STUDIA POETICA 4

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auctoritate et consilio

Cathedrae Comparationis Litterarum Universarum

Universitatis Szegediensis

de Attila József nominatae

edita

Redigunt

G. M. Vajda et Z. Kanyó

The cover design incorporates a photogram by László Moholy-Nagy.

Before he became a member of the Bauhaus group he worked in Szeged.

Der Umschlag wurde unter Verwendung eines Photogrammas von László Moholy-Nagy entworfen.

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S T U D I A P O E T I C A 4

Volumen quartum edendum curavit

Z. K a n y ó

SIMPLE FORMS
EINFACHE FORMEN

S z e g e d

1982

Foreword

The work presented in the first three volumes of *Studia poetica* as a team-work at the University of Szeged is now continued after an inevitable pause. The team has been expanded, between 1982-1984 the following colleagues will work together: Dr. Á. Bernáth, Dr. A. Bókay, Dr. G. Bonyhai, Dr. K. Csuri, Dr. Z. Kanyó, A. Kertész, Dr. P. Kocsány, É. Kocziszky, P. Müller and L. Tarnay. They work in Budapest, Debrecen, Pécs and Szeged and represent a kind of community in Hungary interested in literary-theoretical research. However, it does not mean a homogeneous school but a possibility for exchanging views, which sometimes differ sharply, on important topics of modern literary theory. We intend that scholars should have the democratic right to formulate and to defend their own souverain standpoint when it has an appropriate scientific foundation.

The Editors

Vorwort

Die Arbeit, die durch die ersten drei Bände der *Studia poetica* als eine Szegeder Team-Arbeit identifiziert und bekannt wurde, wird nun nach einer zwangsmässigen Unterbrechung fortgesetzt. Das Team hat sich erweitert, zwischen 1982-84 arbeiten folgende Kollegen mit: Dr. Á. Bernáth, Dr. A. Bókay, Dr. G. Bonyhai, Dr. K. Csuri, Dr. Z. Kanyó, A. Kertész, Dr. P. Kocsány, É. Kocziszky, P. Müller und L. Tarnay. Die neuen Mitarbeiter sind in Budapest, Debrecen, Pécs und Szeged tätig und sie bilden eine Art literaturtheoretische Forschungsvereinigung in Ungarn. Dies bedeutet jedoch keineswegs eine einheitliche Schule, sondern eher die Möglichkeit, ernsthafte Diskussionen zwischen den verschiedenen Ansichten zu führen. Wir sind der Meinung, dass auch Literaturwissenschaftler das demokratische Recht haben sollen, ihre souveränen Auffassungen, sofern sie wissenschaftlich fundiert sind, vertreten und verteidigen zu dürfen.

Die Herausgeber

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NARRATIVE AND COMMUNICATION
AN ATTEMPT TO FORMULATE SOME PRINCIPLES FOR A THEORETICAL ACCOUNT OF NARRATIVE

ZOLTÁN KANYÓ
A. József University Szeged

1. One of the main problems in narrative theory is the theory itself. The rather elementary decision of how to relate certain facts to a theoretical hypothesis seems to be highly controversial in this field and the different theories available appear in some respect to be so barely reliable scientifically that under such circumstances any substantial improvement can hardly be expected. This negative appraisal applies not only to the more old-fashioned traditional views, but even to up-to-date ones - first of all to the different structuralist approaches and to the application of speech act theory which have exerted a decisive influence on modern tendencies in narratology and in literary theory or poetics in general. If we wish to convince ourselves that this opinion is not only a subjective prejudice but an objective and realistic statement concerning the theoretical and methodological perspectives of the present conceptions in narratology, then we have to investigate the modern trends just mentioned. If they prove to be unsatisfactory, we shall have to try to set up an alternative standpoint on the basis of different insights into narrative structure spelled out in different fields of human

knowledge.

2. As to the different structuralist conceptions, this task has been for the most part completed in the theoretical discussions of the last few years: the theoretical and methodological postulations of this trend have been submitted in some studies to a thorough scrutiny and some of the primordial ones have revealed themselves to be badly - founded or unacceptable. The main objection to structuralist theory is labelled the "poetic language" fallacy[1]. "This fallacy asserts that there is a single unified phenomenon 'literature' marked by a property 'literariness' which in turn is expressed or constituted by a special 'literary' or 'poetic' 'language' or 'discourse'. The proponents of this view venture to specify the linguistic character of literary discourse with varying degrees of exactness, the most extreme detailing being Jakobson's famous (1960) formula"[2] Like most of the traditional literary critics and aesthetes the structuralists assumed that there was a homogenous class of objects that could be named as a whole as literature or even art and they wished to define this class by means of a distinctive property characterizing all elements of this class and if possible - nothing other than the elements of this class. This program has failed, however, since we have no distinctive features at our disposal for the definition of the class "Literature" or "art" and we have no hope of solving this problem in the future either, since the failure was due to the neglect of some fundamental conditions. The concepts "literature" and "art"

are historical categories, they represent abstract unities (family-resemblance notions) of language-games, respectively semiotic games of which human communities could be aware only at a certain level of their cultural and economic development. The content and extension of these concepts have been continuously changing, and an allembracing definition cannot be given contained within this real historical process. This means that the postulated unity of class remains problematic and if the existence of the class itself raises doubts it seems an ontological audacity to assume that there are distinctive properties defining the elements of the class which, may be, does not exist. The impossibility of the structualising aim is explicitly stated in the following theses of Searle: "First, there is no trait or set of traits which all works of literature have in common and which could constitute that necessary and sufficient conditions for being a work of literature. ...
Secondly ... 'literature' is the name of a set of attitudes we take toward a stretch of discourse, not a name of an internal property of the stretch of discourse...
Third, the literary is continuous with the nonliterary."[3]
The fact that these alleged features are concieved of as elements of a special poetical language has to do with the methodological hypothesis that linguistic procedures can be applied in an analogical way to literary structures. Beyond doubt it is owing to the use of linguistic and other semiotic methods that structuralist poetics and narratology have

achieved their most important results, however the structuralist conception of language and its analogical application to literature and narrative have led necessarily to certain contradictions preventing the discovery of the inner connections of literary and narrative structure. The main thesis consists of the idea that literary features, just like grammatical ones, function as elements of an abstract system, a variant of the Saussureian langue which, over and above the fact that it has been realized, has no connections with the sphere of living discourse, its phenomena being cut off from the world of parole. Since the pragmatical turn in linguistic theory this conception is no longer considered even inside linguistics as generally valid and although it is possible to grasp in this way certain poetic relations, by this principle we are compelled not to take into consideration on the level of theory any socio-cultural factor and thus we can offer only a very one-sided picture of our topic. These objections to theory and praxis in literary and narrative structuralism are certainly not new and some of the representatives of this approach seem to have been aware of the theoretical shortcomings of this trend for a comparatively long time but they seem to assume that for this field of research there is no better method available.[4] Others, meanwhile, do not lose their faith in the scientific and humanistic significance of structuralism[5]. Since we agree with the criticism of structuralism carried out from a pragmalinguistic standpoint we cannot claim that clinging to structuralist positions is a prosperous strategy. In spite of valuable results, narrative

theory, conceived of on a structuralist basis, needs a thoroughgoing theoretical revision.

3. It is a symptom of the dependance of poetic and narrative theories on linguistic theory that this criticism of structuralism in poetics is a consequence of the already mentioned pragmatical turn in linguistics and not an issue of investigations in this so eminently pragmatically determined field of research. This pragmalinguistical turn applies, not to a well-founded and explicit theory of language based on pragmatic categories, but to a diversity of several trends and fields of research such as sociolinguistics, text theory, Wittgensteinian linguistic philosophy, speech act theory, etc. Although most of these pragmatically-oriented schools are far from the solution, sometimes even for from a satisfactory theory formulation of their own specific problems, they have exerted in one way or another a certain influence on literary theory. Thus one may detect the importance of Labov's, Sacks's, Tchegloff's etc. sociolinguistic research for the new poetic project in Fowler (1979) or Pratt (1977), or one may extrapolate the consequences of a general text model like Petõfi (in print) for a literary theory, and one may appraise the attempt at a systematization of the different pragmatical tendencies in Schmidt (1980). However, of all these conceptions only the speech act theory was able to impress literary study in a way that we can now speak about an international trend influenced by speech act theory in this field. It is certainly not accidental that exactly this approach has been gaining ground:

it offers a plausible explanation for the connection between linguistic phenomena and human interactions and has introduced in this way the very realistic point of view in linguistics, that linguistic utterances should be considered not only as manifestations of an abstract system but in the last analysis as goal-oriented actions. It seems rather needless to account for the different positive theoretical innovations invented by speech act theory - they are generally known and acknowledged - but on the contrary, before giving an appraisal of the application of speech act theory to literary and narrative theory we should like to formulate some general caveats against certain badly founded suppositions. This reservation nothwithstanding, we do esteem the endeavours of speech act theory in revealing the inner relations between speaking and doing. In full agreement with Bierwisch (1979) we find that speech act theoretical research strategy is based upon some questionable postulates. Bierwisch pointed out that proponents of this theory assume that the specification of the illocutionary force connected with the utterance often is a linguistic task which can be carried out through the analysis of the illocutionary force indicating device (IFID) contained in t. However the interaction conditions identified by IFID represent only a special part of a whole, the structures and functions of which cannot be grasped under the aspect of this part; on the contrary, the part is accessible only through full knowledge of the whole. This means that there is missing here a theoretical accounting for linguistically relevant interactions comparable

to the conception worked out for action theory in Castañeda (1975) and there are no means available in speech act theory to overcome this difficulty. It is another question whether the required theory of interactions should be considered as an integrated part of linguistics or rather as a special non-linguistic theory having certain correlations with linguistic research: a general overview is needed anyway if a special detail has to be elucidated. A second remark applies to the characteristic conflict between the pragmatical point of view of the analysis and the attempt to formulate generally valid relations, that is, independent from pragmatical considerations. We certainly do not mean correct formulations of universal quantification in a pragmatic context but the fallacy of which most of the representatives of the theory seem not to be aware is that they require a greater generality for their theses than is due to them.

4. In the application of speech act theory that should be here investigated as a representative of the pragmatically oriented conceptions we have to face a rather controversial trend: there is no agreement about fundamental definitions, the goals that should be achieved and the methods that should be applied. These difficulties seem to be connected with the special use of language in the different poetic language games which are highly divergent from uses of language considered as normal in speech act theory. Searle declares even the existence of fictional discourse to be a paradox from this point of view.[6]

4.1. First of all we have to be conscious of the fact that Searle's above mentioned position concerning the indefinability of literature is not at all a generally accepted thesis in the speech act theory of literary research, and the majority of representatives of this trend would like to define the essence of literature according to the old tradition. The novelty consists in that the definition should not be carried out by means of distinctive features of the poetic text class alone but mainly in view of its characteristic use. In Austin's classical series of lectures[7] this use is defined as a sort of deviation, as an "etiolation of language" a use which is "parasitic upon normal use"[8] and a line of research can be characterized as an attempt to force a practically applicable concept from this negativity. So Ohmann connects the notion of the speech act with the rather old, but hotly debated concept of "mimesis" in his special term for literary texts "Imitation speech acts". Its introduction can be explained by the fact that the conditions of appropriacy for speech acts fail to apply to literary utterances since the latter do not have illocutionary force - for unlike a statement in a scientific text a statement in a literary text does not count as an undertaking to the effect that the propositional content represents an actual state of affairs. "A literary work is a discourse whose sentences lack the illocutionary forces that would normally attach them. Its illocutionary force is mimetic. By 'mimetic' I mean purportedly imitative. Specifically, a literary work purportedly imitates (or reports) a series of

speech acts, which in fact have no other existence."[9] This mimetic function of literary texts is, according to Ohmann, due to the suspension of normal illocutionary forces which "tends to shift a reader's attention to the locutionary acts themselves and to their perlocutionary effects."[10] Describing literary discourse as a quasi speech act Ohman has double aims, for on the one hand he would like to demonstrate the use of the speech act theory for literary analysis, and on the other he has to account for the obvious contradiction between literary language use and language uses that are considered as conforming to the norms specified in speech act theory. In this way we are permitted to rewrite the text as series of quasi speech acts and we can formulate some correlations derivable from the speech act transcription of the text.[11] This treatment of the text is, however, burdened with a lot of serious theoretical problems. We are told that the speech acts in literary texts are imitated and it happens that the reader imagines a speaker, a situation, a set of ancillary events, and among other things the intention of the speaker. The text in itself - especially if it is presented in written form, without the background of the communicative situation, the addresser, the objects which have been referred to etc. - does not represent a sufficient base to determine unambigously the intended type of illocutionary act and a consensus seems to be completely impossible if the reconstruction of the communication situation considered to be fictional is surrendered to the individual readers. Doležel is right if he speaks in connection

with the literary application of speech act theory about "intentional fallacy" and points out: "Imperceptably the speech act concept has been assimilated to the traditional concept of the intentionalist critics."[12] The formula offered by Searle for fictional discourse the homogenity of which incidentally seems to be rather questionable viz. "a pretence to perform a speech act"[13] can be considered a variant of the above-mentioned conception.

