Some Remarks
On Propositional Attitudes and Mutual Assumptions.
A Re-construction of an Aphorism by Ronald D. Laing

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The *problem of multiple operating epistemic modalities in the interaction of propositional attitudes within mutual assumptions in communication*, raised by Ronald D. Laing in an aphorism in his opus "Knots",[2] shall be analysed in a rough symbolic notation. Although this undertaking is far from consisting in genuine research on the philosophy of Ludwig Wittgenstein, it draws on his thinking about certainty and tries to apply some insights he might have shared with Laing and others in the field of interpersonal communication. We shall start with looking at an aphorism by Laing that runs as:

> "If I don't know I don't know, I think I know. If I don't know I know, I think I don't know." (Laing 1970: 55; punctuation inserted by G.G.)

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[2]   Cf. Laing 1970: 55 and Watzlawick 1976b: 64. Below I shall translate from the German quotation brought in Watzlawick 1976a: 75, that's why I render the German "glauben" with "believe" and not with "think", as Laing's English original has. Yet I presume that the point in pragmatics of epistemic logic I shall make in this addendum is independent from these linguistic matters.

The aim is to investigate *in which sense epistemic logic can reveal something about the pragmatics of communication*, especially whether there are *rules governing the involvement of propositional attitudes in mutual assumptions of interacting communicating persons*. A propositional attitude signifies the way persons apply predicative attributes to their thinking in propositions, how these attitudes form their assumptions about other persons and their propositional attitudes. Propositional attitudes influence their behaviour in communication.

The field of application for Laing's aphorism as well as for my approach is interpersonal communication and hence belongs to the realm of psychological phenomena. My philosophical contribution consists in giving my logical analysis *via negationis*, i.e. we shall encounter a sketch for a *reductio ad absurdum*. To outcome will be the refutation of certain assumptions we originally attempted to set off with.

But the result is not completely negative, since it leads to a plea, firstly, for giving up a purely formal analysis of pragmatics and, secondly, for interpersonal experience as a cornerstone of pragmatic phenomena in the realm of communication between human beings.

Let us start with developing and defining some requirements for the notational devices to be employed, thus giving a *partial syntax* together with the interpretation of the signs and symbols involved. Before doing so, let me remark that I advocate a Perceian understanding of the terms 'sign' and 'symbol'.[3] That is, 'sign' means for me something of the twofold relation between an object of the form of a syntactical device and its interpretant in such a way that the object represents this interpretant as the object's meaning (as a possible occurrence in some mind), whereas 'symbol' stands for the threefold relation between the sign, its meaning,

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[3]   Cf. i.a. Peirce 1885.

and the sign-user as the mind relating to such an interpretant as the meaning of the device.

Yet all the signs applied here are *symbols* since they occur in a threefold relationship which I explicate now in terms of Charles Morris,[4] viz. a relationship of, firstly, the *signified object*, secondly, the *interpretant*, and, thirdly, the *sign-user*.

(I) operators and terminology:

The epistemic operator '*C*' shall signify somebody's 'knowledge' about something expressed in a well-formed formula, in the sense of '*z* knows (at least with personal, psychological certainty) that …', where '…' represents a statement or well-formed formula. The statement or well-formed formula to which these dots '…' refer shall always be put in parenthesis, and the result of this operation of putting a '*C*' in front of a statement or well-formed formula shall itself be a statement or well-formed formula.

This needs some comments, especially as to the relationship between "certainty" and "knowledge". If somebody says "I know that this and this is so and so", where the speaker refers to a state of affairs (and not to situations involving other persons, to make it simple), the speaker claims the truthfulness of his/her personal certainty. The typical first person statement operating with "knowledge" is in my point of view semantically equivalent to a first person statement operating with "certainty".[5] Hence our example could be reworded as "I am certain that this and this is so and so". The assertion or proposition hereby does not lose its epistemic character, although it is fallible and, so to say, psychological.

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[4]   Cf. Morris 1938.

[5]   For further reading on the problem of first person epistemic statements cf. i.a. Malcolm 1976.

If I say "He knows that this and this is so and so", I as the speaker claim the truth of his knowledge, so I maintain that what he knows is factually the case. Hence this case *cannot* be reformulated as "He is certain that this and this is so and so", because with this reformulation I as the speaker of this sentence (truthfully) ascribe him (the attitude of) certainty in his assumptions, but not infallibility or the truth of what a claims to be true. To ascribe somebody knowledge about something means to say that this person knows something which independently from his propositional attitude to it and from stating it *is* a fact. To ascribe somebody certainty in assuming something comes up to state this person's *psychological* attitude towards a possible state of affairs, which this person regards as being a fact, but which independently from this person, his propositional attitude and expression *might not be* the case.

