

(5) Damit erledigt sich auch die Sorge, welche die Formalität der Logik Hegel angeblich bereitete, weil in ihr sein Begriff der Wahrheit keinen Platz mehr hätte:

Hegel was also worried about logic's formality, since he thought it doubtful that logic could be 'true' if it were purely formal. He could have avoided that worry altogether if he had been in the position to hold the contemporary view that logic is not intended to *provide* truth at all but just to *preserve it*.⁸⁸

Das klingt als würde Pinkard zu Hegel sagen, er hätte sich seiner Sorgen entledigen können, hätte er nur sein Vorhaben aufgegeben, in der Logik Wahrheit zu finden.

(6) Es besteht kein Anlaß, sich über mangelnde Ungereimtheiten im klassischen Bild sorgen. Die neuentwickelte Präzision, die durch die formalen Sprachen gewonnen wurde, bietet reichlich Ansatzpunkte, die klassische Doktrin einer scharfen Trennung von Form und Inhalt zu untergraben. Grund zur Sorge bietet allenfalls das philosophische Gewäsch, in dem die subtilen Ergebnisse der logischen und mathematischen Grundlagenforschung zu ersticken drohen.

Zu These 14. (1) Mit dieser These rühre ich wohl an eine der empfindlichsten Stellen der philosophischen Seele: *horror mathematicae*. Diese Empfindlichkeit manifestiert sich in einer hartnäckigen Opposition zur Mathematik als einer möglicherweise geeigneten Methode für die Philosophie. Sie kann sich vernünftelnd geben wie bei Tugendhat:

Was [. . .] in der Mathematik für den Aufbau deduktiver Systeme legitim und notwendig ist, dürfte sich bei unkritischer Über-

⁸⁷ [118], S. 333.

⁸⁸ [103], S. 23.

tragung auf philosophische Grundbegriffe als methodische Naivität erweisen. Philosophische Begriffe stehen für komplexe Sachzusammenhänge, deren Explikation verbaut wird, wenn sie durch eine exakte Definition auf einen bestimmten Teilaspekt festgelegt werden. Die Isolierung eines Teilphänomens ist freilich legitim, wenn sie ausdrücklich geschieht und das Verhältnis des thematisierten Aspekts zum Ganzen angegeben wird.⁸⁹

Oder päpstlich wie bei Heidegger:

Keine Behandlungsart der Gegenstände überragt die andere. Mathematische Erkenntnis ist nicht strenger als die philologisch-historische. Sie hat nur den Charakter der „Exaktheit“, die mit der Strenge nicht zusammenfällt. Von der Historie Exaktheit fordern, hieße gegen die Idee der spezifischen Strenge der Geisteswissenschaften verstoßen.⁹⁰

Oder einfach nur altklug wie bei Adorno:

Wörtlichkeit und Präzision sind nicht dasselbe, eher tritt beides auseinander.⁹¹

Aber letztlich können sich alle auf Hegels Bemerkung über die Mangelhaftigkeit der mathematischen Erkenntnis berufen:

Die Evidenz dieses mangelhaften Erkennens, auf welches die Mathematik stolz ist, und womit sie sich auch gegen die Philosophie brüstet, beruht allein auf der Armuth ihres Zwecks und der Mangelhaftigkeit ihres Stoffs, und ist darum von einer Art, die die Philosophie verschmähen muß. — Ihr Zweck oder Begriff ist die Größe. Dieß ist gerade das unwesentliche, begrifflose Verhältniß.⁹²

So schmeichelt man sich ob der Tiefe des eigenen Denkens und versöhnt sich in einem Gefühl der Überlegenheit mit seiner Unbedeutendheit. Aus meiner Sicht liegt hier ein Mißverständnis vor: Es ist nicht der Philosoph, der, über alles erhaben, dem Denken seine Grenzen vorhält; es ist die, mitunter bittere, Erfahrung des Theoretikers, der sich durch die Angabe präziser Axiome und Regeln der Möglichkeit aussetzt, widerlegt werden

⁸⁹ [129], S. 191.

⁹⁰ [62], S. 25.

⁹¹ [3], S. 45.

⁹² [54], S. 42.

zu können.⁹³ Und wie Gödels Theoreme zeigen, können die Grenzen, die dem mathematischen Denken durch deduktive Systeme gesetzt sind, zum Gegenstand einer exakten Theorie gemacht werden.

(2) Bei aller Animosität gegenüber präzisen Methoden scheint aber doch der Wunsch nach einer gewissen objektiven Gültigkeit der eigenen Ansprüche zu existieren. Das scheint mir zumindest aus Formulierungen der folgenden Art hervorzugehen:

Hegels ‚Wissenschaft der Logik‘ [‘. . .’] verfügt über einen konstruktiven Grundgedanken, der sich nachvollziehen läßt. Aus ihm leiten sich die methodischen Leitformeln und die Grundterme her, welche diese Logik verwendet. Kraft seiner besitzt sie somit ein kontrollierbares methodisches Arsenal.⁹⁴

Aber ist das mehr als nur ein frommer Wunsch? Was wird hier denn beansprucht? Nachvollziehbarkeit! Nachvollziehbar von wem? Existenz eines kontrollierbaren methodischen Arsenal! Kontrollierbar von wem? Auch von jemandem außerhalb einer Gemeinde von Gläubigen?⁹⁵ Oder wie soll man sich die hoffnungslose Uneinigkeit der Hegelinterpreten erklären? Hat der Rest der Hegelinterpreten den konstruktiven Grundgedanken von Hegels Wissenschaft der Logik nicht richtig nachvollzogen? — Es ist wohl eher so, wie Rüdiger Bubner es bezüglich der ‚Sache selbst‘ in Hegels System formuliert hat:⁹⁶ Bei aller emphatischen Beschwörung bleibt nichts Greifbares in Händen.

(3) Der Gedanke, daß zu viel Präzision die Ursache von Problemen sein könnte,⁹⁷ ist so neu nicht und auch nicht auf Philosophen der Hegelschen Tradition begrenzt; so kann man bei Berkeley lesen:

as it is very possible to write improperly, through too strict an observance of general grammar-rules: so in arguing from general

⁹³ Als Paradebeispiel kann natürlich Frege gelten, aber er steht nicht allein. So bemerkt Martin Davis:

The list of logicians who have seriously proposed systems of logic that have later turned out to be inconsistent reads like an honor roll. It includes, in addition to Church: Frege, Curry, Quine, and Rosser ([21], S. 3, fn. 3).

⁹⁴ [71], S. 213.

⁹⁵ Vgl. die Ausführungen im dritten Kommentar zu These 5 auf S. 147 oben.

⁹⁶ Vgl. [15], S. 120.

⁹⁷ *Horror rigoris?*

laws of Nature, it is not impossible we may extend the analogy too far, and by that means run into mistakes.⁹⁸

Und Susan Haack bemerkt:

The idea that increase of precision may not be an unmixed blessing is not new; Duhem pointed out [.] that the statements of theoretical physics, just because they are more precise, are less certain, harder to confirm, than the vaguer statements of common sense. Popper [.] has also suggested that precision may be a 'false ideal'.⁹⁹

Das scheint so ähnlich wie mit dem Fernrohr zu sein: wenn neue Methoden etwas zutage fördern, von dem die Schulweisheit nichts weiß (oder nichts wissen will), so läuft das erst einmal Gefahr, als Resultat einer Täuschung, die durch die neuen Methoden hervorgerufen wird, abgetan zu werden.¹⁰⁰

(4) Anders als für die analytische Philosophie ist der Einsatz beweistheoretischer Methoden in der spekulativen Philosophie kein modisches Accessoire: der Umgang mit beweisbaren Widersprüchen macht beweistheoretische Untersuchungen dringlich — zumindest, wenn ein gewisser metatheoretischer Standard angestrebt wird; und sei es nur um sicherzustellen, daß dieser Umgang nicht zu unerwünschten Konsequenzen führt. Wohl mag die Mehrheit der Philosophen in der Hegelschen Tradition nach wie vor wie der Ansicht sein, daß es reicht, dieses Projekt in wagemutigem Geiste zu unternehmen,¹⁰¹ aber das Resultat ist nicht überzeugend: vgl. die Kommentare zu These 3. Ein Vorgehen muß auch außerhalb des engen Kreises einer bestimmten Philosophenschule nachvollziehbar sein. Es muß deshalb nicht so banal sein wie die „klare Sprache“ der analytischen Philosophie, die ohnehin nicht das Kriterium der Intersubjektivität erfüllt, weil ihre Banalität so schul- bzw. länderspezifisch ist wie die Sprache der Philosophie Hegelscher Observanz, und daher ohnehin keine Alternative darstellen kann.

⁹⁸ [12], S. 142.

⁹⁹ [51], S. 164.

¹⁰⁰ In diesem Zusammenhang will ich an jenen „Martin Horky aus Böhmen, einen einstigen Schüler Keplers“, erinnern, der die Jupitermonde als Täuschung abtat und sicher zu wissen glaubte, „daß all jene Täuschung von der Reflexion der Lichtstrahlen kommt“ ([68], S. 52).

¹⁰¹ Vgl. [81], S. 140.

(5) Gotthard Günther hat nach eigenem Bekunden versucht, Metaphysiker für die Methoden der modernen Logik zu gewinnen. So schrieb er am 29. April 1954 an Gödel:

Vorläufig versuche ich allerdings meine Kollegen in der Metaphysik ohne jeden Erfolg zu der Ansicht zu bekehren, dass man heutzutage nicht mehr Metaphysik treiben kann, ohne die Arbeit der letzten hundert Jahre in symbolischer Logik und Mathematik zugrunde zu legen.¹⁰²

Bedauerlicherweise ist aber bei Günthers eigenem Versuch in diese Richtung nicht mehr herausgekommen als ein weiteres Beispiel einer eigenwilligen philosophischen Konstruktion, die einen Bezug zur mathematischen Logik vermissen läßt. Günthers „Morphogrammatik“ ist wohl kaum geeignet, bei Logikern ein Vertrauen in die Auseinandersetzung von Metaphysikern mit der mathematischen Logik zu wecken.

(6) Im beschaulichen Stil des (deutschen) „Besinnungsaufsatzes“, wie er vorwiegend in der (deutschsprachigen) Philosophie gepflegt wird, geht die Vision Hegels unter.

Zu These 15. Diese These ist vor allem vor dem Hintergrund von Dieter Henrichs Versuch zu sehen, die Negation als Hegels Grundoperation zu verkaufen. Deswegen setzt sich die Mehrzahl der folgenden Kommentare mit Henrichs Position auseinander.

(1) Henrich propagiert, beispielsweise in [70] und [71], die Negation als eine der „bedeutendsten methodischen Grundoperationen Hegels“, wobei nicht weiter erklärt wird, was unter einer „methodischen Grundoperation“ zu verstehen ist. Seine Formel lautet:

Hegels Grundoperation ergibt sich aus der Weise, in der er die Negation behandelt hat.¹⁰³

Daß in Hegels Logik das Sein vor dem Nichts eingeführt wird und sich ebenso wie das Nichts „sprachlich aus der Substantivierung des Verbs herleitet“,¹⁰⁴ wird von Henrich gar nicht erst in Betracht gezogen; ebensowenig, daß sich in der höheren Logik die Negation als eine logische Operation

¹⁰² [30], S. 480 & S. 482.

¹⁰³ [71], S. 213. Ich will nicht verschweigen, daß es Autoren gibt, die wie Bubner hier von einem „überaus subtilen Versuch“ sprechen.

¹⁰⁴ [70], S. 225.

mithilfe der Substantivierung der Aussageform einführen läßt, und das, obwohl er die Substantivierung der Aussageform in seine Überlegungen mit einbezieht.¹⁰⁵

(2) Dann aber stellt Henrich fest, daß Hegels Logik „verschiedene Typen von Negation“ benutzt und daß sie „die Zahl der Bedeutungen von Negation im natürlichen Denken noch dadurch vergrößert, daß sie die Aussageform als solche ontologisierte.“¹⁰⁶ Aus der Sicht der logischen Grundlegung der Dialektik ist die Vielfalt der Negationsbegriffe eine Konsequenz der Vielfalt der Folgerungsbegriffe, und die Vielfalt der Folgerungsbegriffe wiederum eine Konsequenz der unbeschränkten Abstraktion, d.h. der substantivierten Aussageform. Wenn man die substantivierte Aussageform uneingeschränkt erhalten will, bleibt einem angesichts der Paradoxien der unbeschränkten Abstraktion nur eine Einschränkung des klassischen Folgerungsbegriffes übrig, die sich darin manifestiert, daß die Schlußregel des „Modus ponens“ und das Deduktionstheorem nicht gleichzeitig zugelassen werden können; was wiederum dazu führt, daß sich immer neue Folgerungsbegriffe bilden lassen, jeder neue umfangreicher als der vorhergehende.¹⁰⁷ Erkenntnis im Geltungsbereich der Dialektik kann nicht anders als dynamisch sein, das betrifft auch die Negation.

(3) In Henrichs Kontext wird Hegels Theorieprogramm „in dem konstruktiven Willen eines Theoretikers“ aufgelöst, was wohl heißen soll, daß es sich nach Henrichs Ansicht bei Hegels Entwicklung von Denkbestimmungen um Wunschdenken handelt:¹⁰⁸

Hat man erkannt, in wie hohem Maße in Hegels Logik Rücksicht genommen ist auf die Form der negativen Aussage, aber so, daß sie zugleich als ein Gedanke vom Dasein aufgefaßt ist, und übersieht man die vielfältigen Konsequenzen dieses Grundzuges seiner Theorie, so wird man die Selbstinterpretation, die Hegel ihr ge-

¹⁰⁵ Aus logischer Sicht spricht natürlich nichts dagegen, auch die Negation als Grundoperation zuzulassen; da es aber auch ohne sie geht, hat das seinen Ursprung offenbar in der Vorliebe eines Theoretikers.

¹⁰⁶ [70], S. 225.

¹⁰⁷ Das ist so ähnlich wie die Progression deduktiver Theorien aus dem ersten Kommentar zu These 9 oben auf S. 153.