4.2. Another important source for a theoretical explication and analysis of literary discourse conceived of as a social act that manifests itself in a special use of language can be found in Grice's lecture Logic and Conversation[14] where a general Cooperative Principle has been formulated for conversations carried out in natural language and special implications, not derivable through pure logical methods, were accounted for as different sorts of infringements of the Maxims of the Principle. Grice's conception is without doubt a valuable contribution to the explanation of language, and the fact that Castañeda starting from quite different connections came to very similar dialectical principles concerning language use[15] underlines the rationality of this approach. The above-mentioned problem of intentionality that cannot be ignored in connection with the understanding of utterances can be successfully solved to some extent. It is, however, rather questionable whether Grice's conception can function as a model for literary theory. Although Grice's lecture ascribes rather too much validity and

generality to its maxims and principle we can find even in Grice's text some argument against such an application of his Cooperative Principle. Grice declares namely "that observance of the CP and maxims is reasonable (rational) along the following lines: that any one who cares about the goals that are central to conversation/communication (e.g., giving and receiving information, influencing and being influenced by others) must be expected to have an interest, given suitable circumstances, in participation in talk exchanges that will be profitable only on the assumption that they are conducted in general accordance with the CP and the maxims."[16] Conversation defined in this way does not apply to any type of exchange but only to a class of exchange and the CP with the maxims can be regarded as a pragmatical code identifying this special genre of communication of which types like quarreling and letter-writing are explicitly excluded.[17] To maintain that the same principle and the same maxims apply to literature means that literature belongs to the above-defined class of talk exchanges. That is exactly the main point in Pratt (1977) where, with reference to identical features in the literary and non-literary use of language, it is generally cenied that there is any essential difference in communicative respect between literature and "normal" communication, therefore literature cannot lay claim to represent a separate form of communication and is in its entirety explained by the Cooperative Principle and its various infringements rendered possible by supplementary pragmatical conditions and realized as different

sorts of implicatures. This view is, however, completely erroneous. First, it is clear that the special class of exchanges labelled as conversation applies to a face-to-face communication which is characterized by a special type of communicative situation, that is, by the simultaneous presence of addresser and addressee under circumstances permitting natural and direct oral and kinetic communication. Literary communication cannot be identified as such even if we disregard its possible realization through print and the mass-media and cling to primordial oral transmission. Pratt believes her endeavour to reduce the poetic and conversational use of language to a common theoretic base is threatened only by the structuralist dichotomy of "poetic language" versus "ordinary language" and fails to take into consideration all the empirical facts which contradict such a unification. As a matter of fact the structuralist theory does not represent in the communicative respect a real counterpole to Pratt's ideas, since poetic and ordinary communication have been accounted for by the same communication schema, the differences being attributed to the different distribution of the communicative factors principally present in both cases of communication. Instead of this communication model which is rather insensitive to the factual aspects of communication we should consider the attempts to formulate a typology of utterances on the basis of certain variable factors of the communicative situation. Such an approach can be found in Wunderlich (1970). Wunderlich works with binary features some of which apply to the characteristics of the message such as ± fiction, ± dialogue,

± order, others determine the space-time relation of addresser and addressee by ± delay, ± distance. We are given fifteen different communication forms altogether, each of them characterized by a set of features. The representative class for literature mentioned here as "novel, play, poem" takes the form

(+ delay) (+ distance) (+ fiction) (- dialogue) (- order)

while conversation is denoted in the following way:

(- delay) (- distance) (- fiction) (+ dialogue) (- order)[17a]

There is a difference in all but one feature, therefore it is precisely the communicative factors which preclude the possibility of the unification. One may certainly wonder how relevant the classification presented in Wunderlich (1970) actually is. Are these features sufficient in number? Sandig takes twenty into account instead of the five mentioned here, but success or failure of a classification does not depend on the number of the reflected elements alone. Are the features chosen in a consistent way? For want of a satisfactory theory of the communicative situation we are inclined to consider the above model as a provisory solution, as it is certainly unacceptable to define literature as a whole, semantically as a class of fictional texts. We do not wish to continue the discussion of the problems of this approach.[18] We should like to point out that in spite of its theoretical failures and its vagueness it succeeds in spelling out by the cooccurrence of the features (+ Delay) (+ Distance) which are in fact determined by actual factors of the communicative situation

an old truth of literary theory with discernment, namely that addresser and addressee in a literary communication are obviously not characterized by the same space-time coordinates. Consequently literary communication cannot be subsumed to face-to-face communication or its subclass, conversation. A second argument is connected with the semantical content of the definition of conversation. We have seen that the Cooperative Principle has been stated in respect of certain purposes. "I have stated my maxims as if this purpose were a maximally effective information."[19] Information is taken here not in the generality which applies to it as a term of information theory, but as a message related to the actual world. The conversation has truth--conditions for the actual world. In a way there exists a possibility of reinterpreting the terms "informative" or "true" in the different maxims in a different way, so as to include a dada poem and a rational answer in a conversation and event that a narrator believes to be true in his fictional world, but this would annihilate the rationally distinguished class of conversation. On the other hand if the definitions are taken in their original sense, since most literary forms are not interested in conveying information about the actual world in a direct way, none of the maxims can be applied felicitously to them, that is, the formulation of the Cooperative Principle itself excludes its general application to literary communication. An example for a reinterpretation of the Cooperative Principle for literary communication was

offered in van Dijk (1976), but according to our arguments this cautious way of integrating Grice's conception is as mistaken as its direct application in Pratt (1977). The full array of the different attempts at a poetological rendering of speech act theory has not at all been exhausted by this short analysis. (cf. in this respect Fanto (1978)) We hope nevertheless that we could make comprehensible the main problems of the whole approach which can summed up in that the original framework of speech act theory does not provide for the complexity of literary communication, therefore there is no real theoretical base underlying statements concerning poetical or narrative structures which in the majority of cases rest on an analogical inference.

5. We have considered an example of each of the two main tendencies determining contemporary research in poetics and narratology, the one laying stress upon the correlations of a basic abstract system, the other upon pragmatic determination of language in the sense of use and action; however, the results have been in both cases rather discouraging. What is surprising is that our objections apply in each of these rival trends to the insufficiency of grasping the pragmatic factors of the communication, therefore if we want to formulate an alternative theoretical standpoint we should put this question in the foreground. In expounding our ideas about narrative and communication we proceed in the apparently cautious way that we start by refering to the highly valuable scientific results of some research-groups which have dealt

with different problems of literary communication and narration. The explicit citation of these impressive conceptions is meant to be more than a due fullfilment of an obligation. In a way it is astonishing that as far as literary theory is concerned the same discussions that are going on nowadays between representatives of structuralism and pragmalinguistics have already been held and, as to their intellectual level, the contemporary ones could be considered as mere preliminaries to some studies written half a century ago. This abnormal situation proves the insufficient interest of present research in the history of science and it can be overcome only if the relevant conceptions are taken into consideration in an appropriate way.

5.1. These remarks concern first of all the activity of the Bakhtin-circle expressing from the early 20's on a very individual synthetization on a semiotic basis of the two important trends in Soviet literary theory: Formalism and the sociological approach. Communication and socio-culturally determined uses of language are central categories of this conception that takes a stand on primary pragmatic causality in literary works and comes in this way into collision with Formalism documented in different critical studies.[20] Bakhtin, Vološinov and Medvedev pointed out that the Formalists main reference point in linguistics is based on the concept of a unique and abstract linguistic system and can therefore elucidate only some secondary traits of literary works, since

the latter do not rest upon this highly idealized linguistic concept but upon the socio-culturally determined uses of language in different communities. Instead of the linguistics of langue of the formalist-structuralist tradition there now appears, with reference to Humboldt, a multilingual conception of word (slovo) which should not be confused with the Saussurian parole as it is conceived to be out of the scope of linguistics and to represent a sort of paralinguistics reflecting all those socio-cultural settings in which communication proceeds. The sphere of slovo mirrors the reality of communication in its pragmatic setting. Its multilingual character can be explained by the fact that the dialectical, etc. varieties spoken in different socio-cultural communities are not considered any more as parole-phenomena, that is they are not derived from an underlying abstract langue-structure, but their heterogeneity corresponding to sociocultural, ideological and other pragmatical stratifications of the langue-user communities is held to be a primordial fact serving as a starting point for any theoretical and practical analysis of language. The substitution of the unique and abstract langue-system by a multitude of systems reflecting the different pragmatic relations between the communities offers new perspectives in most branches of linguistic and paralinguistic research; in some this change makes it possible to formulate a theory of a completely new type. To this set of candidates for a theoretic reformulation belongs stylistics: the idea of an ensemble of pragmatically determined linguistic systems seems to be very illuminating, for stylistic correlations and

some recent suggestions aiming at an embracing account for stylistics through pragmatic connotation[21] can be considered as formally fuller variants of this basic supposition. Due to its sensitivity to the world of slovo stylistics becomes in any case a very important field of research for the Bakhtin-circle,[22] stylistic analysis plays here in some respects the same role that was given to linguistics in the formalistic approach. The new pragmatic orientation has great importance for narratology as well. Some of its genres - certain novel-types - are identified as an expression of social consciousness of the multilingual character of the verbal means of communication and, besides this circumstance, other factors of the communicative model have contributed to the elaboration of valuable typologies.[23] Let us quote a characteristic passage: "The fundamental types of compositional-stylistic units building up in general the novel as a whole are the following:

1. Author's direct literary-artistic narration (in all its different varieties),
2. different stylized forms of oral every-day narration ('skaz'),
3. different stylized forms of semi-literary (written) every-day narration (letter, diary, etc.),
4. different forms of the author's literary, but not artistic discourses (ethical, philosophical, scientific exposition, rhetoric declamation, ethnographic description, statement in an official report, etc.),
5. stylistically individualized discourse of the heroes.

After having got into the novel these stylistic units of different origin form a well organized artistic system and are submitted to the higher order stylistic unity of the whole which itself cannot be identified with the units underlying it."[24] A novel is accordingly multilingual not only in the sense that it can mediate the vernacular of different communities but also by the fact that it is modelled on a series of primordial communication forms conventionalized in the use of certain groups. Since the elucidation of complex forms depends on the clear distinction and explication of the constituents we have first of all to account for these primary forms in narratology together with some other basic problems.

5.2. The investigation of these primary forms leads us to evaluate the endeavours of ethnography to define some elementary genres in oral literature and discourse in general. Jolles (1930) offers on a morphological basis a theory of so-called simple forms, that is the nine natural, universal and ultimate genres that have generated all the other kinds of literature. This "theory of the formation and transformation of genres" is based "on three fundamental ideas:

1. Language has an inherent ability to transform words into forms, under precise conditions. This process is a fundamental activity (Geistesbeschäftigung).
2. Words crystalize into forms centering aroung distinct fields of meaning (Bedeutungsfeld).