In the case of Laing's aphorism, his use of the word "to know" is awkward and conspicuous, since he uses it as if it would not involve intentionality, i.e. without the grammatical object it refers to. Somebody knows *something* – this is the ordinary way of using this word (in an epistemic sense). On the other hand, one could reformulate this by saying:

> "If I don't know that I don't know, I think that I know. If I don't know that I know, I think that I don't know." (reformulation sec. G.G.)

This is still elliptical, but for that what has been left out, one can just imagine *any* (situational) state of affairs and write, in lieu of which the sign '$' shall be written:

> "If I don't know that I don't know $, I think that I know $. If I don't know that I know $, I think that I don't know $." (reformulation sec. G.G.)

Imagine, that '$' stands for "It is snowing", then our example would read as:

"If I don't know that I don't know that it is snowing, I think that I know that it is snowing. If I don't know that I know that it is snowing, I think that I don't know that it is snowing." (reformulation sec. G.G.)

This is a solution to the problem of Laing not using proper ordinary language. Laing's aphorism is *elliptical and conceals thereby its algebraic nature*.-

Back to our discussion of the operator '*C*': it has to be put in front of a well-formed formula and needs as a (complimentary) referent an individual constant, signifying the person who knows what is stated in this well-formed formula. Be careful here: what I call a 'well-formed formula' shall only be taken as to stand for a propositional constant and therefore deputizes for a statement; it shall *not* stand for an individual constant.

Without this last restriction, it would be allowed to formalize the expression of "He knows her" with "$Cx(y)$", if '*x*' and '*y*' refer to him and her respectively. *Although this can be read as an elliptic case of an epistemic statement*, we shall distinguish epistemic knowledge of facts, states of affairs and situations (all of which can be expressed in statements, assertions, i.e. well-formed formula) from personal acquaintance with persons, i.e. individuals. The formalization of such elliptic cases is a big problem for which I have no solution at hand.

The example "$Cx(y)$" has gotten rid of a predicate which turns that what comes after the modal operator into a complete and self-sufficient sentence.[6] *Nobody could reasonably deny that such elliptic forms are understood as competently produced assertions*, *just like complete and grammatical sentences* expressing statements, i.e. proper propositions.

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[6] In the light of that what follows, we can already state here, that the same holds for "$Bx(y)$", i.e. for "He believes her".- We shall soon discuss the second operator '*B*' we need here besides '*C*'.

Yet we shall not deal with them here in this sense, or if we deal with them, we have to try to turn them into complete sentences through our logical analysis, thus probably hurting certain preferences a linguist might have. Yet our emphasis is here a philosophical one, concerning the intersection of psychology and logic, and not so much a linguistic one.

With this last remark I want to draw the reader's attention to the point that "$Cx(y)$" and "$Bx(y)$"[7] can be analysed in a different way, namely that "knowing somebody" or "believing somebody" is an elliptic form for e.g. "knowing what somebody represents/claims/maintains/stands up for/knows/believes/ etc."[8] or for "believing in what somebody represents/claims/maintains/stands up for/knows/believes/ etc.". But then 'y' could *not* be read as an individual constant and would signify *another sort of constant*, or rather an abbreviation for some well-formed formula.[9] The logical form of 'y' would be different from the logical form of 'x', and the formulae "$Cx(y)$" and "$Bx(y)$" would hardly be well-formed formulae, i.e. complete expressions, if not some additional notational explanations took place.

In the face of this criticism *we have to revise our symbolism and notation*, without giving up what we have already stated about operators. Yet I shall restrict myself in doing so to certain cases, without developing the whole notation.

The "ordinary" case of e.g. "He believes what she says" shall hence be symbolized as the statement "$Bx(Py)$", where 'P' then is a predicate, here: 'to say …', and the expression in parenthesis is a statement about a state

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[7]   In anticipating the following, let's take 'B' as an operator similar to 'C', signifying 'belief'.

[8]   I use slashes, '/', to save myself the explicit writing down of alternative formulations.

[9]   I.e. as a prepositional constant, which takes one back to our initial notational considerations.

of affairs involving her as a subject that utters something which is understood as a locution.[10] In the case of "$Cx(y)$", however, such a reformulation is not that easily possible without a crude violation of the meaning of such an elliptic epistemic expression of acquaintance with an individual.