¹⁰⁸ Ich versuche, mich von einer Hegelinterpretation fernzuhalten, und einen Teil werde ich tun, mich auf die Interpretation eines Hegelinterpreten einzulassen, auch wenn es genau das ist, was der akademische Klerus erwartet.

geben hat, nicht mehr ohne weiteres übernehmen können. Was sich aus übersehbaren Gründen durch die Verschiebung der Bedeutung natürlicher Operationen und Begriffe gewinnen läßt, das hat seinen Ursprung offenbar in dem konstruktiven Willen eines Theoretikers. Es kann nicht geradezu als Selbstdarstellung einer objektiven Vernunft gelten.¹⁰⁹

Daß Hegels Logik nicht als eine „Selbstdarstellung einer objektiven Vernunft“ gelten kann, weil sie sich von natürlichen Operationen und Begriffen entfernt, ist die Weisheit einer Hegelinterpretation ohne Logikverständnis. Vielleicht kann sie sich noch so weit eine Geltung sichern, als sie nur über Hegels Logik zu sprechen beansprucht. Aber Henrich geht weiter:

Es besteht keine Möglichkeit, den Hinweis auf die Evidenz, daß Sein und Nichts denkbar und doch ununterscheidbar sind, in der Logik durch ein anderes Argument zu ersetzen, das zu seiner Begründung nicht der *via negationis* bedürfte.¹¹⁰

Hier hat Henrich anscheinend versäumt, sich ausreichend hinter dem Schutzschild der Hegelinterpretation zu verstecken. Daß in der Logik keine solche Möglichkeit besteht,¹¹¹ ist eine Behauptung, die Henrich wohl kaum untermauern kann; das würde eine logische Untersuchung erfordern, für die in der Philosophie nicht die Mittel bereitstehen. Aber wenn man „in der Logik“ durch „in Hegels Logik“ ersetzt, ist man zurück auf dem sicheren philosophischen Boden interpretativer Unsicherheit. Allerdings wird damit auch das Elend einer Hegelinterpretation ohne Logikverständnis offensichtlich: Es kann immer nur um einen Autor im Interpretationskontext eines anderen Autors gehen.

(4) Philosophen wollen sich nicht auf explizit formulierte Gesetze festlegen lassen. Statt von Axiomen innerhalb eines Regelsystems reden sie lieber von Prinzipien. Ein Axiom wie $A \vee \neg A$ hat außerhalb eines Systems von Axiomen und Schlußregeln keine Bedeutung, wogegen so etwas wie das „Prinzip des ausgeschlossenen Dritten“ eine eigenständige Bedeutung zu haben scheint — zumindest wird es so gehandhabt. Entsprechendes

¹⁰⁹ [70], S. 226.

¹¹⁰ [69], S. 93.

¹¹¹ Vorausgesetzt, die Wendung „Hinweis auf die Evidenz“ kann überhaupt logisch sinnvoll paraphrasiert werden.

gilt für die „substantivierte Aussageform“. In der mathematischen Logik haben wir die λ -Abstraktion, die darin besteht, daß eine einstellige Aussageform in einen Term verwandelt werden kann: wenn \mathfrak{F} eine einstellige Aussageform ist, so ist $\lambda x \mathfrak{F}[x]$ ein Term. Das Verhältnis zwischen den beiden Ausdrücken wird durch die zwei Schlußschemata

$$\frac{\mathfrak{F}[t]}{t \in \lambda x \mathfrak{F}[x]} \quad \text{und} \quad \frac{t \in \lambda x \mathfrak{F}[x]}{\mathfrak{F}[t]}$$

geregelt. Dabei ist \in (Elementschaftsrelation) ein zusätzliches Grundzeichen, das weiter keine Schlußschemata erfordert. Daß man damit mehr anstellen kann, als einem klassischen Logiker lieb ist, hat sich zu Anfang des zwanzigsten Jahrhunderts herausgestellt. Das ist es, was ich für die Grundlegung einer formalen dialektischen Logik ausnutzen will. Aber um eine Anwendung von Regeln wird man nicht herumkommen.

Zu These 16. (1) „Sinnvoll“ soll hier heißen, „ohne daß sich unliebsame Folgerungen ergeben“, das wäre im Extremfall Trivialität, d.h. alles ist beweisbar. Was ansonsten als „unliebsam“ zu gelten hat, ist weitgehend Geschmacksache, z.B. kontradiktorische Widersprüche. Das Grundkriterium für eine dialektische Logik besteht also zunächst darin, daß die unbeschränkte Abstraktion (Begriffsbildung) nicht-trivial zugelassen werden kann. Darüber hinaus ist aber die nächste Anforderung an eine dialektische Logik, Platz für die Möglichkeit einer rein apriorischen, d.i. nicht-empirischen Wissenserweiterung zu schaffen. Deshalb kann eine Theorie der Dialektik nicht bei der Zulassung von Widersprüchen stehenbleiben, wie es etwa der „dialetheism“ tut.

(2) Widersprüche sind eines der auffälligsten Momente der Hegelschen Philosophie und so mag es nicht weiter verwundern, wenn Autoren ohne Affinität zur transzendental-spekulativen Tradition eine Logik, die kontradiktorische Widersprüche duldet (parakonsistente Logik) für eine Interpretation der Hegelschen Dialektik einsetzen wollen.¹¹² Auf diese Weise wird dann ihre Zulassung zum konstitutiven Merkmal einer „dialektischen Logik“ erklärt. Ein solcher Ansatz nimmt jedoch eine Auswirkung für das Ursprüngliche. Mehr als eine Auswirkung sind die kontradiktorischen Widersprüche nicht: eine Auswirkung der unbeschränkten Begriffsbildung im Verein mit dem Tertium non datur.

¹¹² Vgl. Fußnote 36 oben auf S. 143.

Zu These 17. (1) So gesehen ist die Idee der Hegelschen Dialektik nicht mit der klassischen Logik vereinbar. Das geht gegen alle Versuche, Hegels Idee der Dialektik als kompatibel mit der gewöhnlichen Logik hinzustellen, wie etwa in folgenden (chronologisch angeordneten) Zitaten:

[[Some] authors hold that dialectic does not involve rejection of the law of contradiction. Hegel belongs to this group.¹¹³

In der Behandlung des Widerspruchs ist die hegelsche Logik mit Popper ganz einig.¹¹⁴

Im Gegensatz zu den Vorstellungen vieler Dialektiker gibt es keine Unvereinbarkeit von dialektischem und logischem Denken.¹¹⁵

[[I]n Wahrheit besteht zwischen Hegels Logik und der traditionellen Logik kein Konkurrenzverhältnis.¹¹⁶

I do not see what in Hegel's logic would compel us to abandon classical logic.¹¹⁷

Hegel's philosophical use of common logic is a higher-order activity than the common-logical activity, and does not therefore by any means *compete* with the common logic at its own level.¹¹⁸

Hegelian dialectic does not challenge ordinary logic.¹¹⁹

Die uneingeschränkte Abstraktion läßt keine andere Wahl, als die klassische Logik einzuschränken. Mit der uneingeschränkten Abstraktion kann man dann Dinge anstellen, die sich nicht nur dem Zugriff klassischen Schließens entziehen, sondern auch Hegels Äußerungen in vielen Hinsichten entgegenkommen. Es soll aber nicht verschwiegen werden, daß der Umgang und das Verständnis ein gewisses Maß an mathematisch-logischer Kompetenz verlangt.

(4) Bezüglich einer Revision der Gesetze der Logik finde ich auch folgende Äußerung bemerkenswert:

¹¹³ [4] S. 321.

¹¹⁴ [14], S. 143.

¹¹⁵ [119] S. 379.

¹¹⁶ [137], S. 210. Es erstaunt mich immer wieder, wie leichtfertig manche Philosophen mit dem Wort „Wahrheit“ umgehen. Ob das den Politikern abgesehen ist?

¹¹⁷ [39], S. 305.

¹¹⁸ [53], S. 255.

¹¹⁹ [103] S. 20.

Three years ago, I asked Professor Quine how one could go about Hegel's dialectical logic. He simply answered that one would have to change the laws of logic in order to make sense of Hegel's logic. I doubt that there is anyone who would be ready to support Hegel to such an extent as to abandon the *corpus* of our logical laws.¹²⁰

In diesem Sinne beziehe ich eine Position, von der manche Autoren glauben, daß sie wohl keiner ernsthaft vertreten kann. Bemerkenswert finde ich dabei, mit welcher Nonchalance hier über eine Tradition hinweggegangen wird, die sich spätestens seit Łukasiewicz' Arbeit von 1920 zur dreiwertigen Logik als eigenständige Forschungsrichtung herausgebildet hat.¹²¹ Aber schon in einer Arbeit von 1910 — „Über den Satz des Widerspruchs bei Aristoteles“ — erwägt Łukasiewicz die Möglichkeit von nichtaristotelischen Systemen der Logik:

Just as in the course of the nineteenth century a more exact examination of the Euclidean parallel line postulate has led to new, non-Euclidean systems of geometry, so the conjecture would not be entirely out of order that a fundamental revision of basic laws (*Grundgesetze*) of Aristotle's logic might perhaps lead to new non-Aristotelian systems of logic.¹²²

Eine Bibliographie zum Thema „nichtklassische Logik“ gibt [110] (Stand etwa 1986).

(5) Die Möglichkeit, die Logik einzuschränken, um uneingeschränkte Abstraktion widerspruchsfrei zulassen zu können, ist kein triviales Problem. Es hat lange gebraucht, bis nachweislich widerspruchsfreie Systeme mit ausreichender mathematischer Anwendungskraft entwickelt worden sind. In einer Reihe von Arbeiten Mitte des 20. Jahrhunderts hat Ackermann, beginnend mit [1], ein solches System der typenfreien Logik vorgestellt.¹²³

¹²⁰ [39], S. 303. Man beachte: „The corpus of our logical laws“. In einer Tradition, die vielleicht noch nicht ganz vergessen ist, könnte man auch von „diesen unseren logischen Gesetzen“ sprechen; oder lieber gleich vom „corpse“, den „leblosen Knochen eines Skeletts“ ([56], S 21), „dieß todte Gebein der Logik“ ([56], S. 50).

¹²¹ [88].

¹²² [87], S. 486.

¹²³ Ackermann [2] versteht unter eine typenfreien Logik eine Logik, „die nicht nur formal die Typenfreiheit besitzt, sondern darüber hinaus ein uneingeschränktes Komprehensionsaxiom.“ Das mag heute nicht mehr der gängigste Sprachgebrauch sein, aber er stammt von jemandem, dessen Arbeit für mich von ausschlaggebender Bedeutung war.

In der Folge hat dann Schütte typenfreie Systeme aufgegriffen und in [117] findet sich eine eingehende Behandlung einer typenfreien Logik mitsamt darauf aufbauender Analysis. Diese Systeme sind in ihrem Aufbau jedoch eher unhandlich. Im Fall von Schüttes Ansatz liegt das sicher daran, daß er in einem Kalkül formuliert ist, der durch die Integration von Struktur-schlüssen zwar eine Vereinfachung beweistheoretischer Ergebnisse ermöglicht, gleichzeitig aber den Blick auf die Rolle der Zusammenziehungen im Beweis der Schnittbeseitigung verbaut. Erst 1974 hat Grišin in [47] einen Widerspruchsfreiheitsbeweis für eine zusammenziehungsfreie Logik mit uneingeschränkter Abstraktion vorgestellt. 1980 habe ich unabhängig davon in [95] eine zusammenziehungsfreie Logik mit uneingeschränkter Abstraktion und zusätzlichen Operatoren zur rudimentären Buchhaltung von Zusammenziehungen¹²⁴ als Grundsystem für eine dialektische Logik vorgeschlagen.

(6) Was ich hier als dialektische Logik vorgestellt habe, ist weder ein Gebiet innerhalb der klassischen Logik noch eine Erweiterung derselben (z.B. durch irgendwelche „intensionale“ Operatoren), sondern eine Alternative zu letzterer, wobei klassische Ergebnisse weitgehend bewahrt oder als Grenzfälle eingeführt werden sollen.

Zu These 18. (1) Was bei diesem Ansatz ausschlaggebend ist: Ohne Zusammenziehungen erfordert ein Beweis der Schnitteliminierbarkeit keine Induktion nach der Länge der Schnittformel. Das ist eine beweistheoretische Beobachtung, deren Bedeutung darin liegt, daß

1. Widerspruchsfreiheit im Gentzenkalkül eine unmittelbare Folgerung der Schnitteliminierbarkeit ist, und
2. die Schlußregeln der λ -Abstraktion die Länge der betroffenen Formel in unkontrollierbarer Weise verändern.

Die Rolle der Zusammenziehungen in einem Schnitteliminierungsbeweis ist ansatzweise in [98], S. 368–374, herausgearbeitet. Es soll jedoch nicht verschwiegen werden, daß es sich hier um beweistheoretische Verfahren handelt, die, wiewohl elementar, in philosophischen Kreisen nicht sonderlich verbreitet sind.

¹²⁴ Was den Gedanken der „Buchhaltung von Zusammenziehungen“ angeht, so vgl. man den vierten Kommentar zu These 19 auf S. 173 und auch den fünften Kommentar zu These 31 auf S. 185.

(2) So gesehen entsteht die dialektische Logik aus der klassischen, indem man alles Dogmatische wegläßt.¹²⁵ Die klassische Logik ist *überdeterminiert*. Um zur dialektischen Logik zu gelangen, muß man die Anforderungen, die der Verstand an seine Objekte stellt, einschränken oder ganz weglassen. Dazu gehören insbesondere Wohlbestimmtheit und Entscheidbarkeit („Entweder-Oder“). Anders gesagt, der Gedanke der dialektischen Logik, wie er hier vertreten wird, kann sich so nicht auf Hegel berufen.¹²⁶ Für jene Philosophen, die das Wort des Meisters über jeden Zweifel erheben, ist damit der hier vorgeschlagene Weg nicht gangbar.

(3) In Anbetracht von Pinkards konfuser Bemerkung, daß

logic *per se* does not require me to put things into either/or dichotomies¹²⁷,

scheint es mir angebracht, auf die Rolle der Logik aus logischer Sicht hinzuweisen. Natürlich verlangt die Logik als solche von niemandem, „to put things into either/or dichotomies“. Aber für alle (geschlossenen) Aussagen gilt in der klassischen Logik ein Entweder-Oder im Sinne des sogenannten „Tertium non datur“, d.h. entweder A oder $\neg A$. Das versetzt diejenigen, die mit logischen Axiomen und Regeln umgehen können, in die Lage, Schlußfolgerungen zu ziehen, von denen manche Logiker der Ansicht sind, sie seien ungerechtfertigt. So geht es etwa den intuitionistischen und konstruktiven Logikern darum, daß die Logik sie nicht in die Lage versetzen soll, Existenzbehauptungen auf der Grundlage einer Entweder-Oder Alternative zu beweisen. Im Fall der intuitionistischen Kritik an der klassischen Logik sieht das so aus: Wenn die Annahme, daß $\mathfrak{F}[x]$ für alle x gilt, zum Widerspruch führt, so berechtigt das nicht zur Schlußfolgerung, es gebe ein x gibt, für das $\neg\mathfrak{F}[x]$ gilt.

(4) Die Preisgabe der Zusammenziehungsregeln in Gentzens Sequenzkalkül **LK** führt zu einer Einschränkung des Tertium non datur sowie des Satzes vom ausgeschlossenen Widerspruch insofern, als weder $A \vee \neg A$ noch $\neg(A \wedge \neg A)$ beweisbar ist. Das bedeutet jedoch nicht, daß es Formeln A derart gibt, daß $\neg(A \vee \neg A)$ oder $A \wedge \neg A$ beweisbar sind. Anders liegt es

¹²⁵ „Weniger ist mehr.“

¹²⁶ Vgl. [100], S. 111 f.