3. The genre is transformed into a new, often more complex, type which corresponds in meaning to the earlier kind."[25]

Jolles's idea of deriving the immense variety of folkloric genres from a limited number of primordial simple forms and to account for the variety by transformation sounds in some respects very tempting, however he could justify the necessity and sufficiency of the chosen forms of the repertoire only in view of metaphysical meditations that have nothing to do with the empirical facts which can be observed in connection with the communication of these genres. There are a lot of other theoretical and methodological problems:[26] here we mention only the postulated universality of simple forms: it can be maintained only if the subsistence of an inborn paralinguistic deep structure determining all simple forms is presumed that is differently realized according to linguistic and cultural codes. We do not wish to repeat our arguments against the pragmatic insensitivity of structuralist theories, therefore we take only some late reformulations of the genre-concept, of simple forms respectively, into account which lay stress upon the communication. The main trend of these endeavours, in some respect largely prepared by several structuralist essays[27], is to substitute the metaphysical postulations by well-founded theories based on empirical facts and to give up the use of notions whose existence is ontologically suspect. Hymes (1972) is a rather characteristic attempt in this sense: he tries to give a theoretic account of the notion "communicative competence" in applying the main

categories of generative transformational grammar to the interaction of language and social life. Hymes' point of reference is not an idealized native speaker, but a concrete speech community defined as "a community sharing rules for the conduct and interpretation of speech and rules for the interpretation of at least one linguistic variety."[28] Speech is defined as an activity carried out by the members of the socially defined community in a speech situation. A realization of such an activity governed by rules or norms for the use of speech is a speech event and its minimal term is a speech act - its relation to the central term of speech act theory is not clarified. Hymes distinguishes different speech styles and ways of speaking. In the process of communication the following "components of speech" are differentiated:

1. Message form,
2. Message content,
3. Setting (time and place of a speech act)
4. Scene (psychological setting),
5. Speaker,
6. Addressor,
7. Hearer, receiver or audience,
8. Addressee,
9. Purposes-outcomes,
10. Purposes-goals,
11. Key (tone, manner, spirit in which the act is done),
12. Channels (choice of the medium of transmission or speech),
13. Forms of speech (dialect, code varieties),
14. Norms of interaction,

15. Norms of interpretation,

16. Genre[29]

Some of these components need not be realized in each speech event by a special factor, so for example, substituting the rigid and traditional division between speaker (sender) and hearer (reciever) specifications for participants given in 5-8. represent possible roles that are according to genre--specific requirements differently realized: "Some rules of speaking require specification of three participants (addressor, addressee, hearer (audience), source, spokesman, addressee, etc.), some of but one, indifferent as to role in the speech event, some of two, but of speaker and audience (e. g. a child), and so on."[30] The component genre has a double function: its introduction as a component of speech reveals that any intelligible speech event should be conceived of as being classifiable to some conventionally determined genre,[31] on the other hand it is not considered as a component like the others, but should be derived from the information offered by the other components. In this sense genre signifies competence concerning the whole communication process, comprising not only the ability to formulate a text of a certain type but also the consciousness of social and behaviorial norms connected with utterances of a certain type in a given speech situation. In consequence of the reference to language use in socioculturally determined communities, the central category of generative transformational grammar, competence reflects connections that were originally thought to belong

to performance and in this way we can grasp some important characteristics of these special forms of communication. Of the three important structural levels in folklore forms - structure of materials, dramatic structure, and structure of context - the genre continuum presented in Abrahams (1969) is situated on the last, that is, it considers the possible relationships of speaker and listener. "... the range of performer-audience relationships ... runs from the personal interactions of conversation to the total distance or 'removal' of performer from audience, as in the presentation of objects of art like a folk painting. Between the poles of interpersonal involvement and total removal are four discernible segments of a spectrum into which folklore genres tend to group themselves in terms of describable traits of performance. These are conversational genres, play genres, fictive genres, and static genres. The progress from the more interpersonal to the more removed involves a passage from the smaller and more intimate forms as part of direct and spontaneous discourse to the larger and more symbolic genres, which rely upon a profound sense of physic distance between performer and audience. The shorter forms employ fairly direct strategies that rely on the intensity and color and concision of manipulated materials to do their convincing. Though all folklore calls for a sympathetic relation between formal object (the item of folklore) and audience, the longer genres increasingly draw upon vicarious, rather than immediate, involvement to induce the sympathetic response"[32] We have consequently to distinguish

two different structures: the one is contained in the text conveyed during the communication, the other applies to the participants of the speech event; speaker, addressor, hearer, addressee are in some way involved in a game that should be played according to the conventions that are valid in the community. The main point is that genre is constituted on this second level. In a sense Grice's notion of conversation defined by his principle and maxims can be concieved of as a genre, belonging to a different genre signifies having to apply different criteria of appropriateness: "When a person in our society retracts his words by saying' I was only joking', he actually redirects his words via another genre. Whatever he said violated the rules of regular conversation but is allowed in the genre joke."[33] Therefore in investigating genres we have to state social and behavioral norms and beliefs connected with the use of utterances of that type,[34] but at the same time we have to rely - especially in the case of encoded shorter forms - on specific features of the linguistic structure.[35]

5.3. Finally we have to encounter the question of how a communication can be enacted that is characterized by distance and delay. Since we are considering oral communicative forms no special instrumental storage from writing to mass-media can be taken into account, these technical means having brought about historically secondary forms of communication in view of which our highly important question is generally dismissed. The problem in the foreground is the

special organization of the primary oral forms of the communication of genres that are commonly summed up in an unsatisfactory way by the term literature and this is connected with a bundle of historical, cultural, sociological, ethnological, informational, theoretical etc. questions applying to diverse aspects of this social activity. A theoretical account of this problem can be offered only on the basis of empirical field research carried out in order to reveal in a certain respect some general traits of this connection. Important results have been achieved in this respect by Parry's and Lord's oral formulae school, classically resumed in Lord (1960); after having performed intensive empirical work in communities with a living oral tradition they pointed out the idleness of modelling oral forms of literary communication on face-to-face communication in a conversation or on secondary instrumental forms and they offered a genuine explanation for this theoretic foundation giving a remarkable impulse to a wide range of examinations from literary history to sociology of thought. The main idea is that the singer's (narrator's, addresser's) activity cannot be satisfactorily characterized as the performance of a text which has been previously composed by one or more authors (speakers), "the performance is a moment of creation for the singer".[36] In spite of the conventionalized character of content and form of the conveyed text and the close connections of its use to special social events and communicative conditions - as in the Yugoslavian heroic songs where the precondition was a special gathering of men in a coffee house or a tavern mainly

on holidays[37]. - All the same this sort of communication seems to be a direct one like a face-to-face communication; it requires, however, special learning and training: not every member of the community has of the ability to perform a song according to the norms, rather the mastery of this poetic self-expression is reserved for some specialists. Due to his individual sensitivity to linguistic expression and to his continuous practice the singer is capable of using freely a language which is understandable and in principle learnable for all, although in reality it is not acquired on a high degree except by a few. The most important constituent of the grammar of this special "poetic" language is, according to Parry and Lord, the formula, that is, a metrically, rhythmically, syntactically, semantically, etc., regular unit of speech; speaking the poetic language means composing a coherent whole out of a number of different formulae.[38] The formula with all the varieties derivable from it can be conceieved of in the sense of a generative grammar: corresponding "phrases would be considered not a closed 'system' but an open-ended 'family', and each phrase in the group would be considered an allomorph, not of any other existing phrase, but of some central Gestalt ... which is the real mental template underlying the production of all such phrases. The Gestalt itself ... would seem to exist on a preverbal level of the poet's mind."[39]

We become aware of the importance of the explanation of this special communication form if the latter is considered as a

social institution carrying out the storage and transmission of different regulations which constitute the special way of life in a community having no instrumental facilities of communication. In connection with the preliterary Greek culture Havelock (1977) points out: "This information could be carried only in the form of statements imprinted upon the memories of individual brains of living Greeks ... these statements preserve themsleves without alteration, and so retain authenticity ... if they are cast in metrical form, for only as language is controlled by rhythm can it be repeated with anything like the uniformity that is available in documentation. ... What we call 'poetry' is therefore an invention of immemorial antiquity designed for the functional purpose of continuing record in oral cultures."[40] The birth of poetry that is in general traditionally accounted for in magic and irrationalistic terms is explained here in a rather illuminating and rationalistic way and not only rationality speaks for this solution but a number of observations and psychological experiments.[41] As a matter of fact the challenge manifested in social needs in effective storage and continuous transmission of different kinds of socially important information could be met in a reorganization of the conveyed message in the oral communication process: it was necessary to work out a selection mechanism to optimally guarantee memorizable messages and these were texts complementarily structured by different sorts of repetitions at the same time avoiding the effect of banality. This means that the set of rules identified as the sphere of the alleged poeticity investigated by structuralists

as an immanent realm of literary form reveals there is a consequent strategic answer given by the community in a zero--sum game against Nature. Thus poetry and the grammar of poetry lose their aura of immanence, they have to be thought of rather as the products of some socially intended actions having their origin in social needs and dangers.

This insight gives us the possibility of arriving at a realistic reconsideration of the structuralist - pragma-linguistic discussion that served as the starting point of our explanations. The position of "either - or" seems to be out of place, since the two view points do not represent in the last analysis contrary standpoints. Accepting the priority of the socio-cultural determinism of poetic language games does not require us to give up our knowledge concerning abstract linguistic and poetic rule-systems, because they reflect and explicate real social knowledge. Although as an explanation of language and literature the structuralist view proves to be too narrow and methodologically in need of revision it represents the most valuable and living tradition in literary theory. Pragmalinguistics should not mean a completely new beginning, but an organic and at the same time critical continuation of this tradition.

6. This unusually large introduction which has given us the opportunity of explaining the main aspects of our conception on a number of question makes it possible for us to formulate our ideas in a short and concise way on some theses. In a sense

they represent the recapitulation of our previous exposition.

1. Narrative is generally used as a structuralist term and is applied as such to delimitate or characterize syntactically-semantically a certain class of texts disposing of an action structure and having agents and patients as grammatical subjects and objects.

1.1. Narrative has no pragmatic reality and just like literature represents a family-ressemblance notion

2. Pragmatically an utterance appears to be an action carried out by the participants in and through the communication.

2.1. The type of the action is called genre and is defined according to the textual and behavioral strategies applied during the communication.

3. The primary pragmatic characterization of an utterance consists of its identification as a genre, which means accounting for the criteria of appropriateness, social and behaviorial norms etc. under which the communication of the utterance counts as successful.

3.1. The syntactic-semantic term narrative is abstracted from a series of pragmatic genres.

3.2. Although some syntactic or semantic features of different genres may coincide, the systematic syntactic-semantic analysis is reasonable only within the generic framework.

4. As regards their constitution genres can be divided into comparatively simple and complex ones.

4.1. In addition to their homogenous syntactic-semantic structure simple genres are characterized by a unique and delimited strategic move in the language game in which the participants are engaged (e. g. to make the addressee laugh in the case of a joke, to offer him a commonly approved general solution in the case of a proverb, etc.), complex genres embrace several strategic moves of the partners and join up different simple genres in a special unity.

5. The investigation of simple genres has methodological and theoretical priority over the systematic research of complex genres.

6. In view of their pragmatic and other capacities there are sensible differencies between certain simple genres. We distuingish:

a/ primary simple genres having a fully specific behaviorial and linguistic code of appropriateness. As examples we mention here the Griceian rationalistic conversation with its cooperation principle, the joke, the fictional tale, and - if we leave the complexity of action structure out of consideration - ritual and magical formulae that can be conceieved of as speech acts based upon analogy.[42] In each case the rules of the game followed by the participants differ sensibly from the another.

b/ secondary simple genres are subordinated to primary ones as they have no special code of appropriateness and thus are compelled to apply the norms formulated for some fundamental communicative form. In this sense the proverb represents a secondary simple genre, as its use conforms to the rules of conversation.[43]

7. Simple genres - be they primary or secondary ones - represent the institutionalized solutions for storage and continuous transmission of socio-culturally relevant information by means of special reorganization of oral communication and corresponding social norms for the acquisition, training and transference of special communicative forms.

7.1. The "grammar" of these simple genres reflects above all rational social decisions concerning the formulation of the text in view of memorizability.

7.2. The simple genres can preserve their original function even if oral communication has ceased to be the only possible form of social conservation of relevant information and the importance of the genre is therefore sensibly diminished. The grammar of oral transmission maintains its prestige even if there is no direct social or communicative need of interest in using it, and if the poet undertaking this old oral tradition without any direct practical social goal appears to be carrying out an irrationally free act without any practical interest

with the only aim to please.[44] This idea of poetic freedom not only proves to be originally false through the explanation of poetic grammar as a product of an intentionalized social action motivated by social needs, but even as an illumination for literature in the artistic period, since each poetic manifestation is deeply embedded in stylistic, artistic and ideological codes of communication in the historical process.