This shows that the modal logical analysis of the epistemic expressions "to know" and "to believe", etc., is not always right in treating them on a par, since linguistically they are not on a par, but this is *not relevant* for what we are going to treat here. It just shows that different language-games can be played with them. We shall restrict ourselves to only certain such language games that shall be regarded as logically re-constructible with our analysis.

For example 'Cz(his/her own name)' is an abbreviation of the (situational, epistemic) *fact* that a person z knows his/her own name.[11] Another example would be: 'Cz(it is raining)' for the (situational, epistemic) fact that a person z knows that it is raining.-[12]

Here I have to give a definition for a rather important term (that, somehow unfortunate, was already in use): I call a fact 'situational' if it,

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[10]   So we exclude the case that the utterer's product is a speech-act and that thus such an utterance does something itself. To state, for example, "He believes what she claims" might be understood as a statement making any hearer (in, e.g. a court-room) to believe in him actually supporting her. So if he is a witness and she the accused, such a statement, if made by the judge, might function as a speech-act producing the impression in the court or even of the court, that the witness favours the accused. But, as noted above, we exclude such complications.

[11]   Yet here we would hardly speak of somebody being "certain about his/her name" or "certain about having a name". The first person case, "I am certain about my name" is absurd, and "I know my own name" is ridiculous and extraordinary, although true. The case "You know your own name" or "He knows his own name" might have applications where they differ from "You are certain about your own name" or "She is certain about her own name", but all these cases – although especially interesting in certain psychological, e.g. therapeutic situations – shall not interest us here.

[12]   For a formalization of these examples see inf. footnote *30*.

firstly, is *a state of affairs which is the case*, that, secondly, is *actually expressed by a sentence*, and, thirdly, if it *involves persons in the role of referents* of an epistemic or other modal (e.g. alethic or deontic) operator. The second condition stresses a performative character of this term. The third condition could lead to a further train of thoughts about "semiotic subjectivity", as I would call it, but I shall take up other threads in this paper.-

The epistemic operator '*B*' shall symbolize somebody's 'belief' in the sense of '*z* believes that …' or '*z* assumes that …' or '*z* thinks that …' (where the dots '…' refer to some statement);[13] and it shall syntactically behave like '*C*', as explained above. So for these two modal operators, '*B*' and '*C*' (used in this sense), the *same syntactical rules* hold. The examples would be analogous to those given above.

There are *no other* (modal logic or epistemic) operators needed for our analysis, the purpose of which shall be restricted to discussing the quotation by Laing. It is not important for our further investigation to take care of semantic properties, but it simply shall be added that one can stick to the ordinary view, namely that *from a statement expressing a certain knowledge of somebody about some sentence the truth of this sentence can be inferred* (as already mentioned), in contrast to the case of belief (please save me giving references here).

For the analysis of Laing's aphorism, loc. cit. sup., we need not employ any other epistemic operators. This does, of course, *not* imply that these two operators are sufficient for a complete analysis of the role of modal operators in the building up of mutual assumptions in communication.[14]

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[13] I know and I am certain about the fact that these translations and interpretations could be refined and that there are differences between the verbs "to think", "to assume", "to believe". But I do not regard such an analysis as relevant for this current paper's purpose(s).

[14] I do *not* claim any completeness here.

For instance, deontic operators[15] – even of higher order like in "He assumes that it is permissible to let them drive here" – certainly play a role in interpersonal communication,[16] but let's keep to the basics in our more epistemic investigation.

(II) negator:

The negator '*N*' shall express the (adequate) opposite or negation of what is expressed with any statement or well-formed formula, and it shall always be put in front of a well-formed formula which then is to be put in parenthesis. If '*N*' is applied, the result of this operation is a statement or well-formed formula.

We do not need semantic definitions of what happens to truth values.[17] Therefore, one could also take alternative semantics of e.g. three-valued or many-valued semantics.[18] Yet according to such decisions in formal semantics one might be forced to introduce *different sorts of negators*. This leads in any case too far and misses the point I want to make.

In such a case, the negator '*N*' would stand for a structured class of negators, but we define this class to have only one member which is the classic negator of a two-valued semantic system.

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[15]   Cf. Wright 1951b.

[16]   There might also be examples where deontic operators depend on epistemic operators, or vice versa, think of: "He thinks that she knows that it is permissible to let them drive here" and "He thinks that it is permissible that she knows that he lets them drive there".

[17]   Or ' logical values', as Henry Hiz 1997: 268 prefers to call them.