¹²⁷ [103], S. 20.

beispielsweise mit $\bigwedge x \bigvee y (x \neq y)$ und $a \neq \mathbb{C}a$.¹²⁸ Aufgrund der Fixpunkteigenschaft gibt es einen Term f derart, daß $f = \mathbb{C}f$ beweisbar ist,¹²⁹ was dazu führt, daß $\neg \bigwedge x \bigvee y (x \neq y)$ beweisbar ist.

Zu These 19. (1) Aus der Sicht einer zusammenziehungsfreien Logik mit uneingeschränkter Abstraktion erscheinen Hegels Ausführungen über den spekulativen Satz verfehlt — nicht: spekulativer Satz, sondern: spekulativer Schluß. Das Augenmerk liegt auf der Dynamik der Annahmen. Es ist zunächst auch nicht ein bestimmter Schluß, der als „spekulativ“ zu bezeichnen wäre, sondern die Nichtverfügbarkeit von Schlüssen wie den Zusammenziehungen. *Mit* Zusammenziehungen kann man nicht spekulativ schließen.

(2) Die folgende Serie von ergänzten Zitaten ist ein Versuch, ein paar von Hegels Bemerkungen meinem Verständnis von Satz und Urteil anzupassen:

Der Satz in Form eines Urteils, *d.i. eines Satzes, dem ein fester Wahrheitswert zukommt*, ist nicht geschickt, spekulative Wahrheiten auszudrücken.¹³⁰

Das Urteil ist eine identische Beziehung zwischen Subjekt und Prädikat, *was bedeutet, daß ihm ein fester Wahrheitswert zukommt*.¹³⁰

Ist nun aber der Inhalt spekulativ, so ist auch das Nichtidentische des Subjekts und Prädikats wesentliches Moment, *was zur Folge hat, daß er nicht in Form eines Urteils, d.i. eines Satzes, dem ein fester Wahrheitswert zukommt, ausgedrückt werden kann*.¹³⁰

Damit beanspruche ich natürlich nicht, in irgendeiner Weise der Hegelschen Sicht (was immer das sein mag) gerecht zu werden. Insbesondere in [57], S. 69 f, präsentiert Hegel eine Vorstellung von der Struktur des Urteils, die mit dem hier Gesagten kaum in Einklang zu bringen ist — allerdings auch logisch kaum einen Sinn ergibt.

¹²⁸ Was die klassische und intuitionistische Beweisbarkeit der letzten Formel betrifft, so betrachte man den Beweis von proposition 41.38 in [99], S. 475.

¹²⁹ Vgl. [98], S. 382, Theorem 7.3, oder [100], S. 122, 6.2.

¹³⁰ Vgl. [56], S. 99.

(3) Heidegger und nach ihm Derrida haben sich an einem „writing under erasure“ versucht.¹³¹ Das erscheint mir ein besonders amüsanter Versuch, der Instabilität gewisser deskriptiver Bestandteile unserer Sprache Rechnung zu tragen. Jedenfalls schützt es davor, beim Wort genommen zu werden und erlaubt eine größere Bewegungsfähigkeit beim Argumentieren — getreu dem Wahlspruch des Derridadaismus:

we will be incoherent, but without systematically resigning ourselves to incoherence.¹³²

Oder, mehr im Stil einer sich nicht selbst widerlegenden Variante des Lügner-Paradoxes: Ich lüge — aber nicht immer.

(4) Im spekulativen Schließen wird der Verquickung der Sprache mit ihrem Gegenstand dadurch Rechnung getragen, daß die klassischen Freizügigkeit im Operieren mit Annahmen eingeschränkt wird: Eine Annahme, die im Verlauf einer Schlußfolge mehrmals gebraucht wird, schlägt auch entsprechend mehrmals zu Buche, d.h. muß mehrmals beseitigt werden.¹³³ Wem das zu kompliziert klingt, dem bringt vielleicht die folgende Formulierung aus der theoretischen Informatik Erleichterung:

If you lean to the right, view it as a logic of realistic accounting: no more free assumptions. If you lean to the left, view it as an eco-logic: resources must be conserved.¹³⁴

Zu These 20. (1) An dieser Einschätzung der Semantik ändern auch mehrwertige Logiken nichts: die feste Zuordnung eines Wertes wird nicht dadurch aufgehoben, daß man einen Wert beispielsweise „unbestimmt“ nennt. Solange man den Wert festhält, ist er eben nicht unbestimmt. Vielleicht läßt sich der Widersinn eines solchen Verfahrens durch folgenden Satz vermitteln: Der Wahrheitswert einer Aussage (wie beispielsweise der Russellschen Antinomie) wird als „unbestimmt“ bestimmt.¹³⁵ In einer gewissen Anlehnung an Wittgensteins Formulierung könnte ich sagen: Der Unbestimmtheit des Wahrheitswertes eines Satzes trage ich dadurch

¹³¹ Heidegger in [63]; Derrida in „La différance“ [23].

¹³² [24], S. 84.

¹³³ Dagegen reicht es in der klassischen Logik, dies nur ein einziges Mal zu tun. Vgl. weiter unten den ersten Kommentar zu These 31 (Strukturschlußregel der Verdünnung).

¹³⁴ [131], S. 196.

¹³⁵ Parmenides läßt grüßen!

Rechnung, daß ich auf sie keine Zusammenziehung anwende, und nicht durch einen speziellen Wahrheitswert.¹³⁶

(2) Die Unverträglichkeit von Łukasiewicz' endlichwertigen Logiken mit uneingeschränkter Abstraktion¹³⁷ werde ich als Hinweis auf die grundsätzliche Ungeeignetheit der Idee der Semantik für die Entwicklung einer Logik mit Unbestimmtheit oder Mehrdeutigkeit. Diese Einschätzung wird aus meiner Sicht noch weiter durch das Ergebnis der Inkonsistenz von Łukasiewicz' unendlichwertiger Logik mit uneingeschränkter Abstraktion und **Z**-Schlüssen untermauert,¹³⁸ ein Ergebnis, das leicht zur ω -Inkonsistenz von Łukasiewicz' unendlichwertiger Logik mit uneingeschränkter Abstraktion verschärft werden kann.¹³⁹ Anders gesagt: die Diagonalisierung führt aus jedem aufzählbaren Bereich von Wahrheitswerten hinaus, sofern ein paar grundsätzliche Bedingungen erfüllt sind.

(3) All das bedeutet aber nicht, daß es keine Semantiken für die zusammenziehungsfreie Logik mit uneingeschränkter Abstraktion gäbe — nur, daß ich sie für einen philosophischen Hintergrund wie den der Grundlegung einer Theorie der Dialektik ungeeignet halte.

Zu These 21. Unabhängig von meiner Arbeit zur Grundlegung der dialektischen Logik ist die in These 18 beschriebene Logik auch in der theoretischen Informatik zur Beschreibung einer Logik herangezogen worden, in der alle berechenbaren Funktionen in „polynomial time“ ausgeführt werden können.¹⁴⁰ Die Möglichkeit einer Geistesverwandtschaft zwischen einem Konzept der Hegelschen Dialektik und der theoretischen Informatik sollte hier nicht unterschätzt werden. Das Konzept des modernen Computers basiert auf der Existenz einer universalen Funktion, die es möglich macht, Programme als Dateninput zu verarbeiten. Das heißt eine natürliche Zahl kann als numerischer Input oder als Verschlüsselung einer umfangreichen Information (Programm) auftreten. Philosophisch ge-

¹³⁶ „Gleichheit des Gegenstandes drücke ich durch Gleichheit des Zeichens aus, und nicht mit Hilfe eines Gleichheitszeichens“ ([138], S. 82 (5.53)). Der Vergleich hinkt jedoch: mit der Wahl eines Symbols hat man sich festgelegt; der Verzicht auf den Gebrauch von Zusammenziehungen dagegen kann für eine bestimmte Klasse von Formeln revidiert werden, wenn für diesen Bereich ihre Zulässigkeit nachgewiesen wurde.

¹³⁷ [91].

¹³⁸ [98], S. 401.

¹³⁹ Vgl. [141] für ein etwas schwächeres Ergebnis.

¹⁴⁰ Vgl. [41], also [125].

sehen macht das die ganze mühsam ausgeklügelte Stufenunterscheidung der analytischen Philosophen zunichte. Man vergleiche dazu Odifreddis Bemerkung bezüglich des Aufzählungstheorems in der Rekursionstheorie und „the *basic double role of numbers in Recursion Theory*“:

apart from its intended and natural meaning (as a number), a number also has a hidden, second-level meaning as a code of a function.¹⁴¹

Und:

self-reference $[[\dots]]$ comes from a controlled confusion of two levels of meaning for integers, which are seen both as numbers and as names for formulas.¹⁴²

Zu These 22. Zugegeben, von einer universellen Fixpunkteigenschaft hat Hegel nichts gesagt. Aber vielleicht ist es ja inzwischen doch hinlänglich klar geworden, daß es für mich nicht darum geht, das Wort des Meisters nachzubeten. Die universelle Fixpunkteigenschaft ist eine ziemlich unmittelbare Folge der uneingeschränkten Abstraktion, und diese wiederum ist nichts anderes als das, was Henrich die „substantivierte Aussageform“ genannt hat, auch wenn ihm wohl eine Verbindung zur Abstraktion der höheren Logik oder der Komprehension der Mengenlehre nicht bewußt war. Somit gehört die universelle Fixpunkteigenschaft zu den logischen Konsequenzen der Möglichkeit, jede Aussageform zu substantivieren.

Zu These 23. (1) Mit Hilfe der Fixpunkteigenschaft kann eine Antwort auf die Frage gegeben werden, die im zweiten Kommentar zur These 5 gestellt wurde: Gibt es zwei Begriffe, die bezüglich ihrer Elemente identisch sind, aber doch wohlunterscheidbar? In einer zusammenziehungsfreien Logik mit uneingeschränkter Abstraktion läßt sich von den beiden folgenden λ -Termen $\lambda x(\lambda(x \in x) = \emptyset)$ und $\lambda x(\lambda(x \in x) \equiv \emptyset)$ zeigen, daß sie beide leer sind, aber dennoch unterschieden werden können.¹⁴³ Anhänger von Formulierungen in einer natürlichen Sprache können sich die beiden Begriffe folgendermaßen übersetzen: „Der Begriff der Gleichheit des Sich-

¹⁴¹ [94], S. 131.

¹⁴² [94], S. 165. Wohlgemerkt, das bezieht sich auf arithmetische Selbstbezüglichkeit!

¹⁴³ Ein Beweis findet sich in [98], S. 376; ein ähnliches Beispiel findet sich auch in [17], S. 358 f. Der erste Beweis dieser Art findet sich meines Wissens in [136], S. 138, Theorem 4.1.

selbst-Enthaltens mit dem des Von-sich-selbst-Verschiedenseins“ und „der Begriff der Identität des Sich-selbst-Enthaltens mit dem des Von-sich-selbst-Verschiedenseins“. Daran läßt sich dann auch die Überlegenheit einer Philosophie der natürlichen Sprache ermessen.

(2) Das Versagen der Extensionalität sowie des Bezeichnens in seinen verschiedenen Formen öffnet einen logischen Raum für intensionale Bestimmungen.¹⁴⁴ Anders gesagt, das Auseinanderfallen von Gleichheit und Identität ist der Schlüssel zur Möglichkeit einer „Synthesis *a priori*“.

(3) Es gibt eine Wissenschaft, die das Auseinanderfallen von Gleichheit und Identität betrachtet. Etwas gelehrter:¹⁴⁵

Ἔστιν ἐπιστήμη τις ἣ θεωρεῖ τὴν διαφορὰν τῆς ταυτότητος καὶ τῆς
ισότητος.

Tatsächlich ist das Phänomen aus der analytischen Philosophie vertraut: dort begegnet es uns unter dem (englischen) Namen „referential transparency and substitutional opacity“¹⁴⁶ und wird, als „Aristotelian essentialism“ gebrandmarkt, von Quine als Argument gegen die Möglichkeit einer Modallogik mit Quantoren herangezogen.¹⁴⁷

Zu These 24. Bei Girard hört sich das so an:

contraction is the fingernail of infinity in propositional calculus:
it says that what you have, you will always keep, no matter how
you use it.¹⁴⁸

Das trifft den Fingernagel auf den Kopf: You can eat your cake and have it too. Davon profitiert die klassische Definition der natürlichen Zahlen etwa in der Form¹⁴⁹

$$\mathbf{N} := \lambda x \wedge y (\wedge z (z \in y \rightarrow z' \in y) \rightarrow (0 \in y \rightarrow x \in y)).$$

¹⁴⁴ Vgl. in dieser Hinsicht mein [101], insbesondere von S. 128 an.

¹⁴⁵ Ich entschuldige mich eiligst für diese Kreation — aber ich konnte der Versuchung einfach nicht widerstehen, auch wenn meine Griechischkenntnisse dafür nicht ausreichen.

¹⁴⁶ „Opacity“ ist in [107] als „Undurchsichtigkeit“ übersetzt. Ich bin aber auch irgendwo in der Sekundärliteratur über „referentielle und expressive Transparenz und Opazität“ gestolpert.

¹⁴⁷ Vgl. etwa [34]. S. 155 f.

¹⁴⁸ [40], S. 78.

¹⁴⁹ Diese Formulierung vermeidet \wedge .

Ohne Zusammenziehungen kommt man mit dieser Definition nicht weit. Genaugenommen nur bis $0' \in \mathbf{N}$. Um zu $0'' \in \mathbf{N}$ zu kommen, müßte man schon

$\mathbf{N} := \lambda x \wedge y (\wedge z (z \in y \rightarrow z' \in y) \rightarrow (\wedge z (z \in y \rightarrow z' \in y) \rightarrow (0 \in y \rightarrow x \in y)))$
definieren und entsprechend für $0''' \in \mathbf{N}$:

$$\mathbf{N} := \lambda x \wedge y (\wedge z (z \in y \rightarrow z' \in y) \rightarrow (\wedge z (z \in y \rightarrow z' \in y) \rightarrow (\wedge z (z \in y \rightarrow z' \in y) \rightarrow (0 \in y \rightarrow x \in y))))$$

und so weiter. Da bietet sich an, eine Abkürzung folgender Art einzuführen:

$$A \rightarrow_1 B := A \rightarrow B$$

$$A \rightarrow_{n+1} B := A \rightarrow (A \rightarrow_n B)$$

um dann zu definieren:

$$\mathbf{N}^k := \lambda x \wedge y (\wedge z (z \in y \rightarrow z' \in y) \rightarrow_k (0 \in y \rightarrow x \in y)).$$

Auf diese Weise kann man zwar bis zu jeder beliebigen Zahl k kommen, aber das Unendliche bleibt weiterhin in unendlicher Ferne.