8. Taking part in social games has a double sense for narrative (simple) genres: as for any genre it signifies on the one hand their actual way of existence and on the other it points to the structure they reflect syntactically and semantically.

Notes

[1] viz. Posner (1976), Pratt (1977), Fowler (1979)

[2] Fowler (1979) pp. 535-536.

[3] Searle (1975) p. 320.

[4] cf. the impressive critical survey of structural narratology in Bremond (1973) and Bremond's subsequent studies on narrative analysis.

[5] cf. "At a time when the very existence of literature and other forms of art is threatened by commercialism and ideologies, the role of structural poetics as a major force of resistance is becoming more and more important." Doležel (1979) p. 529.

[6] cf. Searle (1975) p. 319.

[7] Austin (1962)

[8] ibid p. 22.

[9] Ohmann (1971 a) p. 14.

[10] ibid p. 17.

[11] cf. Ohmann (1971 b), (1974), Campbell (1975)

[12] Doležel (1979) p. 524.

[13] Searle (1975) p. 325.

[14] Grice (1975)

[15] Castañeda (1975) p. 64.

[16] Grice (1975) p. 49.

[17] cf. Grice (1975) p. 48.

[17a] Wunderlich (1970) p. 101.

[18] cf. in this respect Baumgärtner (1969) where the feature (± fiction) is substituted by (± poetry) signifying that "the text has been estimated by an institution in the largest sense of the word to belong to poetry" Baumgärtner (1969) p. 389. However, this proposition is inconsistent with the central aim of the typological approach as, if we have the feature (+ Poetry), we do not need any other features, for poetry will then be defined not by a complex of supposedly primitive features, but by the feature (+ Poetry) alone. Cf. in this respect the commentary in Ihwe (1972) p. 213f.

[19] Grice (1975) p. 47.

[20] cf. Bakhtin (1975 a), Medvedev (1929). In connection with some general consequences of the Bakhtin-critique cf. Kanyó (1980)

[21] Bierwisch (1975), Kanyó (1977) (1982)

[22] cf. Vološinov (1929)

[23] cf. Bakhtin (1975 c)

[24] Bakhtin (1975 b) p. 75. my own translation

[25] Ben-Amos (1976) p. xxviii.

[26] cf. Ben-Amos (1969), Kanyó (1981)

[27] cf. Köngäs-Maranda - Maranda (1971)

[28] Hymes (1972) p. 54. in this terminology "speech is ... taken as a surrogate for all forms of language", ibid p. 53.

[29] cf. Hymes (1972) p. 59ff.

[30] Hymes (1972) p. 58.

[31] The questions of innovation and transformability of genres cannot be treated in this respect here cf. Kanyó (1977) (1980) and (1981)

[32] Abrahams (1969) p. 200.

[33] Ben-Amos (1969) p. 225.

[34] cf. Ben-Amos (1969). Kirschenblatt-Gimblett (1975), Scheub (1977)

[35] cf. Permjakov (1970), Kanyó (1981)

[36] Lord (1960) p. 14.

[37] viz. Lord (1960) p. 14ff.

[38] cf. Lord (1960) p. 30ff.

[39] Nagler (1967) p. 281.

[40] Havelock (1977) p. 370.

[41] cf. Colby - Cole (1973), Finnegan (1973), Goody (1977)

[42] cf. Tambiah (1973), and an interesting structuralist analysis in Todorov (1973)

[43] cf. Kanyó (1981)

[44] As to the influence of oral literature on written expressions cf. Finnegan (1973)

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THE TRICKSTER STORY

(Its Structure and Heroes)

G.L. PERMYAKOV

Zhukovsky, USSR

Wise and subtle as he is, the folk-tale prankster, or, as he is usually referred to by specialists in folklore, the "trickster", represents one of the most lifelike and amiable folklore characters. One can hardly find a plot in which, in one form or another, there is no amusing or serious, kind or malicious, cheerful or gloomy trickster story. Thus, the trickster myth must be considered an inseparable and especially important part of world narrative folklore. This fact itself has led to great attention being paid to tricksters and a thorough investigation of them being made. This explains why an article on trickster stories may be not simply entertaining but useful too: since it conveys some idea about certain characteristic features of narrative folklore in general.

1. Notes on the Structure of Trickster Stories

Probably every one of us remembers from his childhood the amusing German tale (by the Grimm Brothers) telling how two hedgehogs, standing at opposite ends of a ditch, "had a race" with a hare. This fable can be regarded as one of the

most typical examples of contest stories which exist all over the world. Perhaps there is not a single group of people in whose folklore one cannot meet at least one or two myths, tales, fables or anecdotes with the same or a similar plot. This makes contest stories fairly convenient for our purposes, the more so since these stories, as a rule, are very short in length.

Following the study of a great many stories of this kind it is now possible to state a series of peculiarities concerning tricksters. I had the opportunity to discuss some of these features in the book "From Proverb to Folk-tale". In this study it was shown that contest stories and, in particular, stories about races, similarly to all other folklore texts of the same structural level, *can be viewed from at least three planes or aspects:* a) *from their external (compositional) structure;* b) *from their semantic message (logical structure);* and c) *from their object-image (realia) plane.* It was emphasized that *all the above three planes appear to be not only interdependent but to some degree autonomous.* Thus, the animals taking part in a contest as competitors together with the setting for the competition may vary from one story to another whereas the course and the message of the story remains unchanged. In order to see this it is sufficient to compare the Micronesian tale about the Sargan-fish and the Crab, the Tuvinian fable about the Fox and the Burbot or the Simalur one about the Snail and the Monkey, the Puerto Rican tale about the Frog and the Mouse or the fable of the Guayana Indians

about the Deer and the Tortoise. At the same time, stories that are so similar in the characters taking part in the competition or stories that are so much alike in the terms agreed upon, do not always and necessarily coincide as far as their message is concerned. In some cases a story may arrive at the moral that intelligence (cunning) is more important than strength (speed), but other tales may have a totally different sense: "perseverance always wins" or "conceit never pays", etc. It can be demonstrated by the Latvian tale "The Hedgehog and the Hare" or the Syrian fable of the same name and other similar stories. Finally, the method used by the weaker side to gain victory over the stronger opponent and the corresponding development of the plot may also vary with the text, still having one and the same main message. It can readily be seen from a comparison of a series of tales such as the Negro one named "The Tortoise and the Hare" or the Japanese fable "The Cat and the Crab". Both these types of tales are intended to demonstrate that cunning is more important than strength, but cunning is used in different ways: in the first case the weak or slow animal uses its outward resemblance to its own kin, posting them all along the route from start to finish; in the second type it makes use of the physical strength of its opponent by imperceptibly clinging to its tail.

It is notable that different structural elements ("motifs") of any of the planes, for instance those of the compositional or of the realia plane occuring in texts of the

type mentioned may exist apart from these texts, too, in a significantly different relation. Thus, a crayfish that clings to the tail of a stronger animal can also be seen in the Bulgarian anecdote "The Performing Dog" telling how a shrewd Gabrovo citizen managed to steal a crayfish from a market-woman with the aid of a dog, or the Polish fable named "The Horse, the Ox, the Rooster, the Cat and the Crayfish", similar in its plot to "The Bremen Musicians" (in the fable the Crayfish clings to the tail of the Ox in order to travel round the world). And two hares, one placed at the beginning and the other at the end of the route, can be met not only in tales about races but also in stories about tricks performed by Nasruddin and other tricksters (compare, for example, the Azerbaijan tale narrating how Molla sold the ruler a "wise" hare "capable" of giving orders to others). All these and similar facts - of which one may collect any amount - once again underline the relative measure of autonomy enjoyed by the different planes (levels) of folklore texts.

I now wish to continue to set forth the observations made in the treatise "From Proverb to Folk-tale".

If one enlarges the circle of texts to be studied, it turns out that the contestant does not exceptionally use its outward resemblance to its own kin or its opponent's strength so as to gain victory, but it can resort to other tricks as well: in one case it posts a fleet-footed stand-in in its place (for example, a "younger brother", i.e. a hare, lying under a bush, as does for instance Ivanko-Medvedko in a

Russian tale), sometimes it arranges for the opponent to fall in to a pit (as is the case in the race between the Fox and the Wolf in the corresponding European fables), or it uses magic invocation and witchcraft (like the Chameleon in the Hausa tale "The Antelope and the Chameleon) etc. No matter what kind of a trick the trickster resorts to, the main message and the characteristics of the stories themselves, however, remain unchanged in principle. The same holds true for the analysis of stories about competitions in "strength" (outbalancing, fighting), in reaching the highest point (flights, jumps) and also in other skills (who eats the most, who catches sight of the Sun the earliest, and so on cf, e.g. the North American Negro tale "How Brer Turtle Came to Be the Strongest of All?", the Surinam Negro fable "Who Flies the Highest of All?" and the Kazakh "The Happiest Year" together with a number of similar tales of other peoples).

In this way, it appears that all stories about contests between weak but clever (cunning) and strong but foolish protagonists *represent a uniform common tale in the world*, albeit that the concrete manifestations dispose of numerous national, geographical, social and other specific variants. It must be added that in his time the Soviet scholar V. J. Propp arrived at a similar conclusion after investigating different folklore material.

Applying Propp's method, I found that stories about contest together with other types of folktales are identically submitted to certain regularities. Thus, the structure of contest tales

is also divisible into individual structural elements and blocks. In a tale about competition the number of structural elements is constant and is even less than in a fairy tale - only twelve, with seven functions and five compositional elements. The functions are as follows: *meeting of the competitors, agreement to compete, preparation for the contest, the course of the competition, victory of one competitor, awarding the prize to the winner* and *punishing the loser*. Compositional components are: *orientation in space and time, characterisation of the participants, repetition of the competition* and, finally, the *etiological element* ("since then it has been the way..."). Furthermore, all these elements are arranged in a strict pattern: first come the time and place of the event (orientation); then the competitors are described (this is sometimes combined with the next element); then come the first five functions cited above (in that order); they are followed by a second competition (usually at the loser's request); then come the two last functions; and, finally, the etiological element. Like fairy-tales, tales about contests have their own special set of characters with clearly delineated functions. The difference is that in this folk-tale type the number of characters is not seven but four: the two contestants, a stand-in for one of the contestants and the referee. Sometimes their functions (most often that of the stand-in) are distributed among several persons.

Naturally, I have described an "ideal" contest story. In fact, each text lacks one or more of the above mentioned features:

sometimes a referee is not included in the tale, in other cases a prize is not awarded to the winner or there is no repetition of the competition, and so on. Yet there is a great number of more or less complete contest stories. A typical example of such tales could be the Zunian tale "How the Gopher Had a Race with Runners from Kiakime", which possesses - with the exception of a repetition of the competition - all structural elements beginning with orientation ("The event took place in the Valley of Shivin at the time when Kiakime inhabitants were famous for their strength and high speed...") and ending with the etiological element ("Since then up to this time Zunian youngsters when preparing for a competition in running have taken with them the sacred yellow pollen and red paint and painted beautiful red plumelets for the gophers dwelling by the path for running..."). Almost the same can be said of the Vietnamese tale "The Tiger and the Mollusc", the German story named "The Hare and the Hedgehog", the Eskimo fable "The Elk and the Goby" and the Shoshonean Indian folktale "The Wolf and the Frog" and of many, many others as well.

On the other hand, among contest stories there can be found certain tales in which the potential existance of a complete set of structural elements is actually precluded. Such is the case in fables of the Russian "The Fox and the Crayfish" type, in which the weaker side uses its opponent's strength and, as a result, can do without a stand-in and even without a referee. Similar texts (i.e. those incapable of being

complete as far as their total number of structural elements is concerned) I have singled out into a distinct "constructive type 2" in order to distinguish them from those theoretically capable of being complete in this respect.