[18]   Cf. Blau 1978 and Blau 1993, or Elster 1980. The latter reference only concerns a pragmatic role of 'active' and 'passive negation'. The classic attempt in many-valued logics is Lukasiewicz 1930.

(III) variables:

The variables '*u*' and '*v*' shall run over our whole *domain of pragmatic communication which consists of at least two different persons and/or their behaviour* (constituting a 'social system of interaction'[19]) as perceived by the respective other of these two. These variables shall come right after the modal operator to whose scope they belong. Other variables can typographically be represented in small letters of the Latin alphabet, if necessary indexed with Arabic numbers.

The thorough reader will note here that we talk about *persons* as well as *forms of behaviour* in terms of 'individuals' or 'compositors of the domain'. This can, of course, be questioned – and besides, it seems to mix up two different constructions of domains, namely the one consisting of *individual forms of behaviour*, and the other consisting of *individual persons* as the producers of such behaviour.[20] If one wants to formalize both of them, we would need *two sorts* of individual constants; this is, however, not my intention.

The second attempt in founding *PTC* – i.e. the Pragmatic Theory of Communication – by *using an algebraic theory of invariants and groups*[21] just starts from such a *mixed universe of discourse*. It is true that Watzlawick et al. are quite likely not aware of this logical problem.

For a complete logical formalization of *PTC* (which so far is still unattempted) it has to be tackled and solved (above I suggested a possible

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[19] I try to stick to the terminology of Gelbmann 2000a and Gelbmann 2002c.

[20] I hold that both can be regarded as 'semiotic subjects' or as the 'actual effects of the performance of semiotic subjectivity'.

[21] This second attempt was put forth with Watzlawick & Weakland & Fisch 1974a (what I tried to reconstruct in the fourth chapter of my doctoral dissertation, i.e. Gelbmann 2000a, where I pointed out and discussed the same difficulty at length), the first attempt was Watzlawick & Beavin & Jackson 1967.

solution with a many-sorted logic), yet for the current purpose of only a partial formalization and introduction of a simply modal epistemic notation, it does not do us any harm to live with this fruitful problem.

(IV) logical constants:

The logical constant for a conditional shall be an arrow like this: '-->', in the sense of 'if …, then …'. Equivalence (or better called 'bi-conditional') shall be symbolized with '<-->', usually to be read as 'if and only if …, then …'.[22] No other logical constants are needed for our purpose.[23] The two sentences or well-formed formulae which are combined by the sign of the conditional, are traditionally called 'antecedent' and 'consequent'. They shall be put into brackets like this: '{' and '}'.[24]

(V) quantifiers:

The only quantifier we need is the one of 'generality', i.e. '$\forall$'; the other is called the 'existential quantifier', '$\exists$'. The latter can already be defined by the means available to us,[25] since, as is well known, the formula '$\forall(x)[Rx]$' is equivalent to '$N(\exists(x)[N(Rx)])$', and '$\forall(x)[N(Rx)]$' is equivalent to '$N(\exists(x)[Rx])$'.[26]

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[22] We need no connector for conjunction or logical sum, but if we had one we could define a known substitution for '<-->'.

[23] We also do not need to apply any (meta-logical) variables ranging over such logical constants (that would lead to an algebra of logics).

[24] This latter syntactical rule could easily be enhanced to the employment of other logical constants (connectors).

[25] A mere triviality, as already Aristotle knew.

[26] This meta-linguistic observations holds, if and only if our negator from sup. *(II)* is a classic one.

Corresponding (meta-linguistic) equivalences can be formulated by interchanging the quantifier of generality, i.e. '∀', with the one of particularity, i.e. '∃', in the two formulae just obtained above. These four (definitional) equivalences thus gained, suffice to demonstrate that we do not need a quantifier of 'particularity' (sometimes, as above, called 'existential quantifier').[27]

The (syntactical) *scope* to which the qunatifiers apply shall syntactically be marked off with brackets (like these: '[' and ']'), and the variables (sec. *(III)*) involved shall be printed in parentheses placed right after the quantifier they belong to. E.g. '∀$(x)[x = x]$' means that for all things it holds that they are identical with themselves.[28]

(VI) predicates:

Predicates shall be abbreviated with the signs for (non-logical) constants 'P', 'Q', 'R', etc. (yet we do not have to make explicit the predicative propositions to which the operators are attached).

We *do not need predicate variables for our purpose,*[29] so we restrict ourselves to a quantification of variables in the sense of sup. *(III)*. These predicate-constants might also be read as *zero-place predicates*, i.e. as propositions. E.g. 'Pxy' is a two placed-predicate and shall here mean 'x loves y', whereas 'Q' might mean 'It is raining'.[30]

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[27] We do not count parentheses here, just for the sake of simplicity (and in contrast to inf. *(VII)*).