Zu These 25. Aufgrund der Fixpunkteigenschaft wissen wir, daß es eine Formel $\check{\gamma}[A]$ gibt, so daß

$$(3.1) \quad \check{\gamma}[A] \leftrightarrow (\check{\gamma}[A] \square A)$$

beweisbar ist (wobei A eine beliebige Formel sein kann). Vollständig ausformuliert sieht die Formel $\check{\gamma}[A]$ wie folgt aus:

$$(3.2) \quad \lambda x ((x \in x) \square A) \in \lambda x ((x \in x) \square A).$$

Durch eine einfache Anwendung des Abstraktionsaxioms

$$t \in \lambda x \mathfrak{F}[x] \leftrightarrow \mathfrak{F}[t]$$

auf 3.2 erhält man 3.1. Nun läßt sich folgender Term definieren:¹⁵⁰

$$\mathbf{Z} := \lambda x \wedge y (\check{\gamma}[\wedge z (z \in y \rightarrow z^I \in y)] \rightarrow (I \in y \rightarrow x \in y))$$

wobei $s^I := \lambda x (x \in s \square x \in I)$.¹⁵¹

¹⁵⁰ Vgl. [101], S. 57, Definition 2.12 (2). Davor hatte ich eine etwas andere, aber logisch äquivalente, Definition.

¹⁵¹ Vgl. [98], S. 386 f, oder [99], Chapter XXXIII, S. 1786 ff.

Zu These 26. (1) Die durch eine Fixpunktkonstruktion erzeugte unendliche Gesamtheit \mathbf{Z} reicht nicht, wie im klassischen Fall der Gesamtheit der natürlichen Zahlen in einem System der Arithmetik der zweiten Stufe, unmittelbar für die Formulierung eines Induktionsprinzips. Es kann wohl gezeigt werden, daß jedes Element einer gewissen, metatheoretisch durch Induktion definierten, unendlichen Gesamtheit auch auf der formalen Ebene als Element von \mathbf{Z} nachgewiesen werden kann, aber es ist nicht unmittelbar ersichtlich, daß \mathbf{Z} nicht auch andere Elemente enthält. Der Nachweis der „Exklusivität“ der Gesamtheit \mathbf{Z} erfordert eine metatheoretische Betrachtung, die gleichzeitig die Widerspruchsfreiheit der zusätzlichen deduktiven Mittel garantiert, die durch die \mathbf{Z} -Schlüsse bereitgestellt werden.

(2) Das Problem kann auch unter dem Gesichtspunkt des Ausschlusses von „non-standard“ Elementen gesehen werden, wie sie in der unendlichwertigen Logik von Łukasiewicz mit uneingeschränkter Abstraktion unvermeidlich werden.¹⁵² Es liegt im Interesse meines hier verfolgten Ansatzes, solche „non-standard“ Elemente zugunsten der Möglichkeit einer Totalisierung (d.i. *Induktion*) auszuschließen.

Zu These 27. (1) Mithilfe des Terms \mathbf{Z} können Modalitäten wie folgt definiert werden.

Notwendigkeit: $\square A := \bigwedge x (x \in \mathbf{Z} \rightarrow \lambda A \in x),$

Möglichkeit: $\diamond A := \bigvee x (x \in \mathbf{Z} \square \lambda \neg A \notin x).$

Mit anderen Worten, A ist möglich, g.d.w. wenn $\neg A$ nicht notwendig ist. Nun läßt sich zum Beispiel für Russells Klasse R sowohl $\diamond(R \in R)$ als auch $\diamond(R \notin R)$ zeigen, d.h. es ist sowohl möglich, daß R sich selbst als Element enthält, wie auch das Gegenteil.

(2) Damit wird die Modalität zur ersten abgeleiteten Kategorie. Das stimmt sicher nicht mit Hegels Sichtweise überein. In diesem Zusammenhang will ich darauf verweisen, was Hao Wang von Gödels Position zur Frage der drei anfänglichen Kategorien bei Hegel berichtet:

It is right to begin with being, because we have to have something to talk about. But becoming should not come immediately after being and nonbeing; this is taking time too seriously and

¹⁵² Vgl. [141] und [142].

taking it as objective. It is very clear that possibility is the synthesis between being and nonbeing. It is an essential and natural definition of possibility to take it as the synthesis of being and nonbeing. Possibility is a “weakened form of being.”¹⁵³

Zu These 28. (1) Worum es bei der Einführung der **Z**-Schlüsse geht, ist, daß zulässige Schlüsse der Gestalt

$$\frac{\Rightarrow s \in \mathbf{Z} \quad \Rightarrow A}{\Rightarrow [A/s]}$$

auch bei Abhängigkeit von Annahmen gelten sollen:

$$\frac{\Gamma \Rightarrow s \in \mathbf{Z} \quad \Rightarrow A}{\Gamma \Rightarrow [A/s]}$$

(2) Bei den **Z**-Schlüssen handelt es sich aus meiner Sicht um eine legitime Form der *μετάβασις εἰς ἄλλο γένος* von der Art, wie sie vielleicht Findlay in seinem Aufsatz *Dialectic as Metabasis* vorschwebte:

dialectical reasoning looks to what is *implied* by an assertion though not at all *covered* in its basic information [...]. Dialectical reasoning, in short involves that genuine passage beyond premises that is also involved in passing from an object-language to a meta-language[.].¹⁵⁴

Das trifft sich mit Gödel und Turing in den Kommentaren zu These 9 auf S. 128.

Zu These 29. **Z**-Schlüsse können als Pendant innerhalb der typenfreien Logik zu den „reflection principles“ der Arithmetik aufgefaßt werden. Entsprechend erfordert ein Widerspruchsfreiheitsbeweis der **Z**-Schlüsse eine Induktion, die über die im System selbst beweisbare Induktion hinausgeht. Abgesehen davon ist meine Hoffnung, daß eine Progression von typenfreien Theorien mehr epistemologisch interessante Züge aufweisen wird als eine Progression von arithmetischen Theorien.

Zu These 30. (1) Hier will ich zuerst an Kants Auffassung erinnern:

¹⁵³ [135], S. 313.

¹⁵⁴ [32], S. 132.

was Vernunft gänzlich aus sich selbst hervorbringt [[kann]] sich nicht verstecken[.]¹⁵⁵

Das ist eine eigenartig zweiseitige Angelegenheit. Es mag richtig sein, daß es sich auf Dauer nicht verstecken kann, aber erst einmal steht sich die Vernunft selbst im Weg und verbaut sich selbst die Sicht.¹⁵⁶ In diesem Sinne stolpert Vernunft über sich selbst, ohne notwendigerweise zu erkennen, daß es sie selbst ist, über die sie stolpert. Und was These 30 besagt, ist, daß es eine Wissenschaft gibt, die in diesem Stolpern Gesetzmäßigkeiten für Denkbestimmungen finden will. Natürlich stellt diese These eine Zumutung für jeden „klar denkenden Menschen“ dar. Deshalb will ich hier davor warnen, sich dem Standpunkt „klar denkender Menschen“ hinzugeben.¹⁵⁷ Worüber sich „klar denkende Menschen“ nicht im klaren sind, ist, daß sie in ihrem „klaren Denken“ nur die abgedroschenen Vorurteile ihrer Zeit wiederholen.¹⁵⁸ Mit anderen Worten, „klares Denken“ ist zunächst ein Produkt der Denkgewohnheit und im fortgeschrittenen Stadium dann ein Anzeichen von Denkfaulheit. Und das ist ein Problem, mit dem sich diese These konfrontiert sieht.

(2) Zunächst geht es darum, daß das Denken sich selbst im Weg stehen kann und danach, daß daraus Gesetze für Denkbestimmungen abgeleitet werden können. Ich will versuchen, das etwas zu erläutern. Es gibt Gedankenexperimente, wie im Fall von Reisen in die Vergangenheit, wo die Möglichkeit einer Paradoxie unmittelbar einleuchtet: Ich könnte bei einer Reise in die Vergangenheit eine notwendige Bedingung meiner eigenen späteren Existenz zerstören, im direktesten Fall könnte ich mich in der Vergangenheit aufsuchen und umbringen. Das wäre eine Form des Selbstmords,

¹⁵⁵ [77], S. XX.

¹⁵⁶ „Was der Geist will, ist, seinen eigenen Begriff zu erreichen, aber er selbst verdeckt sich denselben, ist stolz und voll von Genuß, in dieser Entfremdung seiner selbst“ ([61], S. 90 f).

¹⁵⁷ „Dich auf Bestimmung der allgemeinen Menschenvernunft zu berufen, kann dir nicht gestattet werden; denn das ist ein Zeuge, dessen Ansehen nur auf dem öffentlichen Gerüchte beruht“ ([78], S. 27).

¹⁵⁸ Angeblich hat Einstein den „gesunden Menschenverstand“ folgendermaßen charakterisiert: „Der gesunde Menschenverstand ist eigentlich nur eine Anhäufung von Vorurteilen, die man bis zum 18. Lebensjahr erworben hat“ (<http://www.zitate-online.de/>). Ich war nicht in der Lage, dies unabhängig zu verifizieren. Englisch: „Common sense is the collection of prejudices acquired by age eighteen“ (<http://www.wisdomquotes.com/000879.html>).

die durch ein *dictum*, daß Reisen in die Vergangenheit unmöglich seien, ausgeschlossen werden könnte.¹⁵⁹ Etwas Ähnliches scheint im Bereich des menschlichen Wissens möglich. So wie es Dinge gibt, die wir deshalb nicht tun können (wie etwa die Vergangenheit verändern), weil wir sonst Dinge tun könnten, die in unmittelbarem Widerspruch stehen zu dem was wir tatsächlich tun, gibt es Dinge, die wir nicht *wissen* können, weil wir sonst Dinge wüßten, von denen wir wissen, daß wir sie nicht wissen. Oder so ähnlich, jedenfalls etwas Verwirrendes. Wie kann das sein? Die grundsätzliche Richtung meiner Antwort zielt auf eine Verquickung von Erkenntnis und ihrem Gegenstand ab. Diese Verquickung kann folgende Gestalt haben: Es kann passieren, daß eine Aussage über einen Sachverhalt auf der Gegenstandsebene gleichzeitig als eine (kodierte) Aussage über einen Sachverhalt auf der Theorieebene interpretiert werden kann, und zwar so, daß die beiden in gewisser Weise unvereinbar sind. Das klassische Beispiel ist die Konstruktion von Gödels unentscheidbarem Satz. Eine formalisierte Theorie, die die Formulierung aller primitiv-rekursiven Funktionen erlaubt, wie zum Beispiel die Theorie **PRA** der primitiv-rekursiven Arithmetik, kann so in ihren eigenen Objektbereich, nämlich die natürlichen Zahlen, abgebildet werden, daß eine zahlentheoretische Aussage zugleich auch indirekt eine Aussage über sich selbst impliziert. Das hat zur Folge, daß gewisse Möglichkeiten der vollständigen Beschreibung eingeschränkt werden. Das betrifft insbesondere die Möglichkeit der Formulierung eines Wahrheitsprädikats und eines vollständigen Beweisbarkeitsprädikats.¹⁶⁰ Dann ist aber weiter die Frage, wie aus einer solchen Situation, die ja nichts anderes ist als die Feststellung einer Unvollständigkeit, der Logik ein Inhalt erwachsen kann. Da kommt es dann darauf an, diese Feststellung als ein positives Ergebnis zu erkennen.

¹⁵⁹ Das ist gar nicht so weit entfernt von einer Doktrin der Sprachstufen, mit deren Hilfe Tarski und andere das Problem der Wahrheitsparadoxien beheben wollen. Was bleibt, ist natürlich die Frage, ob die Zeit durch ein solches *dictum* gebunden wäre, auch wenn es *ex cathedra* kommen sollte.

¹⁶⁰ Meine Lieblingsvermutung ist, daß sich auch die Heisenbergsche Unschärferelation möglicherweise auf eine solche Ebenenvermischung zurückzuführen ließe: Die Beschreibung kann aus dem Beschriebenen/Beobachteten nicht eliminiert werden, und die daraus resultierende Ambiguität macht eine gleichzeitige Bestimmung von Impuls und Ort unmöglich. In diesem Sinne lese ich auch die folgende Bemerkung von David Bohm: „in a very subtle way, we may [...] be trapped in a movement in which we treat something originating in our own thought as if it were a reality originating independently of this thought“ ([13], S. 64).

(3) Der Punkt der geklärt werden muß: Inwiefern können subjektive Bestimmungen zu objektiven werden? Die folgende Serie von Hegel-Zitaten mag Hilfestellung leisten:

§. 1.

Unser gewöhnliches Wissen stellt sich nur den Gegenstand vor, den es weiß, nicht aber zugleich sich, nämlich das Wissen selbst. [. . .]

§. 2.

In der Philosophie werden die Bestimmungen des Wissens nicht einseitig nur als Bestimmungen der Dinge betrachtet, sondern zugleich mit dem Wissen, welchem sie wenigstens gemeinschaftlich mit den Dingen zukommen; oder sie werden genommen nicht bloß als objective, sondern auch als subjective Bestimmungen, oder vielmehr als bestimmte Arten der Beziehung des Objects und Subjects auf einander.¹⁶¹

Das müßte folgendermaßen umgeschrieben werden: „Unser gewöhnliches Wissen berücksichtigt nicht, daß sich eine Beschreibung in ihrem Gegenstand interpretieren lassen kann. Dagegen wird in der Philosophie bei der Beschreibung eines Gegenstandes berücksichtigt, daß manche Eigenschaften, die dem Gegenstand zuzukommen scheinen, auf das Beschreibungs-system zurückführbar sind.“ Und schließlich heißt es bei Hegel:

Die Vernunft ist die höchste Vereinigung des Bewußtseyns und des Selbstbewußtseyns oder des Wissens von einem Gegenstande und des Wissens von sich. Sie ist die Gewißheit, daß ihre Bestimmungen eben so sehr gegenständlich, Bestimmungen des Wesens der Dinge, als unsre eigenen Gedanken sind.¹⁶²

(4) Wissen, das sich selbst zum Gegenstand hat, macht Erfahrungen über sich selbst. Das ist dann ein Wissen über das erste Wissen und hat dieses zu seiner Voraussetzung. Eine Möglichkeit ist schon in These 9 angedeutet worden. Gödel nimmt die Unvollständigkeit von formalen Systemen mit ausreichender arithmetischer Anwendbarkeit zum Anlaß, auf die Möglichkeit einer Wissenserweiterung hinzuweisen: Die Formulierung einer Theorie schafft neue „Tatsachen“ für das Wissen. Woran Gödel hier vor allem zu denken scheint, ist so etwas wie die Widerspruchsfreiheit (wenn sie

¹⁶¹ [55], S. 101.