Furthermore, contest stories have other, more prominent peculiarities not dealt with in the book "From Proverb to Folk-tale". After a study of other texts it appears that, apart from the above-mentioned properties, tales possess some other features as well. In particular, these texts together with others observed earlier in this paper *form a definite system of semantic (or logical) transformation* very much similar to the one I described earlier in connection with proverbial phrases as well as fablettes, one-scene anecdotes, fables and Schwänke, i.e. in connection with all synthetic (or, in other words, those allowing of extended interpretation) folklore clichés of other compositional levels.
It must be noted that, whereas some of the tales about contests demonstrate that intelligence (cunning) is better (more important) than strength (speed), others show the opposite: the stronger opponent undoubtedly wins against the weaker one. Moreover, there are tales in which neither of the protagonists or, on the contrary, both of the contestants turn out to be the winners. Finally, there are texts from which it is not clear which of the opponents is the winner, after all. Such tales usually end with an appeal to the listener (reader) suggesting that he himself give the answer to the

question. This type of stories can be illustrated by the Hausa Schwank (plot anecdote) "Who Is the Most Skilful?". It must be noticed that contest stories of the last three types (i.e. when the stronger wins, when no one gains victory and when it is not known who is to be considered the winner) exist not only as exceptions. This is far from the case. True, contest stories ending with a question occur relatively scarcely. None the less there is a fairly large number of tales in which it is the stronger participant that manages to be the winner. These stories are frequently met not only on their own but also as episodes within the limits of some longer narrations. For example, one can recall many stories narrating how the hero, having procured a magic horse, takes the upper hand, outruns or "outjumps" his contestants and marries the princess. However, since such ("honest") tales describe ordinary things, they do not attract great attention and it may even occur to the inexperienced observer that it is the other ones, i.e. those that have the weaker side win, that prevail.

Characteristically, after having recourse to a sufficiently representative collection of tales (such as that of the Brothers Grimm, J. Harris or A.V. Afanasyev, etc.), one can discover all or almost all the abovementioned semantic variants (logical transformations) not only in world folklore as a whole but also *in the folklore stock of each distinct*

people.

And, what is particularly noteworthy is as follows: *all the said logical transformations are practically equivalent in the sense that none of them can be considered as being any more right than the rest.* In the foregoing I shall mark them with the letters A, B, C, and D, respectively. Transformation A will refer to texts "demonstrating" that it is the strongest who wins; transformation B will denote cases with the most intelligent (cunning) opponent; transformation C where neither (or both) of the contestants gains victory; transformation D will designate stories in which it is unclear who is to be considered the winner. Of course, these types are certainly demonstrated (told or recalled) in different situations. Thus, the tale about the Hare and the Hedgeheg may be remembered by a German when, in the course of a dialogue, an incident is mentioned with reference to a weak but cunning man who gains victory over a strong but foolish one. On the contrary, the same German may think of the tale about the Eagle and the Wren or the Herring and the Flounder if the situation is just the opposite. There is nothing strange in this, since most of the contest stories, especially all tales, fables and Schwänke of this type, as well as all other types of folklore texts with a didactic function, *represent different life and logical situations.* Let us consider a very realistic, i.e. not phantastical episode in fairy tales, for example a man is sitting on a bough and this bough cuts wood with its own hand. Such an episode is naturally impossible in real life. But in fairy tales we

often meet such events (consider the stories about Nusreddin, Abu-Hassan and other tricksters). And here they do not appear meaningless, but they contribute to the formulation of the content. In order to understand this significance we should not interpret the text in a literal, but in a metaphorical sense. In this case we can immediately tackle and solve the problem of the relevance of the fairy tale to everyday life: how often men cut the wood on which they are sitting!

Let us turn back to the question of the logical transformations.

First of all, it must be stated that the abovementioned system of logical transformation *concerns not only contest stories but also folklore texts of other structural and semantic types*, such as, for example, tales, fables and anecdotes about judgements. The numerous folk-tales about clever and righteous judgements (just remember the "judgements of Solomon") stand in contrast to the likewise numerous stories about stupid and mistaken judgements (e.g. the judgement on the Pike that was sentenced to be drowned, or the famous "Shemyakin judgement"). Among stories about judgements there is a fairly great number of tales in which both sides turn out to be equally right. Yet another type of story about judgements is the so-called "dilemma story", which generally carry no assertion as to the question of which side is right: they merely end with a question addressed to the listener. An example of stories of this type is afforded by the Liberian riddle-question named "The Beautiful Youngster" and also by

analogous African text cited in the anthology compiled by Alta Yablow ("Yes and No").

Furthermore, *transformation spreads over all components of folklore texts including distinct structural elements and blocks as well as characters*. The latter can be well observed in the examples of those folklore heroes to whom cycles of differing extents are devoted. The same Fox that could be deceived with so much skill by the Crayfish in the above contest tale appears in a series of other European and Asian tales and fables as the most clever and cunning animal. In this connection there is no significant difference between the Fox and the shrewd and witty Deer of the Indonesian tales or Brer Rabbit of the American Negro tales, which are "outraced" (in fact, accompanied) by the Snail and the Turtle, respectively. Semantic transformation is even more manifest in the case of the anthropomorphic heroes, such as Abu Nuwas, Ahmet Ahay, Burbal, Kemine, Kim Son Dal and Nasruddin. All these characters appear to be either clever or stupid, rich or poor, religious or atheist, kind or malicious, and so on, and so forth.

Finally, semantic transformation of folklore stories is a rather early phenomenon. It manifests itself already *in the most ancient layers of folk art*, e.g. in the archaic myths about the so-called "culture" heroes who acquire for mankind such blessings of civilisation as fire, working tools and the like. In this way, the mythical character ("culture" hero or

creator-demiurge) of the Koryaks and Itelmens (Kamchadals), viz., the clever and ever so mighty Raven acts as a trickster or a goose in some cases. Incompatible features are allotted to the mythical hero of the Americal Indians of the Great Basin, namely, the Coyote, or to the hero of the ancient Ossete epos, Syrdon, and to almost all other characters of archic peoples's art. It is in stories about twin brothers, which figure prominently in the mythology of many peoples all over the world, where the semantic "dualism" of archaic folklore becomes especially apparent. One of the brothers, as a rule, is benevolent and sharp-witted, whereas the other is usually stupid and muddle-headed. The creation of all good things, natural phenomena and customs is ascribed to the first brother while all the bad, unnecessary things, beginning with harmful insects and ending with death are attributed to the second. An example to illustrate this is offered by the twin brothers To-Kabinana and To-Purgo or To-Karvuvu, the Melanesian folklore characters of New Britain. Nevertheless, the semantic differences in question reveal a somewhat different quality in myths as compared to tales, fables or anecdotes resulting from the myths themselves being basically different from the texts mentioned. Myths proper, just like other analytical clichés (omens, economic, legal and medical sayings) have only *one concrete meaning and allow of no extended interpretation of any kind.*

On the subject of semantic transformations of folk stories there is yet one important point to be made. In my discussion of the relative autonomy of the different planes of folklore texts, it was pointed out that several stories about competitions in running, similar from the point of view of the competitors and the terms of the contest agreed upon, do not always coincide as far as their main message is concerned: some of them maintain that intelligence (cunning) is more important than strength or fleet-footedness, the others firmly state that conceit does not lead to success, and so on. And later, when I was dealing with the problem of logical text transformations and was singling out transformational types A, B, C and D, it might have seemed as though I was trying to give an explanation of the existing lack of semantic coordination. This is in fact, far from being the case. Stories about races with different messages, (e.g. the Latvian tale "The Hare and the Hedgehog" and the Syrian fable of the same name) do not represent logical transformations of identical ideas and situations. The difference between them is of some other origin. Here the texts are built up of one and the same structural elements, the texts themselves belonging to markedly different structural-logical types, i.e. the texts modelling far from identical types of situations. It must be added that from this point of view (as well as from many others) narrative folklore texts approach proverbial phrases (of e.g. the Vietnamese and Chinese proverbs emerging

from one and the same realia but different in their logical structure: "If there is no fish crabs are welcome" and "Where there are crabs there must be fish, too.")

2. The Problem of Preference

In the tale of the Caddo Indians titled "The Coyote and the Turtle" it is the Turtle that makes a fool of the Coyote in the same way as it outwits Brer Rabbit in the American Negro tale named "How Brer Rabbit and Brer Turtle Had A Race?". In the Latvian tale about the Fox and the Crayfish it is the Crayfish that happens to be the more cunning, and, in the Simalur fable about the Snail and the Monkey and in the Cambodian one about the Snail and the Hare it is the weaker animal, viz., the Snail, that gets the better of its feet-footed opponent. Taking into account some other stories with one or both of the above characters, however, it becomes apparent that in many other cases it is the animal fooled in the above examples that turns out to be the most intelligent and cunning of all. The same is true of the contestant taking part in competitions of strength, skill and all the rest.

But who is, after all the most cunning of all tricksters? Who is, then, the strongest of the strong? And, on the whole, which of these folklore characters is the most successful and undefeatable?

It is not at all simple to answer these questions. This is so not only because different characters are considered to be the most successful in the folklore of different countries

and peoples, but also because this phenomenon is peculiar to almost every distinct folklore of each separate people.

Thus, the American Negrous think of the turtle and the rabbit as the cleverest of the animals, while Latvians think in the same way of the fox and the hare. The folklore of many peoples has several ingenious tricksters, either anthropomorphic or zoomorphic.

The Turkmenians, for example, have many tales or anecdotes about famous tricksters and fun-makers (such as Kemine, Esenpolate, Mirali, Karu-Ate and Effendi Nasruddin. There exist cycles of tales or fables about cunning trick performed by a hyena, a jackal, a hare, a turtle or a spider, as manifested in the folklore of Sudan.

Moreover, if one observes thoroughly the obtainable folklore texts of one separate people, it appears that there - in accordance with all the rules of transformation described in the previous section - each character is presented to the listener (reader) either as witty or simple-minded, strong or weak, undefeatable or defeated, etc. As a result, each folklore hero can be attributed to any value system of folklore characters as its best and at the same time worst element. It becomes extremly apparent in the case of the "ring-like" cumulative tales, such as the Vietnamese tale named "Who Is the Strongest?" It goes like this:

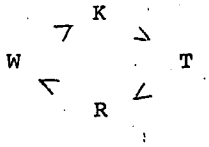
"The strongest of all in the world is the king:
By his order a thief is
caught and executed immediately.

Nevertheless, the thief is strong, too:
he can steal a rooster
and cook it for dinner.
Yet, the rooster is strong, of course:
It can swallow worms with much skill.
But the worm has its strength, too:
It eats away the leg of the throne
and the king flies to the ground.
Who is the strongest of all in the world?"

Symbolically the interrelation between the king (K), the thief, (T), the rooster (R) and the worm (W) in the above tale can be shown in the form of a chain:

$$K > T > R > W > K,$$

where ">" serves to signal preference (superiority) and reads as "stronger than" or "better than", "preferred to" etc. It can be easily recognised that the given chain is endless and that it can be schematically presented in the form of a ring each link of which is superior to the one following it and the link itself is "surpassed" by the preceding link:



Scheme 1

One can find analogous superiority ring, - either big or small, simple or "figured" - in the folklore of any people.

Let us turn to the example of the Latvian animal epos. There are fables among the Latvian tales about animals in which the Fox gains victory over the Cat, the Wolf, the Bear, the Lynx, the Raven the Rooster, the Dog, the Goat, and several other animal characters as well as the Man. In the same collection one can also find tales in which it is the Fox that turns out to be the loser, being conquered by the Heath-cock, the Rooster, the Hare, the Ravan, the Crayfish, the Hawk, the Cat and the Man. On the other hand, the Hare, for example, is stronger (or more cunning) than the Fox, the Wolf, the Lion, the Dog and the Man. The Man wins against the Bear, the Wolf, the Fox, the Hare, the Gadfly, the Bird, the Fish, the Worm. The Wolf is recognised as being inferior to the Dog, the Sheep, the Hare and the Pig and so on.

On the basis of the above relationships it is possible to construct a series of chains and rings of superiority. Here are some of them:

Elementary

1/ Fox > Rooster > Fox; 2/ Fox > Raven > Fox

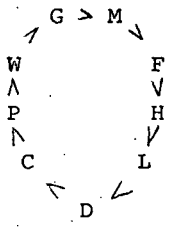
3/ Fox > Cat > Fox 4/ Fox > Man > Fox.