[28] I want to avoid a discussion whether this is an example of a true sentence, and if so, if this sentence is analytically true or not. Yet I am certain that the following statement expresses an analytical truth: '∃$(y)[y = y]$'.

[29] So we stick to a sector of the predicate calculus of first order with identity, enriched with certain epistemic and alethic modal operators.

[30] Hence our example from sup. *(I)* can be completely formalized as: "$Cz(P)$".

(VII) conventions:

Since we have to apply *numerous parentheses within one expression* (a well-formed formula as a *complex or molecular statement*[31]) which in its entirety comes up to an intended statement – thus making it hardly traceable whether now the corresponding parentheses have been used in the appropriate way by not leaving any parentheses open and incomplete or not – we shall enumerate them with tiny subscribed Arabic numbers as indexing the corresponding scopes of the parentheses. Examples are superfluous here.

(VIII) Nota bene:

Any statement is a well-formed formula, i.e. what here is depicted by '…' or by zero-place predicates, could be a linguistic entity analysable by (sufficiently enhanced) propositional logic alone,[32] only involving predicates, quantifiers, besides constants and variables, that are ranging over (logical) individuals;[33] yet it can also be a modal expression, hence a statement or well-formed formula of the described form including an epistemic (or alethic) operator.

So far the necessary definitions. Let's discuss Laing's aphorism.

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[31] Since Wittgenstein's "Tractatus logico-philosophicus" the term "complex" has an ontological touch, I prefer "molecular". G. Kreisel 1976 drew our attention to a sort of "chemical tendency" in Wittgenstein's early terminology to which we should not become liable.

[32] With the exception of what is said in sup. *(I)*.

[33] Cf. sup. sup. *(III)*.

Laing's aphorism (loc. cit. sup.) consists now of two assertions that we shall re-formulate a bit and list as follows, before we try to formalize them:[34]

(ø) "If a person does not know that it does not know another person's information/motives/reasons concerning his/her behaviour, then s/he believes to know this other person's information/motives/reasons concerning his/her behaviour."[35]

(å) "If a person does not know that s/he knows another person's information/motives/reasons concerning his/her behaviour, then s/he believes not to know another person's information/motives/reasons concerning his/her behaviour."

Here it has to be added that (ø) and (å) shall be taken in generality, i.e. as common *assertions that generally hold about human* (*interpersonal*) *communication*; so we presuppose that Laing meant that (ø) and (å) hold for all human beings.

The formalizations in our notation then render, by quantifying over the two variables for the two persons constituting a minimal social system of interaction, '*u*' and '*v*':

$(ø)^{\#} \ \forall(_1u,v)_1[\{N(_1Cu(_2N(_3Cu(_4v)_4)_3)_2)_1\} \ \text{-->} \ \{Bu(_1Cu(_2v)_2)_1\}]$.

$(å)^{\#} \ \forall(_1u,v)_1[\{N(_1Cu(_2Cu(_3v)_3)_2)_1]\} \ \text{-->} \ \{Bu(_1N(_2Cu(_3v)_3)_2)_1\}]$.

We interpret, rather roughly: The negation of the knowledge of a person's uncertainty entails the person's belief in certainty, sec. (ø). The

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[34] Each of our reformulations or formalisations shall be given a label, represented by a letter taken from the Norwegian alphabet. If necessary, auxiliary signs like a super-scribed '#' shall be attached to them to distinguish a formulation from one akin to it, or one from which it originated.

[35] A point could be raised here, viz. that my reformulation does away with the first person. Laing's aphorism is a first person statement, yet I don't think that the difference is relevant here (although in Wittgensteinian philosophy it is, cf. inf. footnote **5**). That it is *knowledge about others*, which this aphorism is about, can be inferred from the context and the setting of Laing's whole book.

negation of the knowledge of a person's certainty implies this person's belief in this person's uncertainty, sec. (å).