¹⁶² [55], S. 111 f.

denn widerspruchsfrei ist) dieser Theorie, die vor der Formulierung eben dieser Theorie noch kein Thema für das Wissen sein konnte.

(5) Hegel zeichnet folgendes Bild:

Die Materie, die gebildet ist, Form hat, ist wieder Materie für eine neue Form. Der Geist geht in sich und macht sich zum Gegenstande; und die Richtung seines Denkens darauf giebt ihm Form und Bestimmung des Gedankens. Diesen Begriff, in dem er sich erfaßt hat, und der er ist, diese seine Bildung, dieß sein Seyn, von neuem von ihm abgetrennt, macht er sich wieder zum Objekte, wendet von neuem seine Thätigkeit darauf. So formirt dieß Thun das vorher Formirte weiter, giebt ihm mehr Bestimmungen, macht es bestimmter in sich, ausgebildeter und tiefer. Diese Bewegung ist als konkret eine Reihe von Entwicklungen, die nicht als gerade Linie, ins abstrakt Unendliche hinaus, sondern als ein Kreis, als Rückkehr in sich selbst vorgestellt werden muß. Dieser Kreis hat zur Peripherie eine große Menge von Kreisen; das Ganze ist eine große in sich zurückbeugende Folge von Entwicklungen.¹⁶³

(6) Damit läßt sich mein Unterfangen folgendermaßen (re)formulieren: Es geht darum, den Anteil des begrifflichen Denkens (niedergelegt in der Sprache) im Wissen aufzuspüren. Wir können über die Sprache und unsere Begriffe sprechen. Wir können die sprachlichen Komponenten isolieren und sie ihrer empirischen Objekte berauben, indem wir aus unserer Sprache alles streichen, was empirischen Gehalt, d.i. einen Bezug auf die sogenannte „Welt“ (was immer man darunter verstehen mag) hat. Wir können die Welt außen vor lassen und trotzdem den Anteil der Sprache an unserem Wissen über die Welt studieren, indem wir darauf achten, wie die Sprache über ihre eigene Gegenständlichkeit stolpert: Selbstbezüglichkeit und Fixpunkteigenschaft.

Zu These 31. (1) Um eine Vorstellung zu erhalten, was „das Operieren mit Annahmen“ bedeutet, mögen folgende Beispiele angeführt werden, die den klassischen Standpunkt illustrieren sollen:¹⁶⁴

¹⁶³ [60], S. 56.

¹⁶⁴ Diese Bemerkungen sind als Eselsbrücke gedacht und sollten nicht allzu ernst genommen werden. Da es jedoch meiner Erfahrung nach gerade die Esel sind, die eine Eselsbrücke tierisch ernst nehmen, will ich hier ausdrücklich darauf hinweisen, daß

1. Die Strukturschlußregel der Vertauschung besagt, daß es egal ist, ob man zuerst das Erdgeschoß baut und dann den Keller, oder umgekehrt.
2. Die Strukturschlußregel der Verdünnung besagt, daß auch nicht angefallene Kosten als Aufwendungen abgerechnet werden können.
3. Die Strukturschlußregel der Zusammenziehung besagt, daß ein Ziegelstein und eine Kelle Mörtel ausreichen, um eine beliebig lange und hohe Mauer zu bauen.¹⁶⁵

Natürlich ist das nicht ganz fair, denn der „klassische Standpunkt“ operiert mit „ewigen Wahrheiten“, wie etwa $2 + 2 = 4$, und nicht mit ressourcenabhängigen Beständen.

(2) In einem konstruktiven Beweis werden die Gegenstände von Existenzbehauptungen *konstruiert*, d.h. es wird nicht nur die Notwendigkeit ihrer Existenz indirekt erschlossen. In einem übertragenen Sinne könnte man sagen, daß „konstruktiv“ darüber Aufschluß gibt, *wo* man die Ingredienzien herkriegt, die gebraucht werden, um, z. B., eine kleine Gartenmauer zu errichten, nämlich: Ziegelsteine und Mörtel. Aber nicht, *wieviele* Ziegelsteine und *wieviel* Mörtel gebraucht werden. In einem konstruktiven Beweis sieht man zwar — wie auch in einem klassischen Beweis —, wie oft eine Voraussetzung gebraucht wird, ohne daß dies aber im Endergebnis aufscheinen muß. Ohne Zusammenziehungen sieht man auch im Endergebnis den Mengenbedarf.

(3) Die Praxis, den Keller *vor* dem Erdgeschoß zu bauen, folgt der Maßgabe einer theoretischen Konstante, die gemeinhin als „Zeit“ bezeichnet wird, ohne daß jedoch irgend jemand verbindlich sagen könnte, worum genau es sich dabei handelt. Dieses *vor* ist nicht mit dem *unter* zu verwechseln, welches gewöhnlich als eine räumliche Bestimmung aufgefaßt wird, ohne daß jedoch irgend jemand verbindlich sagen könnte, worum genau es sich dabei handelt. Es empfiehlt sich jedoch im allgemeinen, den Keller *unter* das Erdgeschoß zu bauen, und nicht *daneben*, in welchem

diesen Ausführungen in meiner Entwicklung einer formalen dialektischen Logik kein theoretischer Stellenwert zukommt.

¹⁶⁵ Das sollte Mauerbauern sehr zustatten kommen. Nach einer anderen Überlieferung sollen bei einer Gelegenheit 5 Brote ausgereicht haben, um 5000 satt zu machen (Speisung der 5000, Matthäus 14, 15–21; Markus 6, 35–44; Lukas 9, 12–17; Johannes 6, 5–13).

Falle es auch nicht so wichtig wäre, den Keller *vor* dem Erdgeschoß zu bauen.

(4) In einer zusammenziehungsfreien Logik mit uneingeschränkter Abstraktion lassen sich die Gesetze der T-Modalität aus einem gewissen Ersatz für die Schlußregeln der Zusammenziehung ableiten. Dieser Ersatz wird aus einer Anwendung der Fixpunkteigenschaft gewonnen. Es ist meine Hoffnung, daß sich für die Gesetze der Zeit in ähnlicher Weise eine Ableitung aus einem Ersatz für Vertauschungen ergibt. Das sollte in Abhebung von Kants Vorgehen gesehen werden: Für Kant gründete die Arithmetik in der Anschauungsform der Zeit, was aber nicht bedeutete, daß er versucht hätte, auch nur die einfachsten Gesetze der Arithmetik aus eben dieser Anschauungsform abzuleiten.

(5) Girards Einführung der „exponentials“ dient dem Zweck, eine bessere Buchhaltung zu ermöglichen, ist allerdings aus meiner Sicht zu *ad hoc*.

Zu These 32. (1) Die grundsätzliche Frage ist, wie in der spekulativen Logik die Selbstbezüglichkeit zur Grundlegung der Gesetze von Denkbestimmungen (Kategorien) genutzt werden kann. Mithilfe der Selbstbezüglichkeit beweist man die Fixpunkteigenschaft und widerlegt das Extensionalitätsaxiom. Bei der Betrachtung von Termen der höheren Logik, die sich nur intensional unterscheiden, ergibt sich dann die Möglichkeit, Aussagen über gewisse Serien von solchen Termen zu machen, und darüber hinaus auch die Gesamtheit einer solchen Serie zu bilden. Derartige Gesamtheiten zeigen Eigenschaften, wie sie typisch für Denkbestimmungen sind. Sie können insofern als Auflösungen der Antinomien gelten, als sie allgemeine intensionale Unterscheidungen ermöglichen, für die die paradoxen Begriffsbildungen der höheren Logik Modelle bereitstellen.¹⁶⁶

(2) Natürlich kann man nicht erwarten, daß diese Objekte der reinen Logik die vertrauten Kategorien unseres Alltags sein werden. In dieser Hinsicht will ich an Dedekind erinnern:

Aber ich weiß sehr wohl, daß gar mancher in den schattenhaften Gestalten, die ich ihm vorführe, seine Zahlen, die ihn als treue

¹⁶⁶ Das ist zwangsläufig eine sehr technische Angelegenheit, die sich hier nur ungenügend umschreiben läßt. Leser, die genauer wissen wollen, wie das funktioniert, finden mehr darüber im Chapter XXXV in [99], S. 1904 ff.

und vertraute Freunde durch das ganze Leben begleitet haben, kaum wiedererkennen mag.¹⁶⁷

Es geht nicht darum, zu rekonstruieren, was sich irgendwelche Philosophen unter Kategorien vorstellen. Es geht nicht darum, den Vorstellungen von Fritzchen Schulze und Lieschen Müller auf die Spur zu kommen. Es geht nicht darum, einen unklaren Sprachgebrauch zu präzisieren — und da kommt mir ausgerechnet Quine zu Hilfe:

[[Wir]] beanspruchen [[. . .]] nicht, deutlich und explizit zu machen, was denjenigen, die den unklaren Ausdruck gebrauchen, immer schon unbewußt vorgeschwebt hat. Wir bringen keine verborgenen Bedeutungen ans Licht (wie die Wörter »Analyse« und »Explikation« vielleicht suggerieren), sondern wir füllen Lücken aus. Wir halten uns an die besonderen Funktionen des unklaren Ausdrucks, um derentwillen sich das Kopfzerbrechen lohnt, und dann denken wir uns einen Ersatz aus, der klar und in uns genehmen Begriffen formuliert ist und jene Funktionen erfüllt. Jedes Merkmal des Explikans, das über diese Bedingungen der partiellen Übereinstimmung, die durch unsere Interessen und Zwecke diktiert sind, hinausgeht, fällt unter die Rubrik »don't care« [[. . .]]. Unter dieser Rubrik steht es uns frei, dem Explikans alle möglichen neuartigen Konnotationen zuzugestehen, die niemals mit dem Explikandum verknüpft waren.¹⁶⁸

Inwieweit können nun Objekte, die sich in der höheren Logik bilden lassen und gewisse Beziehungen von Kategorien unter sich wiedergeben (Erfüllung von charakteristischen Gesetzen), beanspruchen, tatsächlich die Kategorien „darzustellen“? Es muß klar sein, daß sie nur so etwas wie einen Plan („blue-print“) darstellen können, vergleichbar den Objekten der höheren Logik, die die Gesetze der natürlichen Zahlen erfüllen,¹⁶⁹ nicht jedoch die „eigentlichen Objekte selbst“, was immer das heißen mag bzw. wo immer sie zu finden sind.¹⁷⁰

¹⁶⁷ [22], S. IV.

¹⁶⁸ [107], S. 445 f. Das ist ein immer wiederkehrendes Problem in der Auseinandersetzung zwischen („ordinary language“) Philosophen und logisch orientierten Denkern. Ein klassisches Beispiel ist durch den Aufsatz von Strawson [124] und Russells Erweiterung [113] gegeben.

¹⁶⁹ Wie z. B. die Folge $\emptyset, \{\emptyset\}, \{\emptyset, \{\emptyset\}\}, \dots$, oder die Folge $\emptyset, \langle \emptyset, \emptyset \rangle, \langle \emptyset, \langle \emptyset, \emptyset \rangle \rangle, \dots$

¹⁷⁰ Letztere Fragen kann man getrost dem philosophischen Diskurs überlassen, ohne befürchten zu müssen, daß etwas dabei herauskommt.

(3) Diese intensionalen Denkbestimmungen stellen, vergleichbar den logischen Grundoperationen, Strukturgesetzmäßigkeiten dar, die nicht aus der sinnlichen Erfahrung abgeleitet sind und durch sinnliche Erfahrung auch nicht widerlegt werden können. Wie im Fall der Axiome der euklidischen Geometrie kann sich aber herausstellen, daß die Zuordnung einer empirischen Größe, wie beispielsweise der Fortbewegung des Lichts, zu einem bestimmten theoretischen Term, wie beispielsweise der geraden Linie der euklidischen Geometrie, nicht aufrecht erhalten werden kann.¹⁷¹

Zu These 33. (1) Die Feststellung, daß Hegels Logik keine Logik im Sinne der modernen formalen Logik sei, erfordert kein besonders tiefes Verständnis, weder von Hegels Logik noch von moderner Logik: zu offensichtlich ist die Diskrepanz.¹⁷² Daß Hegels Logik auch nicht die Form einer deduktiven Theorie annehmen kann, liegt nahe, wenn man bedenkt, daß das schon für die Arithmetik gilt.¹⁷³ Problematischer wird es, wenn es darum geht, ob Hegels Logik einer Interpretation fähig ist, die für die moderne formale Logik von Bedeutung ist. Folgende Zitate mögen zur Abschreckung dienen, bzw. zur Veranschaulichung dessen, was ich für unzureichend halte:

We can, by means of a pragmatic interpretation of Hegel's *Wissenschaft der Logik*, understand this work as a formal logic which, by dealing with the semantics of metaphysics justifies itself, and as a metaphysics which legitimizes itself as a result of the self-justification of formal logic itself.¹⁷⁴

Das ist, auf gut Englisch, „a dog's breakfast“:¹⁷⁵ Nicht besser ist es um das nächste Zitat bestellt:

¹⁷¹ Vgl. [25], S. 120 f.

¹⁷² Dasselbe gilt aber auch für Gotthard Günthers „mehrwertige Logik“ in [49], oder seine „Formalisierung der transzendental-dialektischen Logik“ („Morphogrammatik“) in [48], Kosoks „Formalization of Hegel's Dialectical Logic“ in [83], und viele andere Versuche die Hegelsche Logik zu formalisieren; sie können nicht einmal beanspruchen, deduktive Theorien im strikten Sinn zu sein. Es fehlen die elementaren Bestandteile einer formalisierten Theorie, die uns in die Lage versetzen, eine echte Untermenge aller möglichen Aussagen als gültige aufzuzählen, sei es auf semantische oder syntaktische Weise.

¹⁷³ Vgl. den dritten Kommentar zu These 9 auf S. 154 oben.

¹⁷⁴ [144], S. 192.

¹⁷⁵ Wobei mir klar ist, daß ein solcher Ausdruck Hunden gegenüber nicht sehr nett ist.

The pattern of Russell's argument can be found elsewhere. A thought is applied to itself. That act of self-reference reveals an incongruity: its operation comes in conflict with what it says. Since any paradox demands solution, we identify what the problems are, explain why they emerge, and suggest how to overcome them in a more adequate way. A legitimate solution does not jump to an arbitrary theory that rejects the legitimacy of anything like the original paradox, but probes into the grounds of the contradiction — why it arises in the first place — and so gets to the heart of the matter: the central, essential core that is involved in thinking such thoughts.