Complex

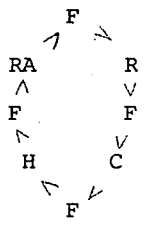
1/ Man > Fox > Lion > Hare > Dog > Cat > Pig > Wolf > Sheep > Man;

2/ Fox > Rooster > Fox > Cat > Fox > Hare > Fox > Raven > Fox.

It is convenient to depict schematically such complex chains in the form of rings; the letters stand for the names of the animals, respectively, RA denoting "Raven" as opposed to R "Rooster":

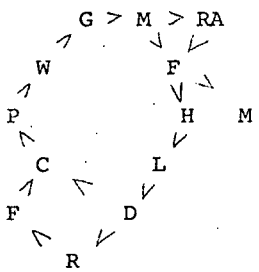


Scheme 2



Scheme 3

If some of the links of the big rings are replaced by corresponding and equivalent rings of a smaller size, the scheme will have the following appearance:



Scheme 4

Many links can be substituted for each other by simply changing their places or the things of preference (>) can be turned as to point in the opposite direction, - yet the scheme will remain relevant to the folklore material.

What, then, are we dealing with here?

To be honest, we cannot be absolutely certain.

Is it the case that, to a certain degree, the versatility of these heroes can be explained by the existing cunning of the animals, by their admirable fitness to conditions of existence which is reflected so truthfully in the folklore? Maybe. At any rate, it is commonly known that many animals are "apt to be cunning". How skilfully hares double back when running away from their pursuers! Or chameleons, changing the colour of their body according to the colour of their environment, also hide from their enemies in an extremely "witty" manner. Plovers sitting on their eggs pretend to be injured whenever a man approaches and, dragging their "wounded" wings on the ground, they attract the unbidden guest away from their nests. Even more cunning is the way in which tree sparrows act in building their nests in the wall of the nests of their worst enemy the falcon: falcons do not hunt near their nests and they do not let other birds and beatst of prey come close to the nests. And this is what experts on octopuses say: if an octopus cannot open a shell in order to regale itself on a mollusc, it waits until the shell itself opens, and at that moment the octopus places a piece of stone or coral into the opening.

These and similar facts and data, however, cannot account for the extant lack of agreement in the estimation of intelligence and other properties of animals, i.e., what we call

qualitative transformation of folklore characters, or, in other words, the circumtance in which the clever and the foolish heroes of the stories take each other's places even within the limits of one and the same plot. Earlier I cited examples of the clever and of the foolish Nasruddin. Here I shall list several analogous examples concerning animal characters. A tale of the Dinka people of Sudan narrates how the Hyena deceived the Lion. The two animals once managed to acquire some meat (by killing an antelope). The Hyena said that the meat had to be fried and sent the Lion to fetch fire. The Lion set out towards the Sun but returned with nothing. While the Lion was on his way, the Hyena ate the meat. Then it told the Lion that the meat had been eaten, most likely, by the god of the Earth. Kanurin people from "West Africa tell an identical tale about the Weasel and the Hyena. In this tale it is the Weasel that deceives the stupid (!) Hyena in the same way as above, the only difference being that the Weasel blames people for committing the crime. There is no doubt that it is impossible to explain the transformation of the Hyena's image by any biological argumentations.

It is possible that the appropriate answer to the question lies in the field of ethnography, viz., in ancient customs and beliefs? Well, this seems very likely to be the case. At any rate, similar suppositions have already been made.

According to one, folklore stories about clever and cunning (and, as a rule, good) animals go back to religious--magical texts intended for these very animals. These texts

were once narrated in order to propitiate the animals in question or to lull their vigilance thereby ensuring the success of the hunt. Regardless of all its advantages, the above hypothesis is, however, incapable of explaining why animals like frogs, spiders, lizards, flies and other animals lacking any trade or, at least, economic significance, appear to be *good* animals.

Another supposition seems considerably more convincing. According to this theory zoomorphic folklore characters go back to the totemic ancestors of a given ethnic group. Many Australian, Oceanic, South American and African tribes still continue to consider certain animals to be their kinsmen, worship and make sacrifices to them and forbid their killing. In New Caledonia, for example, it is strictly forbidden to kill lizards: the inhabitants think of them as the embodiment of their own ancestors. Analogous situations are narrated by the Papuan fratrias (marriage classes) with regard to kangaroos, cassowaries, dogs, wild-boars, eagles, cormorants and other local animals as well as certain kinds of plants. It can readily be conceived that parallel to the consolidation of some genera and tribes as larger ethnic entities such as the Iroquois League, their ancient totemic ancestors become the objects of a wider reverence, being worshipped by whole peoples, i.e. they become converted into gods and demigods. The latter are driven into the background or, like the first come to belong to the common national pantheon. Later, at approximately the time when monotheism is being established,

earlier tribal gods turn into different kinds of cherubs and seraphim or evil spirits.

If however, the supposition about the totemic origin of zoomorphic characters can provide an answer as to why one or other animal is given predominance in the folklore of one and the same people, it is hardly capable of yielding an explanation of the preference of certain anthropomorphic characters to others. It may be the case that the latter ones (i.e. human characters) also go back to ancient tribal archi-ancestors, "culture" heroes that once used to be worshipped as protectors of ethnic groups and, naturally, were considered the cleverest, the strongest and the best of all. This hypothesis still cannot give an adequate and overall explanation of the above facts. Amongst folk-tale tricksters and wise men there is a good number which appeared as characters relatively recently, probably 300-500 years ago, whereas folklore itself has existed for thousand of years. Above all, these tricksters and wise men are also, as has been demonstrated in the previous section, frequently presented as foolish and simple-minded characters.

True, the latter factor is thought by some specialists in folklore (not without grounds) to be the result of deliberate or undeliberate parodying of old and outdated notions. Hand in hand with social and cultural development people's opinions, too, undergoe transformation and as a result, the notions that once were good later turn bad and vice versa. Thus, together with the establishment and stabilization of the Ossete patri-

archal customs, their ancient folklore characters undergo radical transformation. The noble Nart Sosruko (Soslan), the great hero of the old Ossete legends turns into a cowardly and treacherous man in the later versions, and his mother Satana, the demigoddess mother of the Narts is later presented as an evil witch. A number of such examples can be cited from the folklore of any people. Yet all of them put together are insufficient to give an adequate evalution of the diversity of the transformative forms or, in particular, of the cases of twin brothers, so frequently met in the archaic folklore, where one of the twins makes a parody of the others deeds. After all, both twin brothers act *simultaneously*, so that an explanation based on the evolution of people's opinion has no place here.

Most probably the reason lies in something else. All our rings of superiority as well as the whole diversity of the qualitative variants of folklore characters are connected with the system of logical transformations of the texts dealt with in the previous section. In fact, whereas folklore stories (either as a whole or considered separately) model facts and situations on real life, the totality of these stories repeats (as a model) the totality of life situations and facts themselves. Facts and situations occuring in life may be and frequently are most heterogenous; they may be observed in their different ralations to each other, they may be valued from many sides, and this alone can make them seem different

in each of their real-life situations (and, when considered in folklore, in each of their folklore contexts): they may seem good in one case and bad in another, either necessary or unnecessary, clever or foolish, that is to say, different. In any case, regardless of all the differences in their appearance, they may seem quite true to life. It is sufficient to observe the legend of Samson and Delilah from the viewpoint of the Philistines and all values will at once change to the opposite. Delilah, the former traitress will instantly become a "positive" heroine and she will in no way differ from a certain Beautiful Helen who tries to make Koschei reveal the secret of eternal life. Extraordinarily illustrative in this respect is the wonderful Dungan tale about two brothers who wooed the daughters of Matsun, the teacher. In order to test the intelligence and knowledge of the fiancés Matsun put three questions to the brothers. First he asked the elder brother: Why does a goose come dry out of the water and why has it such a loud voice? "And the brother answered: The feathers of a goose are covered with grease so that water cannot penetrate. The loud voice of a goose, is brought about by its long neck and wide throat." Then Matsun asked: "Why is one of these apples red and the other green?" The elder brother took a glance at the apple-tree and answered: "Because one half of the apple turns to the Sun and the other half is in shadow." Then the teacher led the fiancé to the room in which the elder sister was sitting and asked: "Why has my daughter white skin and you - dark?" The elder brother replied: "Your daughter is

white because she sits inside the house all the time but I am dark since I spend much time in the Sun." Matsun liked the elder brother's answers and assented to give his elder daughter in marriage to him. Then the teacher asked the same questions from the younger brother who was a fellow of a totally different stamp. Answering the question about the voice of the goose the younger brother said: "The voice depends on the kind of the animal." The teacher remarked: "But your wise brother had answered me that a goose had a loud voice because it had a long neck." - Oh, no, - protested the younger brother, - it is merely a particular case and you cannot make a rule of it. A frog, for instance, has a very short neck, but is has a very loud voice, all the same." Having heard the question about the apple, the younger brother took one from the tree, tore it into two pieces and, pointing to the seeds he answered: "Everything depends on the seeds, that is on the sort of apple." "- But your wise brother said that one half of the apple became red because it had been exposed to the Sun." - said the teacher. "- Oh, no, - replied the younger brother - it is just an exeptional case. There are apples equally red on both sides, although they, too, had been exposed to the Sun on only one side. Red beet, for example, sits in the earth all the time and never sees at all the Sun and yet it is red in colour." Finally Matsun led the younger brother to his younger daughter and asked him about the reason of his daughter's white skin. The younger brother explained: "Her gentle white skin is from Nature." "- But your wise brother explained that my daughters always keep in the shadow." "- Oh,

no, - protested the younger of the brothers, - it is a particular case. The black insect lives in shadow all the time but on this account it will never turn white. Matsun admitted that the second brother also give adequate answers to his questions and let him marry his younger daughter.

In the above tale the contradictory deeds of the archaic folklore twins reacting in a different manner to identical "creative tasks" now seem deeper and more sensible. It is possible that this many-sided approach, this intention to view phenomena from different angles and not to evalute them identically, is the basis of the admirable wisdom of our ancient ancestors who fixed their richest life experiences in the simple and at the same complex, harmonious and none the less contradictory system of logical transformation reflecting the partical logic of common sense.

(Translated by Károly Fábricz)

THE LOGICAL STRUCTURE OF SOME RUSSIAN RIDDLES

On the basic function of folk riddles and their scientific classification

Introduction

G.L. PERMYAKOV
Zhukovsky, USSR

For a long time people have recognized and appraised the didactic nature of riddles. It is not by chance that in folklore studies, especially in the studies of peoples having little or no written language, much attention is payed to riddles. Thus, old men of many tribes in Africa from the Ivory Coast (Baulé) to Namibia (Ovambo) would gather young people from time to time for special evenings of contest in riddle-answering. The young participants are then divided into groups. An old man tells a riddle. The group whose member finds the correct answer first is given a point (forfeit). The group that collects the most points is then proclaimed as the winner. If no one can give an answer to the riddle (as is often the case), it is the questioner himself who gives the answer. Such contests in riddle-answering are of much interest even by themselves. But perhaps their most interesting feature is that it is not only the everyday articles of life, natural

phenomena, local events, ideas or views of a tribal group as expressed by pictures or descriptions that serve as an answer to a given riddler (thus resembling traditional Western European or Russian answers to riddles), but also different clichéized sentences: proverbs, tokens, economic, "juridical" and "ethical" sayings (e.g. strictly formulated rules of property inheritance, rules of behavior in different situations etc.). Memorizing the answers to a certain set of riddles, young people gradually learn not only the names of things necessary in their lives, but also a number of sayings that are indispensable for social intercourse and proper behavior. And although in more developed societies with a wide range of schooling, books and mass media information it would appear to be unnecessary for riddles to be used in such a way, as a consequence of which riddles change from "serious", "adult" folklore to "children's" folklore, nevertheless their didactic role does not disappear. Though in the form of a kind of game, they keep on teaching the same things as they used to teach earlier.

The didactic function of riddles has for a long time attracted the attention of ethnographers and specialists in folklore, paremiologists, in particular. It is not without reason that any serious semantic classification of riddles is based on the so-called "thematic" principle, that is it actually reveals (describes) those spheres of people's life and activities, of macrocosm and microcosm, which are taught by way of riddles. As a rule, it includes man and the parts

of his body, his dwelling with all its furniture, livestock, and handicraft, his trade, public relations, beliefs, natural phenomena, the local flora and fauna, the sky and earth, and so on and so forth, in a word, everything that a man encounters in his everyday life and in his thoughts about it.