Now I want to go further than only to say that this sort of modal logic[36] accounts for the *pragmatics of the situation of complex interactions of mutual assumptions* that Watzlawick[37] compares with the Wittgensteinian observation that the visual field is incapable of seeing its own borders. This known phenomenological observation is often brought in the discussion of the hermeneutical concept of 'horizon'. *The horizon is here a metaphor for the inescapability of this pragmatic intertwining we try to explicate.*

The point, yet, I infer is, that in our syntactical re-construction of the pragmatics of this epistemic situation the sign '-->' for the conditional can be replaced by the symbol for syntactical derivability, '|-'.[38]

So from an appropriately applied combination of epistemic operators like "not-knowing that not knowing" one can in case (ø)[*] derive a combination of epistemic operators like "believing to know". And from an appropriately applied combination of epistemic operators like "not-knowing that knowing" one can in case (å)[*] glean the derivation of a combination of epistemic operators as "believing not to know".[39] Hence the *formalization in incomplete algebraic terms* allows for:

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[36]   I understand here "modal logic" as applied to the epistemic assumptions occurring in the propositional attitudes a communicating person might have towards those of his/her respective other in communication.

[37]   Cf. Watzlawick 1976b: 64 and "Tractatus Logico-Philosophicus" § 5.633 ff., Wittgenstein 1984, Band 1: 68.

[38]   That shall remind us a bit of Frege's *Begriffsschrift*, cf. Frege 1879a and Frege 1879b.

[39]   These two signs, (ø)[*] and (å)[*], do not signify formulae but *cases*, options, alternatives.

(ø)$^{*\#}$ "*NCNC@ |- BC@*"
and for
(å)$^{*\#}$ "*NCC@ |- BNC@*".

Please, note that (ø)$^{*\#}$ and (å)$^{*\#}$ still are formalizations of Laing's quoted aphorism (whose context is, as said above, a psychological perspective on interpersonal communication). Yet the claim is somehow stronger, since not only a conditional is maintained but an argument, which can be read as:

(ø)$^{*\#*}$ "From a person's lack of knowledge about his/her lack of knowledge about another person's information/motives/reasons concerning his/her behaviour this person's belief in knowing this other person's information/motives/reasons concerning his/her behaviour can be derived."

and

(å)$^{*\#*}$ "From a person's lack of knowledge about his/her knowledge about another person's information/motives/reasons concerning his/her behaviour this person's belief in a lack of knowledge about this other person's information/motives/reasons concerning his/her behaviour is derivable."

In (ø)$^{*\#}$ and (å)$^{*\#}$ above, the sign '@' shall deputize for the *situational state of communication* to which (ø)$^{*\#}$ and (å)$^{*\#}$ refer. The signs for the epistemic operators, '*C*' and '*B*', have to be interchanged, to get the intuitively plausible *inversions*:

{(ø)$^{*\#}$} *NBNB@ |- CC@*
and
{(å)$^{*\#}$} *NBB@ |- CNB@*.

Because from an appropriately applied combination of epistemic operators such as "not-believing that not-believing" one can

-) in case $\{(\emptyset)^*\}$ deduce a combination of epistemic operators such as "knowing that knowing";

whereas from an appropriately applied combination of epistemic operators in the form of "not-believing that believing" one can

-) in case $\{(\mathring{a})^*\}$ glean the deduction of a combination of epistemic operators as "knowing that not believing".

From this we abduce[40] now *a pragmatic*, *two-partite rule (æ) about propositional attitudes applied in mutual assumptions of communicating persons about the situational state of their communication*,[41] where we use the expression 'propositional attitude' as *a variable ranging over the two propositional attitudes in pragmatic application*, '*C*' or '*B*', allowing for quantification,[42] and where the expression 'contrastive propositional attitude' means '*B*', if one had talked about '*C*' before, or (vice versa) turns '*C*' into '*B*':

> *(æ.1)* Any negation of a propositional attitude about the negation of the same propositional attitude can be reduced to the contrastive propositional attitude about this propositional attitude, where the epistemic reference to the latter propositional attitude is always to (non-denied) 'knowledge'.

> *(æ.2)* Any negation of a propositional attitude about the same propositional attitude is reducible to the contrastive propositional attitude about the negation of this first propositional attitude.

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[40]   This verb 'to abduce' stems from the semiotic term 'abduction' as introduced by Ch. S. Peirce, cf. i.a. Kapitan 1997. I apply it in this good Peircean sense, and it has nothing at all to do with any criminal or legal meaning it got in American English.

[41]   On purpose we do not take into account any Gricean approach. His philosophising about implicatures is totally different from the on-set, in structure, terminology, conception, background, method. He does not refer to Bateson, Watzlawick, Laing et al., or constructivism, at all.

[42]   Sec. sup., yet we shall save us a formalization of this rule.