This is the process of thinking that Hegel analyzes in the second book of the *Science of Logic*: "The Doctrine of Essence."¹⁷⁶

So kann man vielleicht in der Philosophie argumentieren, aber für eine Grundlegung der dialektischen Logik taugt das nicht. Hier zeigt sich das ganze Elend philosophischen Theoretisierens, und hier liegt die Aufgabe für eine Grundlegung der dialektischen Logik: Beschreibung dieser Bewegung ohne den Gebrauch von Metaphern oder vagen Anleihen bei anderen Disziplinen.¹⁷⁷

(2) Im Hinblick auf den antinomischen Widerspruch kommt Wandschneider zu folgender Feststellung:

Der *antinomisch-dialektische Umschlag* beruht [...] auf der Struktur *selbstbezoglicher Negation*, die zu oszillierenden Prädikaten führt, und das heißt, daß keine derselben für sich ‚stabil‘ ist und festgehalten werden kann. Eine statische Koexistenz präzifizierbarer Eigenschaften, wie die von ‚Verschiedenheit‘ und ‚Gleichheit‘ in dem [...] ‚Parmenides‘-Beispiel ist im antinomischen Fall nicht möglich. Vielmehr kommt es unter diesen Bedingungen zu einem beständigen Wechsel alternierender Prädikationen. Freilich repräsentiert dieses antinomisch-dialektische ‚Oszillieren‘, wie [Robert Heiss [67], S. 162 f.] zu Recht bemerkt, per se noch keinen *begrifflichen Fortschritt*.¹⁷⁸

¹⁷⁶ [16], S. 90.

¹⁷⁷ Vgl. meine Bemerkung zu Henrichs Formulierung auf S. 154 oben (im dritten Kommentar zu These 9).

¹⁷⁸ [133], S. 110.

Ein solches ‚Oszillieren‘ wird wohl tatsächlich keinen begrifflichen Fortschritt repräsentieren können. Aber warum sollte man den antinomischen Widerspruch so eng fassen? Mit der Fixpunkteigenschaft erhält man alle möglichen zirkulären Bewegungen, nicht nur ein einfaches Oszillieren. So läßt sich zum Beispiel eine Hierarchie der folgenden Art bilden:

1. $R_1 \in R_1 \leftrightarrow R_1 \notin R_1$
 2. $R_2 \in R_2 \leftrightarrow (R_2 \in R_2 \rightarrow R_2 \notin R_2)$
 3. $R_3 \in R_3 \leftrightarrow (R_3 \in R_3 \rightarrow (R_3 \in R_3 \rightarrow R_3 \notin R_3))$
- ⋮

Hier geht es um einen wichtigen Punkt: So wie eine Schwalbe bekanntlich noch keinen Sommer macht, repräsentiert auch eine einzelne zirkuläre Aussage für sich allein noch keinen begrifflichen Fortschritt, sondern erst eine *unendliche Folge* derartiger Aussagen, die in ihrer *Totalität* etwas Neues konstituiert. Wie das genau aussieht, ist zu aufwendig, um hier gezeigt werden zu können, aber im Chapter XXXV von [99] findet sich mehr zu diesem Thema.

(3) Pinkard versucht es mit einem doppelten Logikbegriff. Zum einen erklärt er:

If $\llbracket \dots \rrbracket$ we mean by logic ‘those rules of inference that are truth-preserving’ $\llbracket \dots \rrbracket$, then Hegel’s speculative logic is not, precisely speaking, a *logic* at all.¹⁷⁹

Gleichzeitig vertritt er die Ansicht, daß Cantors Theorie des Transfiniten ein gutes Beispiel für die Logik der unendlichen Dinge sei:

What of the logic of *infinite* things? We have a good example of such in the Cantorian mathematics of the transfinite, or, for that matter, in the logic of infinite sets.¹⁸⁰

Nun ist aber Cantors Mengenlehre sicher nicht „truth-preserving“ im Sinne von „nicht wahrheitsschöpfend“. Schon der Extensionalitätsschluß:

$$\frac{\forall x(x \in s \leftrightarrow x \in t)}{\forall y(s \in y \rightarrow t \in y)},$$

¹⁷⁹ [103], S. 24; wobei ich hier Pinkards Gebrauch von ‚truth-preserving‘ als ‚nicht wahrheitsschöpfend‘ bzw. ‚nicht gehalterweiternd‘ verstehe.

¹⁸⁰ [103], S. 19 f.

der zum Grundbestand der Mengenlehre gehört, ist keine logische Wahrheit.¹⁸¹ Damit ist Cantors Logik der unendlichen Mengen nach Pinkards eigenem Logikverständnis „not, precisely speaking, a *logic* at all.“¹⁸²

(4) Die Frage, was Logik sei, läßt sich anscheinend leichter beantworten, wenn man von Logik nicht allzu viel versteht. So kann man lesen:

In professional philosophical language we define “logic” as either being the stock of syntactic connection-rules which standardizes what we call “correct inferences,” or the theoretical discussion of these rules.¹⁸³

Da werden keine Anforderungen an die „syntactic connection-rules“ gestellt, außer, daß sie „correct inferences“ standardisieren. Eine derartige Unbedarftheit mögen sich Philosophen leisten können, bei Logikern wäre sie wohl nur als unprofessionell zu bezeichnen. Bei ihnen treffen wir eher auf eine Art Tausendfüßerphänomen:

What is a logical system? Well, one possible answer is that this is what all mathematical logicians had thought they knew until they were seriously asked to give a precise answer. . . .¹⁸⁴

Charakterisierungen der Logik als der „Lehre von den allgemeinsten Eigenschaften der Gegenstände, als die Lehre von den Gegenständen überhaupt“,¹⁸⁵ oder der „Gesetze des Denkens“ scheinen weitgehend der Vergangenheit anzugehören, aber was sich noch hartnäckig hält, ist eine Charakterisierung der Logik als „Logik erster Stufe“. Deshalb will ich betonen, daß das, was ich hier als dialektische Logik propagiere, auch so etwas, d.i.

¹⁸¹ Tatsächlich ist diese Schlußregel in der hier vorgeschlagenen Logik widerlegbar, was ein zentraler Punkt meines Hegelverständnisses ist.

¹⁸² Aber davon abgesehen will ich unmißverständlich klarstellen, daß ich die „Cantorian mathematics of the transfinite“ keineswegs als ein gutes Beispiel für den Umgang mit dem Unendlichen betrachte — sei es nun Logik oder eine mathematische Theorie. Der Punkt ist die logische Behandlung des Cantorschen Diagonalverfahrens: mal wird ein Widerspruch als Widerlegung des Mengencharakters einer Klassifizierung gedeutet (Russells Paradox), ein andermal als Widerlegung der Existenz einer ein-eindeutigen Abbildung (Beweis der Überabzählbarkeit des Kontinuums). Beide Male wird das Cantorsche Diagonalverfahren eingesetzt, aber die Schlußfolgerung ist jeweils eine andere. Und genau das ist der Ansatzpunkt für meine dialektische Logik. Vgl. in dieser Hinsicht auch [96], S. 188 f und [97], bzw. mein [99] zur Vertiefung.

¹⁸³ [144], S. 191.

¹⁸⁴ [5], S. 217.

¹⁸⁵ [52], S. 56.

Logik erster Stufe, als Teilsystem hat. Das ist aber nicht die klassische, auch nicht die intuitionistische, Logik erster Stufe. Es ist eine entscheidbare Logik der ersten Stufe, die auch für die theoretische Informatik interessant ist.¹⁸⁶ Dialektik jedoch, im Sinne von beweisbaren Widersprüchen einer bestimmten Art, ist etwas, das erst mit der uneingeschränkten Abstraktion Einzug hält.

(5) Was hier hoffentlich klar wird, ist, daß Hegels Logik im wesentlichen eine Theorie auf der Ebene der Begriffe ist und nicht als eine Form der Aussagen- oder Prädikatenlogik (erster Stufe) gefaßt werden kann. Dabei bedeutet „Begriff“ so etwas wie die substantivierte Aussageform; im Logischen gefaßt durch die sogenannte Abstraktion (die nach Ansicht mancher Autoren nicht Abstraktion heißen dürfte, weil es nichts gibt, wovon abstrahiert wird).

(6) Fefermans „transfinite recursive progression of axiomatic theories“ ist keine Logik im Sinne einer deduktiven Theorie, sondern eine Sukzession von deduktiven Theorien, von denen jede eine Erweiterung der vorhergehenden ist.¹⁸⁷ Idealerweise wäre Hegels Logik etwas derartiges: eine Sukzession von deduktiven Theorien. In diesem Sinn folgt übrigens die (deduktive) Theorie \mathbf{LD}_λ^Z auf \mathbf{LD}_λ .

(7) Die dialektische Logik im Kontext der spekulativen Philosophie ist ein Unternehmen im Geist und in der Tradition der „ultimate foundations“ wie es beispielsweise von Curry für die „combinatory logic“ formuliert wurde:

Combinatory Logic is a branch of mathematical logic which is concerned with the ultimate foundations. It is not an independent system of logic, competing with the theory of types, abstract set theory, mereology, or what not; nor does it attempt to form a consistent system adequate for this or that portion of classical mathematics. Rather it forms a common substratum for a variety of such theories.¹⁸⁸

Zu These 34. (1) Mit dieser Forderung wird auch nochmals unterstrichen, warum mich keine der sogenannten „Formalisierungen“, wie sie im

¹⁸⁶ Vgl. [80].

¹⁸⁷ Vgl. den vierten Kommentar zu These 9 auf S. 155.

¹⁸⁸ [20], S. 96.

zweiten Kommentar zu These 4 erwähnt wurden, oder sonstigen Formationen, Interpretationen, Rekonstruktionen oder wie immer sie heißen mögen, zufriedenstellen kann: Sie haben keine Auswirkungen auf der mathematisch-logischen Ebene. Es mögen artige Gedanken darunter sein, aber solange sie im Kontext der modernen Logik belanglos bleiben, gehen sie an meinen Ausgangspunkt vorbei, wie ich ihn in der Vorbemerkung skizziert habe: In den ersten Zeilen der Hegelschen Logik ist etwas Außergewöhnliches angesprochen, etwas, das einen neuen Kontinent des Denkens erahnen läßt.

(2) Es wird wohl klar sein, daß sich die hier vorgeschlagene dialektische Logik in einer ganzen Reihe von Punkten von der klassischen Logik unterscheidet. Das allein reicht jedoch nicht, um einer der beiden Logiken den Vorzug zu geben. Es geht darum, einen Punkt zu finden, an dem sich überprüfen läßt, welche Logik mit welchen Problemen besser umgeht. Am liebsten wäre mir natürlich so etwas wie die eher spektakuläre Bestätigung von Einsteins quantitativer Bestimmung der Ablenkung von Lichtstrahlen in Gravitationsfeldern.

(3) Einen solchen Punkt versuche ich, in den Komplexitätsstufen der rekursiven Funktionen (k-Rekursion) zu orten: Der Nachweis der Totalität von k-rekursiven Funktionen erfordert eine k-fache (verschachtelte) Induktion. In der klassischen Logik lassen sich verschachtelte Induktionen auf einfache zurückführen, in der dialektischen Logik dagegen nicht.¹⁸⁹ Hier will ich an Girards „abstract“ zu seinem Aufsatz [41] („Light Linear Logic“) erinnern:

The abuse of structural rules may have damaging complexity effects.¹⁹⁰

Berücksichtigung der Zusammenziehungen führt zu einer Hierarchie der k-rekursiven Funktion auf der Grundlage der Hierarchie der k-fach (verschränkten) Induktionen.¹⁹¹

(4) Tatsächlich gelten die Gesetze der klassischen Logik in vielen wohlbegrenzten Teilgebieten, wie z.B. der primitiv-rekursiven Arithmetik. Der-

¹⁸⁹ Die Unverträglichkeit der klassischen Form der Induktion mit uneingeschränkter Abstraktion habe ich in [100], S. 132–138, gezeigt.

¹⁹⁰ [41], S. 145.

¹⁹¹ Das sollte vor dem Hintergrund der Ergebnisse von Routledge [111] und Myhill [92] gesehen werden.

artige Erkenntnis muß aber aus dialektischer Sicht erst gewonnen werden und kann nicht gleich von Anfang an als gültig vorausgesetzt werden. Oder anders gesagt: das Geschäft der Logik besteht darin, diese Teilgebiete zu „entwickeln“.

Zu These 35. (1) In der Philosophie ist es üblich, einem Problem dadurch auf den Grund gehen zu wollen, daß man alte und nicht so alte philosophische *Meisterdenker* liest und dann mit einer „neuen“ Interpretation dessen aufwartet, was der eine oder andere Meisterdenker gemeint haben könnte. Zu Galileis Zeiten war Aristoteles noch ein beliebtes Ziel solcher Orientierung. Galilei hat dagegen der Naturbeobachtung und der mathematischen Beschreibung den Vorzug gegeben und so die „Naturphilosophie“ in die Richtung der heutigen Physik gelenkt, was ihm viele Philosophen nicht so recht verzeihen wollen. Kann das als Vorbild für die dialektische Logik gelten? Eine Naturbeobachtung scheint im Fall der Dialektik nicht sonderlich vielversprechend, und was soll mathematisch beschrieben werden? Aber es geht ja nicht einfach darum, irgendein bewährtes Schema zu wiederholen. Zumindest in zwei Bereichen gibt es Phänomene, die sich als „dialektisch“ der Untersuchung anbieten: etwa das Doppelspaltexperiment (oder der Doppelcharakter des Lichts) und das Cantorsche Diagonalverfahren mit Resultaten wie den Paradoxien der (höheren) Logik und Semantik und den Unentscheidbarkeitsresultaten der Mathematik.¹⁹²

(2) Was ich an die Stelle der Hegel-Exegese setzen will, ist so etwas wie das Studium des Cantorschen Diagonalverfahrens,¹⁹³ und das im Kontext der Hilbertschen Metamathematik. Das bedeutet jedoch nicht, daß es mir darum ginge, den Diskussionen in Mathematik und theoretischer

¹⁹² Tatsächlich war es zuerst die Quantenmechanik, der mein Interesse galt. Aber um zur theoretischen Physik zu kommen, muß man erstmal Mathematik studieren, und da wurde ich sehr früh (ich glaube noch im ersten Semester) mit Cantors Diagonalverfahren (am Beispiel der Überabzählbarkeit der reellen Zahlen) bekannt, woraufhin ich glaubte, alles zu haben, was ich brauchte, um dem Geheimnis der Dialektik auf den Grund zu kommen. Deshalb trägt mein Buch auch den Titel *Diagonal Method and Dialectical Logic*. Damit stellte ich die Physik hintan, und ich bezweifle, daß ich noch jemals dazu kommen werde, mich der quantenmechanischen Seite zuzuwenden.

¹⁹³ Ich möchte nicht mit Findlay sagen, daß es sich um *Beispiele* für Hegelsche Dialektik handelt (cf. [79], S. 78), sondern eher, daß sich daran eine Untersuchung dialektischer Begriffsbildung anschließen kann.