But riddles teach us not only this. It is striking how heterogenous their inner and outer linguistic structures are. There are riddles in the form of a direct question, but there are also riddles whose first part is expressed by an affirmative or a negative sentence, there are riddle tales, riddle anecdotes, riddle stories, riddle songs, riddle plays, riddle puns, riddle traps, riddle jokes, riddle puzzles, riddle sum-doings and many other riddle types. And all of them exist in several (sometimes in many) syntactic forms that are phenetically and rhythmically built up in a different way. If we add to this that all or almost all of the folk riddles are well-cut and firmly sewn and, consequently, easy to memorize, it becomes evident how important their role is in the acquisition of the riches of a mother-tongue. It is well known, too, that the majority of riddles are built on a metaphor, i.e. their first part describes an object (or a phenomenon) which is contained in the second part (in the answer) in terms of a different sphere of life. This accustoms people to understanding the given trope (and it is extraordinarily important from the point of view of human communication) and at the same time it enhances the development of fantasy and

metaphoric (figurative) thinking.

Even this is still not the end of the list. Our investigations of riddles of eighty peoples in Europe, Asia and Africa show that folk riddles differ from one another not only in their linguistic form and set of realia used in the questions and answers, but also in their logical structure. That is to say, every riddle is built up on a certain logical model and requires for its answer a corresponding logical method.

As an example, let us compare some simple riddles with a direct sense (i.e. not metaphorical).

(1) There is a cat sitting on the window; its whiskers are like those of a cat, its eyes are like those of a cat, its ears are like those of a cat, still it is not a cat. (Who is it?)

(2) What horse can see equally well from the front and from behind?

(3) When they started to build Moscow, how did they drive the first nail?

(4) You are my son, but I am not your father. (How can it be?)

(5) There are two of it in a woman, and none in a girl. (What is it?)

(6) A magpie flying, a dog on its tail. (How can it be?)

(7) There were two fathers, two sons, one grandfather and one grandson walking. How many people were there walking altogether?

(8) A cock cried and woke up three men. How many cocks are necessary in order to wake up nine men?

Each of these riddles can be answered in a different way. In order to answer the first riddle, it is not at all necessary to call to mind all types of cat-like animals, as is usually done by the uninitiated; it is enough to remember that the word "*koshka*" in Russian may refer not only to the animal in general, but it may stand for a "female cat" as well, in this case being opposed to the word "male cat". The correct answer to the riddle will be the word "*kot*", i.e. a he-cat. When answering the second riddle, it is important to notice that the expression "equally well" (*odinakovo khorosho*) in Russian means not "well", but "equally", "in the same way". And then it becomes clear at once that the question is about a *blind* horse, and it sees nothing from the front, the same as from behind. The answer to the third riddle requires finding out about the ambiguity of the interrogative "*vo chto*", for it can have the meaning "in what object", as well as "in what part of an object". And since we know of only one thing from the text of the riddle that could be hit on (i.e. the nail), it is now easy to give the answer: "Hitting it on the head." In order to find the answer to the fourth riddle it is sufficient to realize that it is not only a father who can have a son, but a mother too, (or the other way round: a son can have a father as well as a mother); and if someone calls a boy "son" and it is not his father, then it means it must be his mother. If we

wish to answer the fifth riddle, it is necessary to remember that a given object (denotatum) has a name (significatum) and that this name can be expressed by letters: in the word "woman" ("*baba*") there are two letters "b", whereas the word "girl" ("*devka*") has none. One can give the proper answer to the sixth riddle only if he sees that not one object is referred to, but two, and they are independent of each other, with the riddle itself containing no metaphor: "the magpie flies (in the sky), but the dog sits on its (own) tail". (This riddle is especially difficult to answer when it is asked in a row with metaphorical ones.) The answer to the seventh riddle requires that we take into consideration that the words "father", "son", "grandfather" and "grandson" do not only designate certain people but at the same time they refer to relations between them: a man's son may be the father of another, etc. Having considered the ambiguous content of these words it is easy to see that the riddle talks about three men only (a man with his father and his son). The eighth riddle makes it necessary to give up the routine approach ("9:3 = 3") and to understand the specificity of the given situation: the cry of a cock is heard equally by everyone sleeping and it has nothing to do with the number of cocks.

As can be seen from this short list (which could be significantly extended), each riddle requires a specific logical method in its solution. It is very interesting to note, that if someone comes across a riddle of a new logico--structural type for the first time, he has to face certain difficulties, indeed perhaps he cannot even answer the riddle

at all (this, by the way, is of no importance, since the questioner is only too glad to give the answer), but when someone is asked a riddle of this kind for the second time, he usually answers it in an easy and simple way. Thus, if one knows the answer to the first riddle (the one about the cat referring also to a she-cat), then it is easy for him to answer an analogous riddle about the dog. Or if we know the answer to the fourth riddle (the son and his relation to his "not-father"), it presents no problem to answer a similar riddle about a daughter and a "not-mother". If we know the way the fifth riddle is to be answered, then it is not difficult to give the answer to the following riddle: "What is in the middle of the earth (*zemlja*) and at the end of thunder (*grom*)?" The matter is that we already know the *method* with the help of which it is possible to answer a riddle of the given logico-structural type.

Thus, riddles *teach people to think* by way of providing them with the knowledge of different logical methods. And this seems to be the most important feature of the didactic function of riddles.

It is worth noticing that although folk riddles represent an infinite variety, there are comparatively few logical models on which riddles are built: according to our preliminary estimation there are not more than 40 models. But all of them appear to be universal. Riddles of very different peoples are constructed in the same way, regardless of the differences in language and culture. This suggests that the logical models of

riddles and the corresponding logical methods of answering them could serve as a base for an international classification of paremias of this type. All the rest of the features traditionally used for the classification of riddles - such as theme, linguistic and compositional structure, type and nature of riddle, motivation of overall meaning, etc. - can be included as means of dividing riddles into subtypes and categories within the basic logico-structural types.

Unfortunately neither the logical structure of riddles (except for two or three types investigated by E. Köngäs-Maranda), nor the set of logical methods suitable for answering riddles have been studied so far. Logics and psychology do not only lack any classification of logical methods, they do not even dispose of a full list of these methods.

Consequently, N.V. Barabanova's article below is of great interest as it deals with some logico-structural types of riddles from D.N. Sadovnikov's famous collection "Russian Riddles". As can be seen from N.V. Barabanova's study, riddles from different sections and parts of the collection may have the same invariant model. True, Barabanova has described not all the logico-structural types that appear in Sadovnikov's book. But those described are sufficient to confirm the above idea about riddles helping people to master different logical methods of thinking. It is also important that N.V. Barabanova's logical structures concern not only Russian riddles, but are relevant to riddles of other peoples in the world, too.

LOGICAL ANALYSIS OF RIDDLES

N.V. BARABANOVA

Moscow, USSR

Almost all investigators of riddles agree that a riddle represents a special logical task for it contains - either in an open or a hidden form - a question that has to be answered. And according to the findings such tasks are built on certain logical models.

We have investigated D.N. Sadovnikov's collection "Russian Riddles" and satisfied ourselves that its riddles can be divided into several groups on the basis of their logical models. Let us turn to some examples.

I. Some riddles from group I.

No. 1617 It is little, it is white,
Through the forest jump-jump!
Through the snow poke-poke!
(A hare)

No. 819 Green from above,
Thick in the middle,
Thin at the end.
(A turnip)

No. 794 Between beds
It lies smooth.
(A cucumber)

No. 101 It is little,
A bit pot-bellied
And guards the whole house.
(A lock)

No. 1002 One is walking,
Dragging four behind him,
But the fifth is just sitting
And watching with his both eyes.
(A horse, a cart and a man)

No. 959 All over hairy,
With four pads,
Itself being whiskered.
(A cat)

It is clear that all of these riddles are constructed according to one and the same pattern, that is they are variants of a logico-structural invariant. The object of the riddle is chosen first, then it is provided with a description which is not a full one. The omission of some significant elements of description creates an enigmatic or mysterious situation. After this a certain comparison follows, a comparison between the possible answer (in the last riddle it is a "cat")

and some object (in our case an animal is clearly implied) on the basis of a given amount of descriptive elements.

The correlation between the answer and the object to be compared is shown in the following generalized scheme:

Answer: object P ("a cat")	Object to be compared: Q ("some animal")
has the elements:	has the elements:
x_1 - covered with hair	y_1 - "hairy"
x_2 - has four pads	y_2 - "four pads"
x_3 - has whiskers	y_3 - "whiskered"

In their logical relation these objects can be presented in the form of categories P and Q with the correspoinding elements x and y. The correlation of these two objects can be illustrated by the relation of the given categories to their corresponding elements:

$$\frac{P}{Q} = \frac{x_1}{y_1} = \frac{x_2}{y_2} = \frac{x_3}{y_3} = 1$$

This expression is a logical extension of E. Köngäs-Maranda's metaphorical formula represented by the equation A/B = C/D (see her article "The Logics of Riddles" (*Logika zagadok*) in: "Paremiological Collection" (*Paremiologičeskij sbornik*), Moscow, 1978. pp. 253-255).

II. In this group we include the following riddles:

No. 1307 A woman is standing on the
threshing-floor
Her mouth full of tobacco.
(A flour sack)

No. 1576 An old man sits on the water
Shaking his beard.
(Reed)

No. 344 I was in a pit,
I was hit,
I was at a fire,
I was at a bazaar,
Was young -
Fed people,
Became old -
Became swaddled,
Died -
My worthless hones
Were thrown in a pit,
Even the dogs do not gnaw them.
(An earthenware pot)

No. 1834 Two little eggs in moss,
Plus a carrot up above.
(A nose and eyes)

No. 256 Two bellies,
Four hamlets.
(A pillow)

No. 433 New vessel,
Full of holes.
(A basket)

No. 812 A young girl sitting in a dungeon,
With her plait out on the street.
(A carrot)

The logical relation can be shown as follows (see the last riddle):

Answer: object P ("carrot")	Object to be compared: Q ("young girl")
x_1 - grows (in the field)	y_1 - sits
x_2 - its root is in the earth	y_2 - in a hut ("in a dungeon")
x_3 - has tops	y_3 - has a plait
x_4 - tops are above the earth	y_4 - plait is not in the hut ("on the street")

Comparison of these two objects can be expressed by the relation of categories P and Q and their corresponding elements:

$$\frac{P}{Q} = \frac{x_1}{y_1} = \frac{x_2}{y_2} = \frac{x_3}{y_3} = \frac{x_4}{y_4} \neq 1$$

Accordingly riddles in the second group show variants of another logico-structural invariant. The second invariant differs from first one in that it has the relation $\frac{P}{Q} \neq 1$.

The fantastic picture appearing in the riddle is due to the fact that a certain extra category of P is construed,

which contains elements from both categories: y_1; x_2; y_3; x_4.

This group of riddles is the most extensive. It has the most subtypes in relation to the remaining two structural planes (the first plane being the logico-semiotic), viz., the linguistic and the thematical plane or realia plane. (On the three basic planes of paremias see G.L. Permyakov's studies: "From Proverb to Folk-Tale", Moscow, 1970; "On the Structure of Paremiological Fund" in: "Studies in Folklore Typology", Moscow, 1975; "Grammar of Proverbs" in: "Oriental Proverbs", Moscow, 1979.)

III. Now let us turn to another group of riddles:

No. 2143 What is sweeter than honey
And stronger than a lion?
(A sleep)

No. 2485 What is nicer than
One hundred roubles?
(Two hundred)

No. 2148 What flies faster than a bullet?
(Thought)

No. 2461 What is the easiest thing?
(To see someone else's defects)

No. 1939 What is thicker than a forest?
(Stars)

No. 2156 What is more precious than money?
(Health)

In this group of riddles both objects to be compared have the same peculiarity, but in one of them this peculiarity is expressed more intensive (!). There are two categories in the last riddle:

Answer: object P	Object to be compared: Q
("health")	("money")
x! - has a very high value	x - has a value

Comparison of the two objects can be shown in the form of the relation:

$$\frac{P}{Q} = \frac{x!}{x}$$

IV. Here we have examples from the fourth group of riddles:

No. 1643 What is born without a skin?