An obviously conclusive observation about Laing's aphorism is that the *propositional attitude about which any other foregoing propositional attitude is stated, is never non-denied 'belief'.-* In other words, however entangled the propositional attitudes within the interaction of mutual assumptions in pragmatic communication are, the concatenation of propositional attitudes therein is *never* about (affirmative, positive) 'belief'.[43]

But this is something *intuitively hardly acceptable*. It is evident that Laing's aphorism does not give a complete account about the pragmatics of communication involving the attainment and assumption of propositional epistemic attitudes. Eventually, in even other words, I aspire now an interpretation by stating that the propositional attitude at its residue as the one about which all other assumptions of propositional attitudes are, is always of a conventionalist form of operating with some sort of psychological certainty or epistemic knowledge.[44]

So my understanding of '(epistemic) conventionalism' is that *there are never single epistemic operators*, or that *all propositional attitudes occur in assumptions about other such assumptions within pragmatic communication*. From this follows, that *nobody can be certain about one's knowledge* (*about about the pragmatics of communication*) *apart from the involvement of the assumptions about the assumptions of others*, and that any form of being 'really' certain depends on accounting for the assumptions of others about one's own assumptions about knowledge. *The*

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[43]   With 'affirmative belief' I mean the belief in something being the case and not the belief that something is not the case.

[44]   And this is *throughout Wittgensteinian*, at least to my reading; cf. "Über Gewißheit", Wittgenstein 1984, Band 8.

private-language-argument has its full-blown application in the case of 'knowledge' and 'belief'.-[45]

Yet the purely logical analysis can go a bit further, so the reader can get a less philosophically loaded and hence "simpler" result. As is probably not that well known: the two epistemic operators used in sup. *(I)* can also be interchanged, on quite similar lines as it can be done with the quantifiers of propositional logic.[46]

Let 'O' be a statement, hence 'O' is a zero-place predicate or propositional constant. Then we met with this *analytical claim* by listing in four points that

    (1) '$Cu(O)$' is equivalent to '$N(Bu(N(O)))$',
    (2) '$Cu(N(O))$' is equivalent to '$N(Bu(O))$',
    (3) '$Bu(O)$' is equivalent to '$N(Cu(N(O)))$',
    and
    (4) '$Bu(N(O))$' is equivalent to '$N(Cu(O))$'.

The interpretation of *(1)* reads "»u knows that O is the case« as coming up to »It is not the case that u believes that O is not the case«". *(2)* can be reworded as "To maintain »u knows that O is not the case« is the same as to say that »It is not the case that u believes that O is the case«". *(3)* runs then as "To state »u believes that O is the case« is equivalent with saying »It is not the case that u knows that O is not the case«". And *(4)* is finally translatable as "To say »u believes that O is not the case« can be identified with the claim »It is not the case that u knows that O is the case«".

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[45]   In the light of my Bergenser Essays (Gelbmann 2004), I want to include 'memory' or 'remembering' here.

[46]   This is an allusion to sup. *(V)*.

This is also quite trivial, a machine could render this list. *But a machine cannot have interpersonal communication with another machine* – an insight we immediately gain towards the end of this essay.

The reader recalls that the sentence '*O*' can be taken as a statement containing a propositional attitude itself.[47] Exactly this is the situation in Laing's aphorism, yet the aphorism quoted does not completely list all these combinations we can put forth. *So our purely syntactical analysis has led us to the question, whether the final list of our formulae* (cf. inf.), i.e. $(ø)^{*\#}$, $\{(ø)^{*\#}\}$, $(å)^{*\#}$, and $\{(å)^{*\#}\}$, *could be achieved by taking care of this last consideration*. Let's try to finalize the list:

(A) Under the presupposition that '*O*' is a statement containing the propositional attitude of 'to know that …' of the form '*C@*',[48] and that we furthermore go back to the formalization in incomplete algebraic terms used above (and even cut out the superfluous '*@*'), I maintain that

(1) leads to '*CC <--> NBNC*', while

(2) renders '*CNC <--> NBC*', moreover

(3) becomes '*BC <--> NCNC*', whereas

(4) gives '*BNC <--> NCC*'.

(B) Under the condition that '*O*' is a statement containing the propositional attitude of 'to believe that …' of the form '*B@*', and that we again simplify the formulae to the formalization in incomplete algebraic terms used above (and even cut out the superfluous '*@*'), I state that

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[47]   Cf. sup. *(VIII)* our *nota bene*.

[48]   So the dots '…' representing a statement are replaced by the variable '*@*'.

(1) is '*CB <--> NBNB*', and

(2) is obtained as '*CNB <--> NBB*', furthermore,

(3) arrives at '*BB <--> NCNB*', whereas

(4) results in '*BNB <--> NCB*'.