Informatik, beispielsweise, im einzelnen folgen zu können. Ich bediene mich nur gewisser Ergebnisse und Methoden für meine eigenen Zwecke, wobei ich Wert darauf lege, dies auf kompetente Weise zu tun. Das will ich wohl unterschieden wissen von der Art Problem das in der folgenden Bemerkung angesprochen wird:

We believe we cannot follow in detail the discussion in mathematics or physics; therefore we should forsake all attempt to take a position on what has long since stopped concerning us as philosophers. This profession of humility is also less dangerous for our narcissism.¹⁹⁴

Es kann nicht darum gehen, Mathematikern oder Physikern in ihrem Diskurs zu folgen und womöglich in Fragen Stellung zu beziehen, die uns als Philosophen nicht betreffen. Auch Physiker werden wohl kaum den Diskussionen in der mathematischen Grundlagenforschung im Detail folgen, aber sie sind zur Stelle, wenn es gilt, sich mathematischer Theorien zu bedienen, die für sie von Nutzen sein können. Worum es mir geht, ist eine neue Theorie, für die Hegel die grundsätzliche Idee geliefert hat und für deren theoretische Umsetzung die mathematisch-logische Grundlagenforschung wertvolle Beiträge liefern kann. Hier einen Zusammenhang zu sehen, verlangt allerdings eine solide Vertrautheit mit mathematischer Logik und mit der Gedankenwelt des Deutschen Idealismus.

(3) Das Problem ist nicht zuletzt, Philosophen mit etwas Neuem zu konfrontieren. Im Staub der Plattheiten unserer aufgeklärten Zeit wird die Sicht auf alles vernebelt, was wir nicht ohnehin schon zu wissen glauben. Doch auch das scheint so neu nicht, wie folgendes Zitat von Fichte nahelegt:

Wie die alte Kirchengängerin, für welche ich übrigens alle mögliche Achtung trage, eine Predigt sehr verständlich und sehr erbaulich findet, in welcher recht viele Sprüche und Liederverse vorkommen, die sie auswendig weiss und nachbeten kann; nicht anders finden Leser, welche weit über jene erhaben zu seyn glauben, eine Schrift sehr lehrreich und klar, welche ihnen sagt, was sie schon wissen; und Beweise sehr stringent, welche darthun, was sie schon glauben. Das Wohlgefallen des Lesers am Schriftsteller

¹⁹⁴ Zitiert nach Alfredo Ferrarin, *Hegel and Aristotle*, Cambridge University Press, Cambridge UK, 2001, S. 212. Ferrarin verweist auf: Jacob Klein, *Lectures* (1985: 2 ff).

ist ein verstecktes Wohlgefallen an sich selbst. Welch ein grosser Mann, denkt er bei sich, es ist, als ob ich mich selbst hörte oder läse.

Hegel hat seine eigene Formulierung, die aber im wesentlichen dasselbe sagt:

Am verständlichsten werden [...] Schriftsteller, Prediger, Redner u. s. f. gefunden, die ihren Lesern oder Zuhörern Dinge vorsagen, welche diese bereits auswendig wissen, die ihnen geläufig sind und die sich von selbst verstehen.¹⁹⁵

Und so erwarten Hegelinterpreten, daß ihnen vertraute Textstellen wieder und wieder in neuen Lesarten vorgelegt werden, damit sie sagen können, was sie davon denken, ohne sich dabei mit Neuem auseinandersetzen zu müssen.

(4) Die folgende Aufzählung ist als eine Art abschließende Zusammenfassung meiner Kommentare gedacht:

1. Gleich in den ersten Sätzen des eigentlichen Textes von Hegels Wissenschaft der Logik wird ein tiefgreifendes und schweres Problem angesprochen, das im gewöhnlichen Denken keine Entsprechung zu haben scheint.
2. Hegel selbst hat dieses Problem nicht ausreichend klar artikulieren, geschweige denn lösen können.
3. Die Haltungen gegenüber diesem Problem reichen von einer eingebildeten Überlegenheit, die sich damit brüstet, hier kein Problem erkennen bzw. es durch irgendwelche Sprachvorschriften aus der Welt schaffen zu können, bis hin zu einer Unmenge privater Hegelinterpretationen, die — untereinander weitgehend unvereinbar — darin wetteifern, Hegels ureigenste Gedankenwelt zu repräsentieren.
4. Auch wohlgesinnte Hegelinterpreten kommen nicht umhin, an Hegels Ansprüchen Abstriche zu machen — um dann ihr Versagen angesichts der Hegelschen Idee der Dialektik in ein Versagen der Hegelschen Vision zu verkehren.
5. Mit dem Auftreten einer Form der (negativen) Dialektik in der mathematischen Grundlagenforschung ist Hegels Idee zwar noch nicht vindiziert, aber zumindest ist ein Grund bereitgestellt, auf

¹⁹⁵ [59], S. 45.

dem es möglich sein könnte, Hegels Vision einer positiven Dialektik zu realisieren.

6. Ohne ein gewisses Maß an mathematischer Denkfähigkeit wird ein solches Vorgehen nicht durchführbar, nicht einmal verständlich, sein.
7. Es gibt keinen Philosophenweg zur Dialektik.

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The Markets of Society — A Research Design on Trans-Economic Exchange Rates

STEFFEN ROTH*

ABSTRACT. The first ambition of this paper is to present and argue for a concept of *non-economic markets* based on specific values (power, truth, justice, religion, etc.). The problem with these values is that they can neither be directly compared with money nor with each other: truth may be power, but how much? Would you prefer health or truth? What is the (non-)economical return of a bachelor degree? Nonetheless, every day we compare these incommensurable values. So there must be informal exchange rates. The analysis of these *trans-economic exchange rates* is as important as the analysis of the exchange rates between currency systems within the economic system. Based on the Luhmannian concept of functional differentiation, we are sketching a future research program based on the analysis of value related items of micro-databases (like the European Social Survey, for example). These items will be assigned to distinctive value categories. The unit of analysis then will be the intensity of dis-/affirmation to value related items: the more extreme dis-/affirmation to values of a certain value category is expressed, the higher is the relevance of the value category. By comparing these *absolute values* of the value categories we will calculate their relative value. It will be most interesting to focus and to compare the specific exchange rates of certain geographical segments or levels of population of European society: do the French think that politics is more relevant than the economic system? Do Estonians prefer science or education? What is the number one value category in Luxemburg? Which Sinus milieus like art more than health?

Introduction

Speaking of exchange rates refers to markets and calculation. Normally, both are intuitively associated with the economy or economics. The

* Center for Management, Bern University of Applied Sciences. P.O. Box 305, 3000 Bern 22, Switzerland. <mailto:steffen.roth@bfh.ch>. t|+41 31 848 3447 f|+41 31 848 3401 m|+41 76 242 2024. This paper is based on a presentation given at a workshop ‘Post-normal science and its ethical aspects — doctoral and other projects in the making’ run by the Centre for environmental and technology ethics at the ASFPG on 19–21 January 2009. My thanks to Matthias Kaiser and other participants in the seminar and to Valerie Kerruish for editorial suggestions.

present considerations are based on the idea that markets and calculation are not restricted to economic contexts. There is calculation (of votes) in politics as well as there is in science (impact factors) or education (university rankings). As these forms of non-economic calculation are also competitive there is not much surprise if this paper can draw on evidence from multiple theories and disciplines in arguing for a non-reductionist concept of *non-economic markets*.

Saying this against the background of current discourses within and between economics and social sciences, it is important to repeat that the objective of this paper is *neither* the reductionist application of economic *metaphors* (cf. Zafirovski 2001: 39) to *nor* the *commodification* of further societal spheres by means of an “economistic reductionism à la Gary Becker” (Bourdieu 1998: 106). Rather, this paper is about bringing society back into the market. The concept of market is accordingly thought as a pan-societal sphere of exchange in which not only economic but also non-economic values are created and exchanged, as in an Ancient agora or, in even more archetypical contexts, the silent trade (cf. Grierson 1903 (1980)) that took place in neutral spheres between the early societal segments of tribal societies (cf. Simmel 1992: 788). Such a *total*¹ *market* concept is the basis for asking and answering some fundamental questions concerning forms, functions, and self-conceptions of current societies. We live in the *Mode II* of science, that is, currently, economic indicators define scientific excellence, while as an effect of *Basel II* the social capital of a credit user strongly influences the price of the money the person wants to borrow. Furthermore, an adequate balance of interests within a *Triple Helix* of government, university and industry relations is said to be the key for promoting innovation regions. But if so, then how come that we do not know much about the relative value of political, economic, scientific or further values? How is an adequate balance of value “powers” defined in a specific situation? What is the dominant value in the case that values are incongruent in terms of time or logic? What are the current exchange rates of society? (How) Do they change over time? *Is there currently a number one value of society?*

On the personal level we all seem to have both the ability to convert belief, truth, health, power, beauty, or money into each other and sensors for balances of values within relevant frames of reference. This is reflected

¹ Cp. Marcel Mauss’ (1990: 20) approach to the analysis of *total* institutions.

by opinions on what we call economization, politization, medialization, or religious fanatization. But, again, it seems like we do not reflect much about the corresponding exchange rates of society. As a result, these days we do not really know which of the above-mentioned diagnoses is the current major problem of our societies, if any at all.²

Nonetheless, history knows over-all trends of the primacy of certain values: for example, religious values used to have a much higher relevance during the Middle Ages than they have today. Thus, it is no mistake to say that the value of religious values declined. And, it would be no mistake to assume that *the relative value of religious, political, scientific, legal, or educational values can vary over time and space in a way similar to the prices of a specific economic currency on the stock exchanges.*

Developing the basic elements of a research concept for the analysis of these exchange rates of society is the major objective of this paper. As these exchange rates are assumed to be multi-level phenomena we need a concept based on a both universal and selective theoretical architecture. Thus, in the following a framework of ten well-defined value categories and their corresponding markets will be taken from the systems theory of *functional differentiation* (Luhmann 1987, 1997) and systemic economic sociology (Baecker 2001, 2006a, 2006b). As the value of values is determined by means of decision, the research unit will be decision systems (Luhmann 2006) which can be observed at all levels of society. The paper sketches a research program for the *functional analysis* of value related data in very large micro data sets, e.g. the European Social Survey (ESS): each value related item will be assigned to one of the ten value categories. Then, the current value of the values, viz. the exchange rates of society, can be calculated by comparing the mean of dis-/affirmation³ to all the values of each value category. Given an adequate set of data like the ESS, it will be most interesting to compare the exchange rates over time as well as within and between specific geographical segments or social milieus: Is religion more relevant than sport for the citizens of the UK? Do the Finnish prefer art or health? Is Germany more economically oriented

² We need only one expert, Noam Chomsky, to get three answers on this question: the current problems are Medialization (1999a), Economization (1999b), and Politization (2000), (nearly) at the same time.

³ In contrast to indifference or neutrality.

than Romania? In what Sinus milieus⁴ is science the number one value, if in any at all?

Bringing Society Back into the Market

First of all, the problem with arguing for a concept of non-economic markets and the trans-economic exchange rates of society is a theoretical or rather a paradigmatic problem: as already indicated above, there is a common sense in the sciences as well as in everyday life in which “market” refers to economy. Markets are commonly associated with merchandise markets (Weber 2006), the antagonists of hierarchy (Williamson 1975), the formation of prices (Coase 1990), or “sets of money-mediated exchange transactions” (Zafirovski 2007: 313). All these definitions are both true and incomplete: Weber himself adds to the market concept a non-economic dimension by defining economy as the *peaceful exercising of the power of control*.⁵ Consequently, market economy can be assumed to be a specific form of politics too: “Markets, and the economy itself, are and always have been political constructs, engineered and supported by political decision-makers” (Arnoldi 2007: 91).⁶ At the same time, we could also say that the market is a specific form of an incentive scheme, and thus a means of education. Additionally, more than a few economic sociologists focus not only on the political dimension of the market(s) but also on the market *laws* (Callon 1998; Zafirovski 2003; Aspers and Beckert 2008; Beckert 2009). Despite of all this metaphorical language, they still reject concepts of non-economic markets as mere metaphors (Zafirovski 2001: 39) or as acts of economic imperialism (Boulding 1976; Lazear 2000).

Markets are also said to be a means of the elimination (and the production) of *scarcity*. This may be wrong or right,⁷ but in any case there is

⁴ Sinus milieus are groupings of people with the same attitude and style of life.

⁵ “(F)riedliche Ausübung von Verfügungsgewalt” (Weber 2006: 31).

⁶ Other sociologists describe the market logic as an ideology of *dominance* (Hadjar 2004: 42) or focus on economic *power* (Swedberg 1987b: 158).

⁷ Indeed, there is some doubt due to evidence from ethnology and economic history on exchange systems focussing on the production (and elimination) of plenty (Mauss 1990, Bedford 2005: 60). In the Middle Ages, as well, holding court meant to demonstrate, to eliminate and to reproduce plenty. The scarcity model of economy, and thus, of market exchange, is a specifically bourgeois, viz. a third class, concept bearing the traces of class-specific scarcity experiences that have been passed down over

scarcity of votes, of talent, of (healthy) lifetime, or of educational titles in further markets of society. Additionally, all spheres of society know *prices* as indicators for the effort necessary to get the *prize* as well. It is the same with the concept of *competition*: politicians, athletes, religious confessions, and legal opinions compete, too. And, of course, there is a most important difference between market economy and subsistence economy (cf. Luhmann 1988: 97). Is there not then something like a subsistence art (l'art pour l'artiste, or better, art for domestic purposes) that differs significantly from "market-art", just as there is a difference of logics between private enterprises and public sectors⁸ in *national* economies?

So, what is the hardcore of economy, then? Could we not say *money*, at least? Better not, since Viviane Zelizer has quite some experience with "differentiating monies" (2007: 1063) into economic *and* non-economic forms. So if we can question the market conception of money, can we not shift the question to the economic bias of current market concepts that support it? Without going into detail, the bottom line seems to be that there remains no good reason to assume an exclusively economic nature of markets. Thus, it is not a mistake to remember a time when economy was only one, and furthermore one rather marginal,⁹ function of the Ancient agora, viz. the "total" market. The only reason left now for objection to a research program on non-economic markets and trans-economic exchange rates would be definitional pragmatism:

We can consider markets to be the intra-economic environment of the systems participating in the economic system, with this environment being both different in each case and the same for all, at the same time. Thus, the notion of market refers not to a system but to an environment – but to an environment that can only be differentiated as system, i.e. the economic system, in this

time. We find that bourgeois economics (*housekeeping*) is the exact opposite of *holding court*. Nonetheless, the latter is a form of economy too. Thus, it is comprehensible, ironic and finally consequential that Marx's *Capital* focuses on this bourgeois concept of economy: for Marx, capital is an objectified form of renouncement ("Verzicht"), and, thus, the production (or elimination) of plenty is the *noblest* duty of a Marxist.

⁸ Which, at least in English, automatically reminds us of the political dimension of markets.

⁹ The point of trade at the agora used to be the *stolas*, viz. colonnades at the borders of the Ancient market places (cp. Thompson 1954).

case. Therefore, as a market the economic system itself becomes the environment of its own activities . . . ¹⁰

In the context of the present paper the major function of this definition is to stress that Luhmannian systems theory defines the market as the inner environment of the economy. As the theory envisages further inner environments, in politics (public opinion), the arts (the audience), or science (the scientific community), the argument is that giving up the semantical distinctions between these special forms of the general public of society would mean losing the analytical gains of the concept of functional differentiation. But, we find that these gains are sometimes overestimated, as demonstrated by Michael Beetz (2003) whose analysis could hardly identify a difference between the Luhmannian pan-societal public sphere, viz. the inner environment of society and public opinion as the inner environment of the political system.

Again, the bottom line is that there is no exclusive connection between markets and the economy. Thus, we can ask what is so special about the economic part of the public that this formally marginal function has occupied an entire space, word, and concept which once was a pan-societal one? And again, there may be some historical grounds for this economic bias (just to quote a classical idea we could argue that the mighty prefer traders to demonstrators, cf. Arendt 1958: 156), but the question is whether these should guide our theoretical approaches to markets.

Our answer is that there is no reason why we should not take the market for the pan-societal phenomenon or the total institution that it was from the beginning. In other words: we state that there are economic and non-economic value spheres each with their specific logic of value creation. And, as we carefully re-read the Luhmannian market definition quoted above, we find that he does not say that the market is the environment of the economic (as he puts it briefly in Luhmann 1988: 91). What he says is that the market is the environment of the systems participating

¹⁰ „Als Markt kann man (. . .) die wirtschaftsinterne Umwelt der partizipierenden Systeme des Wirtschaftssystems ansehen, die für jedes eine andere, zugleich aber für alle dieselbe ist. Der Begriff des Marktes bezeichnet also kein System, sondern eine Umwelt – aber eine Umwelt, die nur als System, in diesem Fall also als Wirtschaftssystem, ausdifferenziert werden kann. Als Markt wird mithin das Wirtschaftssystem selbst zur Umwelt seiner eigenen Aktivitäten . . .“ (Luhmann 1988: 94).

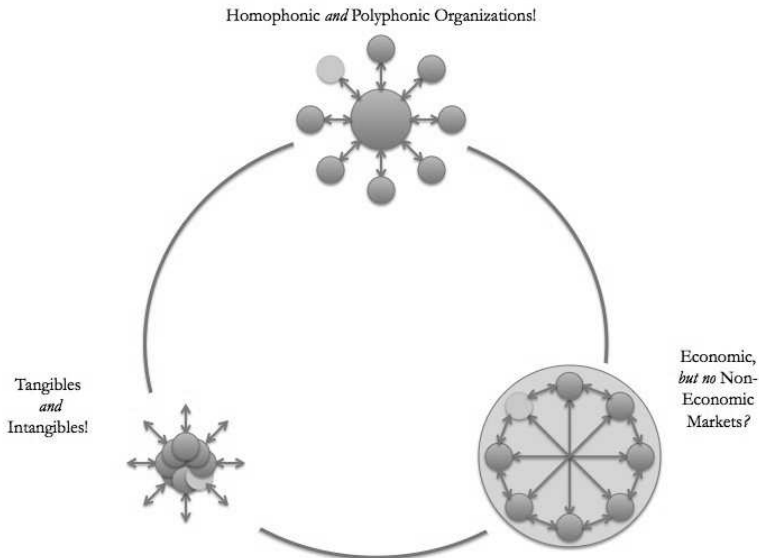
in the economic system. So, let us have a look at the other side of the distinction: what is the environment of the market? Values are realized by means of decisions. Decisions are taken by means of organization (Luhmann 2006). As markets can be defined as horizons of decision calculi (cf. Baecker 2006a, 2006b), and as there are both economic and non-economic markets, we may say again that markets are not inner environments of the organized economy. Rather, *markets are the inner environments of organization.*

According to the concept of functional differentiation provided by Luhmann (1997) we are able to identify *ten distinctive markets: the political market, the legal market, the religious market, the sports market, the health market, the economic market, the aesthetic market, the scientific market, the educational market, and, finally, the market of the media.* In order to deal with this multitude of markets it really takes a kind of multi-tasking organization.

The Total Market as the Inner Environment of the Polyphonic Organization

Interestingly, sociology since Bourdieu (1986), and increasingly business economics as well, agree at least with the consequences of this multi-market concept: we are all aware of the fact that you can neither go and buy a bag of cultural capital nor acquire and invest social capital on the economic market. The increasing number of publications on an increasing number of intangible factors and their increasing impact on economic performance clearly demonstrate that more and more organizations increasingly deal with immaterial or non-economic resources. Today, even the most *firm* firm is aware that it should no longer exclusively focus on the creation of economic value. Both this change and the reasons it is based on seem to be so obvious that corresponding organizational concepts, like polyphonic organization (Andersen 2003; Kronberger, Clegg and Cater 2006), went ahead in a both fast and understated manner (cf. Figure 1 p.216).

The basic idea of the shift from organizational homophony to more polyphonic self-conceptions of organization is something like a concept of functional globalization: today, a bank, a political movement, or a uni-



versity may find that it has neither a national nor a mono-functional system of decision anymore. This means that internationalization and loosened solidarity to one specific country are apparently accompanied by inter-functionalization: today, banks calculate returns on philanthropy, new public management concepts make administrations turn citizens into clients, and university departments are ranked by the amount of third-party funds they have raised. In this sense, the non-economic market approach meets the existing concept of polyphonic organization and fills a conceptual gap within a triangle consisting of a) intangible, viz. trans-economic resources, goods or, most generally speaking, values; b) polyphonic organizations; and now, c) the trans-economic market(s) of society (cf. figure 1, p.216).

Regarding our ambition, the most interesting aspect of organizational polyphony is that the concept works at every level of analysis. Not only ventures or institutions in the economy, politics, science, education, law or sport, but also clusters, regions or entire societies can be analysed as polyphonic systems of decision. This even applies to families (cf. Zelizer

2007) and, last but not least, at the level of individual people.¹¹ So we can say that everybody, every venture, and every society is also a polyphonic organization, and, thus, oriented to all of the ten markets of society.

The Exchange Rates of European Societies: A Research Program

The major focus of the previous rather theoretical parts of the paper was on the existence of non-economic markets. It has been shown that each market of society is based on a specific value. The problem with these values is that they cannot be directly compared with each other: truth may be power, but how much power is truth? How much money is power today? Would you prefer health or truth? And again: what is the price of a bachelor degree and what its return? Nonetheless, it is our daily business to somehow compare these incommensurable values. There must then be something like exchange rates between the corresponding markets of society. Against the background of what we have called “functional globalization”, the analysis of these exchange rates *between* economic, political, scientific, and further markets seems as important as the analysis of exchange rates between currency systems *within* economics.

The major hypothesis of the present empirical part of the paper with its proposed project is that these exchange rates between the markets of society change over time: For example, religious or political values had a much higher relevance during the Middle Ages or the French Revolution than they have today. Thus, as said in the Introduction, it is no mistake to say that the value of religious values declined. And it would be no mistake to assume that the relative value of political, scientific, legal or educational values can vary in the same way as the price of a specific currency on the stock exchange. But, as indicated by the booming literature on intangible resources, the problem is to measure the absolute value of the “immaterial” value categories (political values, scientific values, economic values, legal values, religious values, and so on), not to mention the problem of defining

¹¹ It is most important to state that neither in systemic organization theory nor in the context of our work does the notion of decision refer to psychic operations. If we talk about decisions, we are talking about specific forms of communication: the communication of preference, or better, of value-related expectations (cp. Luhmann 1988: 276; 2006: 66).

their relative value: who could decide whether health is more relevant than power?

Nonetheless, everyday, we are defining the relative value of values by means of decision. Decision concerning the relative value of the values is required whenever there is a temporal or logical conflict between two or more categories of value. What if we discovered that democracy is bad for health? Would health then gain more worth than politics? Or more realistically: is a balanced budget more important than the quality of education?

As already defined, decisions are realized by means of organization. Organizations, viz. systems of decision, can be observed at all levels of society; people in all corners of the world, ventures of all scales, and even entire societies have systems of decision.

Markets are defined as the horizon of decision calculi (cf. Baecker 2006a, 2006b), or in terms of systems theory: markets are environments of organization. So we have to assume that decision programs of individual, institutional, or societal decision systems are based on and refer to values produced in the ten markets of society.

In order to find out more about these markets, about the relative relevance of the values created in them and, thus, about their exchange rates, we need both high-resolution information and summable data on decision programs. Given this, at no matter what level of society, the unit of analysis will be the intensity of dis-/affirmation to value related items within an adequately large and general sample. Important values are the result of important decisions. Thus, the more extreme dis-/affirmation to values of a certain value category is expressed, the higher is the relevance of the value category (cf. Figure 2 p.219).

For example, the *European Social Survey* would provide us with representative data at the European level within a clear, well-limited period of time (2002–2007). We could scan the data for value-related items and assign each of these to one of the ten markets of society. Then, the absolute and the relative value of the values can be identified: the *absolute value of the value* will be indicated by the mean of the attention (relevance: intensity of value-related dis-/affirmation on the one pole versus disinterest on the other) drawn to values within one value category. The *relative value of the values* is calculated by means of a comparison of the absolute values of each value category.

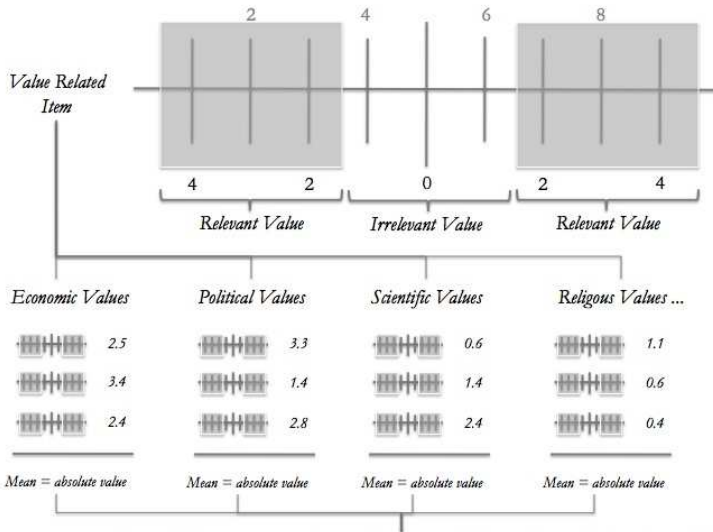


Fig. 2: The Relative Value of Values as Indicator for the Exchange Rates of Society (source: author)

It will be most interesting to focus on and compare the system of the relative value of the value categories, that is, the specific exchange rates both over time and within certain geographical segments or levels of the population of European society: do the French think that politics is more relevant than economics? Is sport more important than the arts for the Swiss? Do Estonians prefer science or education? What is the number one value category in Luxemburg? Which sinus milieus like law more than health?

Conclusions: The Solar System of Society

The analysis of the value of values is more than just an academic game about functional categories taken from theories that hardly have been operationalized and tested so far. By means of studies on the exchange rates of society European societies would gain *a more reflexive self-conception*. Imagine a small follow up project contrasting the results of the proposal of this paper with an analysis of the media landscape which addressed

the question: does the above-average presence of economic and political communication in newspapers and newscasts reflect the relevance of the corresponding values or does it veil the above-average relevance of completely different ones? Otherwise put: is there really something like an *economization of (which) European societies?*

On a more applied level knowledge of these exchange rates is most important in the context of the management of clusters or regions: you cannot evaluate the *performance of a region* if you focus only on its success at the level of economic or political values. You cannot do successful marketing for a cluster without knowledge of the relative value of values within its (prospective) member structure. Generally speaking, knowledge of the exchange rates of society leads to more adequate *marketing* strategies or to more robust innovations (Roth 2009).

Regarding the methodological dimension of the project, one central outcome would be an *ordinal or even interval scale of the relevance of functional systems in European societies*. Currently, incommensurable values are nominal variables, if they figure at all. This alone would be worth further effort.

Of course, the present concept still lacks some crucial elements. First of all, it needs to include Parsons' work on the interchange between economic and non-economic subsystems of society. The concept of the total market and its trans-economic exchange rates as presented in this paper will surely profit from this theoretical stimulation. That said, it seems to be even more important to establish connections with concepts of the analysis of cultural change which are focused on social structure. Looking at these, at first glance, it seems that cultural change analysis neither knows a concept of the relative value of values nor a method for analyzing changes within the balance of functionally distinguished values. Concepts of the hegemony of values rather seem to be associated with more or less systematically arranged sets of values lived by the upper classes of society. Surprisingly, this applies to the work of Pierre Bourdieu (1986, 1987) to which we owe the basic idea of non-economic capitals and their corresponding markets and thus should attract more critical attention. It applies especially to his works on *symbolic capital*, where he assumes the amount of "symbolic power" (ibid. 1989) of a person's specific set of values to be strongly correlated to the person's position within stratified social space. The present research design would compare societal entities and

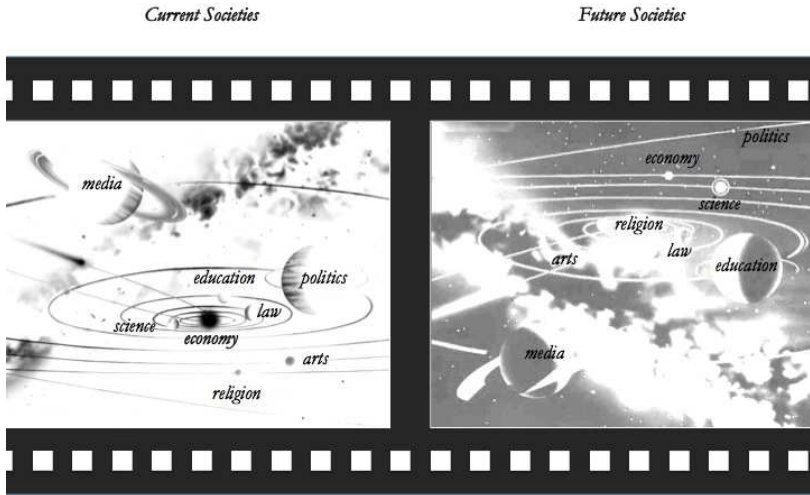


Fig. 3: The Solar System of Society (source: author)

entire societies by means of their functional preferences and expectations. This functional focus of analysis would complement approaches focused on geographical or social class-related forms of differentiation.

The final contribution of this paper is a first peek through some kind of telescopium that represents a vision (cf. Figure 3 p.221).

Our vision, to find out more about the trans-economic exchange rates of society, is like measuring the gravitational forces of the markets of society and their related values. We want to observe whether and how these forces change over time and differ within (social) space. Maybe after some time of observation we will find out that our intuition is right and our cosmos is still centered on a politico-economic double star. But, as the case of religion in the Middle Ages demonstrates, the temporality of social reality implies the chance of a Copernican turn.

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