I shall now symbolize by $(1)^A$ the circumstance that we arrive at formula *(1)* in sup. *(A)*, by $(2)^A$ the circumstance that we arrive at formula *(2)* in sup. *(A)*, with $(3)^A$ the circumstance that we arrive at formula *(3)* in sup. *(A)*, by $(4)^A$ the circumstance that we arrive at formula *(4)* in sup. *(A)*.

And I shall write $(1)^B$ for the circumstance that we arrive at formula *(1)* in sup. *(B)*, $(2)^B$ for the circumstance that we arrive at formula *(2)* in sup. *(B)*, $(3)^B$ for the circumstance that we arrive at formula *(3)* in sup. *(B)*, $(4)^B$ for the circumstance that we arrive at formula *(4)* in sup. *(B)*.

Then I conclude, that $(ø)^{*\#}$ can be identified with $(3)^A$, and $(å)^{*\#}$ with $(4)^A$. In addition to that I state the identity of $\{(å)^{*\#}\}$ with $(2)^B$. Only $\{(ø)^{*\#}\}$ *depicts a problem*, it can neither be identified with $(1)^A$ nor with $(1)^B$ or any other formula from the lists *(A)* or *(B)*. Here we have *a crucial case in our analysis*, and this case is the *inherent reason why any a priori method of analysing interpersonal communication in this way fails*. Reductio ad absurdum.

This means that *in the pragmatic situation of propositional attitudes involved in the mutual assumptions of the communicating persons the pure analysis[49] of modal logic does not hold*, in other words, *pragmatic*

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[49]   Read this in the sense of an a priori analysis or an analysis of pure logic, i.e. a non-empirical and analytical investigation.

communication is a matter of synthetical judgement, or, so to say, of communicative experience.

The result of this is that cases of disbelieving that the other does not believe are according to our extension of Laing's aphorism *not* to be read as being certain (or knowing) that the other believes, but as being certain in knowing about the other's certainty in knowing! And, analogously, cases of being certain that the other is certain (or knows), are not to be taken as cases of disbelief in the other's certainty, but, as already said, as cases of disbelief in the other's disbelief.

Laing's aphorism and hence pragmatic communication in this (probably partial) re-construction *do not seem to account for the case that somebody does not belief in the other not knowing as equivalent with knowing that the other knows*. Yet this is *intuitively comprehensible*, since, e.g., when I do not believe that the other does not know a certain state of affairs, one normally does *not* conclude that I *know* that he knows this state of affairs, but that I *believe* that he knows it, in other words, I am practically *not* certain about the others knowledge.[50] Yet to believe in the other's knowledge was constructed as not to know whether the other does not know, and vice versa![51]

So the case where one at any rate is in *need of pragmatic information* has been located, it is, sec. $\{(\varnothing)^{*\#}\}$ *the situation of either one's knowledge about the other's knowledge* or, equivalently, *the situation of disbelief that the other does not believe*. As we have seen, *this lack of information has to be met with in an empirical way or even better*: *in an experiential way*. A pure analysis of the logical or epistemic situation alone would not reveal the necessary information, on principal grounds.

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[50] Yet logically seen I would have to be certain in my disbelief of the others ignorance … (the three dots are here a rhetorical and not a syntactical device).

[51] Sec. $(3)^A$ and $(\varnothing)^{*\#}$.

In both cases, the assumptions about the assumptions of the other can lead to *conflicts of loyalty* or *conflicts of confidence*, as I would call (at least two sorts of) them.

If $\{(\emptyset)^{*\#}\}$ would *not* depict a problem for our tentative approach in purely analytical re-construction, hence if it could be reduced to $(1)^A$ or $(1)^B$ or any other of the hitherto not used equivalences in the lists *(A)* and *(B)*, then *communicational problems and disturbances would be only a case for logical analysis*, *what they clearly are not*. Let me emphasize this point:

Communicational problems, disturbances, conflicts as occurring in interpersonal communication analysable as being based on assumptions about the respective other's assumptions are *cases of a pragmatic* (*and not a formal*) *analysis of the empirical observable and experienced situation*. In matters of interpersonal communication this means that *any tackling of a deficit of information* (which can also exist in accepting this deficit) *complies with a change of one's attitudes and assumptions*.

And this is the outcome of our considerations in the terms of Bateson, Watzlawick, Laing, et al.- It also says, a bit on the lines of Moore's paradox, that to reply 'I don't believe it' to somebody maintaining something with certainty reveals, pragmatically speaking, a conflict, whatever its logical paradox might be.--

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