(A farrow)

No. 1981 What construction was built a long time ago
And does not tumble down
And does not need repairing?

(The World)

No. 932 What never goes blunt in the world?

(A pig's snout)

Answer (object P ("a pig's snout")	Object to be compared: Q ("a certain object")
x_1 - nuzzles (digs) the earth	y_1 - nuzzles (digs) the earth
x_2 - never grows blunt	y_2 - would grow blunt

The correlation between the features of objects P and Q can be formulated in the following way: "If a pig's snout nuzzles the earth, then it never grows blunt." and "If a certain object nuzzles (digs) the earth, it will inevitably grow blunt."

$$\frac{P}{Q} = \frac{x_1 : x_2}{y_1 : y_2}$$

It means that the relation of the interdependent elements x_1 and x_2 of category P to the interdependent elements y_1 and y_2 of category Q corresponds to the relation between these very categories.

Let us examine three more riddles from the fourth group:

No. 518 Borne by water,
It fears water.
(Salt)

No. 88 Two gossips bow to each other,
But together they would not agree.[1]
(Two doors of a passage)

No. 1090 It is thin itself,
But its head weighs a pound.
(A hammer)

Answer: object P ("a hammer")	Object to be compared: Q ("a certain creature or object")
x_1 - has a thin body (the handle)	y_1 - thin body
x_2 - has a heavy head	y_2 - a head is not heavy (does not weigh a pound) since it is usually proportional to the body

The categories to be compared here have the same formula of relation as in the riddle about the pig's snout. The last three riddles differ from the first three only in their syntactic structure. Here we have two linguistic subtypes of one logico-structural type (invariant), and we can easily transform any riddle from one subtype into the other simply by changing its syntactic form:

It is born, But without a skin.	*and*	What is born Without a skin?
It is thin itself, But its head weighs a pound.	*and*	What has a thin body and a head that weighs a pound?

V. Let us consider another group of riddles:

No. 2275 A man (*chelovek*) has one of it,
A crow (*voron*) has two,
A worm (*chervjak*) and a pig (*svin'ja*)
Has none.
(The letter *o*)

No. 2274 People (*ljudi*) are standing
In the middle of the river Volga.
(The letter *l*, that is referred to
by its old school name "ljudi")

No. 2273 What stands by the side of the earth
(*zemli*)?
(The letter *i* which is a genitive
morpheme here, added to the root
of *zemlja*, i.e. *zeml'*)

No. 2269 It is present in the sky (*nebo*),
It is missing from the earth (*zemlja*),
A woman (*baba*) has got two of it,
A girl (*devka*) has got none.
(The letter *b*).

The last riddle allows for the following transformations:

A	B	C	D	
sky (nebo)	earth (zemlja)	woman (baba)	girl (devka)	- categories
x	$\overline{x}$	2x	$\overline{\overline{x}}$	- underlined element
present	missing	two	none	
A·	B·	C·	D·	
"nebo"	"zemlja"	"baba"	"devka"	- substitution of categories: things replaced by words
x·	$\overline{x}$·	2x·	$\overline{\overline{x}}$·	- corresponding substitution of elements of categories

The correlation between the categories and their elements is shown below:

$$\frac{A}{A\cdot} = \frac{B}{B\cdot} = \frac{C}{C\cdot} = \frac{D}{D\cdot} = \frac{x}{x\cdot} = \frac{\overline{x}}{\overline{x}\cdot} = \frac{2x}{2x\cdot} = \frac{\overline{\overline{x}}}{\overline{\overline{x}}\cdot}$$

VI. Here is another group of riddles:

No. 2412 Why does the goose swin?

(*Otchego* 'why' can mean 'from where', so the answer *From the bank* is appropriate)

(From the bank)

No. 2363 Two little puppies,
But they have eaten out the whole floor.
('have eaten out' = *iz''jeli*, whereas *iz jeli* means 'made of fir')
(The whole floor is made of fir)

No. 2406 What is it that one cannot
Throw over a gate?
(In Russian *s Aljonoj* means 'with Alyona' while *soljonyj*, pronounced in very much the same way means 'pickled'!)
(A cucumber with Alyona)

No. 2338 Where is water precious?
('precious' = *doroga*, pronounced equally with *da roga* = 'and the norns'. Thus the answer below is appropriate.)
(The horns are where the cow is drinking)

Answer: object P ("place where the cow is drinking")	Object to be compared: Q ("any other place")
x - water $\frac{\text{precious}}{\text{and the horns}}$	y - water that is not precious or water, but with no horns

With the help of element x the transformation x' - water and the horns - can be performed

We can observe the following correlation between categories P and Q:

$$\frac{P}{Q} = \frac{x'}{y}$$

VII. Now we shall try to analyse riddles that belong to group VII:

No. 2482 Ny father's son, but not my brother.
(I myself)

No. 2319 There go godfather and godmother
Carrying a baby that is not a son
Of the father and the mother.
(A daughter)

No. 2479 I was walking on the road and
I saw a baby that said: "I have
A father and a mother but I am
Not their son".
(A daughter)

The logical structure of the last riddle in this group contains the following categories:

Answer: object P ("children") — Object to be compared: Q ("parents")

x - son — y - father and/or mother

But in terms of the given riddle element x undergoes a transformation:

$\bar{x}$ - not son, i.e. daughter

Hence the formula of logical invariant in the last group of riddles is as follows:

$$\frac{P}{Q} = \frac{\bar{x}}{y}$$

In the given group it is essential to take into consideration the differences in sex with regard to the objects. Here it appears to be inevitable to introduce the notion of "the sphere of permissible meanings" (SPM) because if x is *son*, then $\bar{x}$ (*not son*) can have the only possible meaning *daughter*. Due regard for SPM is decisive from the point of view of answering riddles of this type. As far as *brother* (or *sister*) is concerned, $\bar{x}$ can have two meanings: *sister* (*brother*) or *himself* (*herself*).

We have investigated seven groups or seven logico-structural types of riddles. These groups include many riddles from Sadovnikov's collection. We argue that analysis of other Russian riddles in the light of the methodology suggested here (that is, singling out categories and elements and from them deriving logical expressions) helps to set up new logico-structural types. The other two planes of riddles, namely the linguistic and the thematical or realia plane, could serve as a base for the unification of riddles in relevant subtypes within a logico-structural invariant.

(Translated by Károly Fábricz)

Notes

1 The word "*skhodjatsja*" in Russian means both 'agree' and 'meet'. (The translator)

A GAME-THEORETICAL ANALYSIS OF RIDDLES

LÁSZLÓ TARNAY

A. József University Szeged

1. Introductory Remarks: Games and Literature

There is hardly another field of what is termed literature in which the main features of games could be more conspicuous than in riddles; most native and foreign observers of the riddles of primitive peoples have given accounts of the hour-long sessions, when the community splits into two groups, one a riddle-poser the other a riddle-solver, and an almost infinite sequence of utterance pairs would follow. These empirical facts quite naturally convey the idea of there being two players to make their moves in a game. What at first sight seems problematic is how the possible outcome of such an infinite process can be defined. But concerning the relationship of two utterance pairs almost nothing is known - the sequence of pairs can at any point be interrupted or taken up again -, if we restrict the use of 'game' to a single pair, the outcome of such a game should be clear: the title of winner or loser is assigned either to the riddle-poser or to the riddle-solver

if the riddle is left unsolved or is correctly answered respectively. From this it is already clear that the basic problem is whether one and the same type of game is being played all through a given sequence.

If the identification of the elements of a game with the elements of a riddle can be allowed, then some very natural theoretical assumptions follow;

(C1) Riddles are a kind of face-to-face game, in which physical contact is required to hold the two players together.

(C2) What counts as a move in such a game is an utterance.

(C3) The outcome of a game is intentional in that it is the intention of the player making the first move to determine what can count as a correct move in response.

From (C1) - (C3) it follows that

(C4) Riddles have the form of a dialogue.

from (C1) - (C4):

(C5) The possible roles of Speaker and Hearer are assigned to the two players respectively.

Finally, from (C1) - (C5) we conclude that

(C6) Riddles are a special kind of language game.

We dub (C2) as the Semantic Condition and (C3) as the Pragmatic Condition of Riddles (SCR, PCR), and call (C1) - (C6) the Language Game Criteria of Riddles (LGCR). Now, what further conclusions result if we consider riddles as a subdomain of literature? Accepting Abrahams' conception of folklore genres,[1] three important claims need stating; from (C1) it is clear that

(C7) Riddles belong to what are called conversational genres.

Sc we dub (C1) as the Conversational Condition of Riddles (CCR). Moreover, from (C1) - (C7) we have:

(C8) Riddles as a genre always contain the Hearer, without the possible moves of which they cannot be considered as such, neither can they be transmitted or even written down by any other means, either.

This would mean that riddles are a special sub-domain of literature in that the Hearer (or the Reader, respectively) is not only encoded in them but is an integral part of their semantic structure. It adds up to the claim that was first stated by Lord and Parry in connection with epic poetry about performances happening once for all. This with (C8) amounts to saying:

(C9) Riddles are highly performative in that the Hearer and the Addressee coincide in them.

This we dub as the Performative Condition of Riddles (PFCR). What it says is that "the performance is a moment of creation" not only "for the singer" but for the audience, too. But if a move in a riddle game is basically characterized by (CCR) and (PFCR), there seems to open an abysmal gap between riddles and any other literary form; this is because riddles cannot be assigned a whole semantical unit unless they are embedded in a game, in which the audience will react with a move to each move of the Speaker; whereas in case of other genres the Hearer or the Addressee is just one of the many pragmatic factors to be possibly considered as what can give a communicative aspect to either a text or a virtually pre-existing set of formulae. Genre is then pragmatic and must be construed while taking stock of anything that could be pragmatically relevant in the case of a literary utterance. Even if we accept this principle as correct, and let alone genre as such, we would like to inquire into the justification as to what can be taken stock of; whether it is right to consider the role of the Hearer as merely pragmatic and to construe the semantic model of the text with the assumption of an ideal Reader. We term 'the Pragmatic Fallacy' of literature as an affirmative answer to the above question. Here, in the forthcoming pages we would like to argue that, given the introduction of game-theoretical elements into one of the sub-domains of literature, a tentative theory to provide a general explanation of what we call literature will bear out the involvement of concrete Hearers in the construction of any possible semantic model of a literary text; i.e. the gap

between riddles and other sub-domains of literature must needs be bridged. To prove this we aim at finding what can properly serve as formulae in case of riddles. Our use of 'formula' does not deviate from that of Lord, i.e. from "a regular unit of speech" but it deepens it in a very important sense: it shows how reference is involved in it and how the mapping of correct individuals relies on what the Hearer has chosen as his strategy.

Before developing our idea about riddles we should make clear what justifies the introduction of game-theoretical elements into the analysis of a literary genre. We have already mentioned some empirical observations that could strongly support such an approach. They tell us that orally riddles come into being as a result of certain games, i.e. they are played. This means that (C1) - (C3) are empirically justified. But there a theoretical justification can be found for them, too. The argument, from which this justification can be drawn, can be termed as the Variability of Surface Forms. To heavily empirically biased scientists (VSF) may sound too general. But we think that a careful reading of Eigen-Winkler's famous book about games played with/in Nature[2] would make such an argument reasonable. The introduction of game-theoretical strategies into scientific explanations raises two problems; one is whether there should be always something substantially manifested in Nature as a player at the same time that there is something to correspond to each move in the game? The strategies then would go back to what are somewhat imperfectly dubbed as 'players'. This

imperfection is the uncertainty in determining why a given strategy has been chosen. And behind this question lies another question regarding the formulation of a possible causal chain: $what_1$ makes $what_2$ do $what_3$? Now, in game-theory we substitute moves into $what_3$ and players into $what_2$. $What_1$ is defined as the higher or lower degree of the reasonableness of choosing a strategy; this amounts to a probability factor. But what can justify my saying that moves are determined by the reasonable acknowledgement of a probability factor? Only that there is a more-or-less reasonable player. But how can this player be empirically detected? Only through and by the moves he makes; nothing else can I know of him but by what he does. To eliminate $what_2$ as a player we would have to totally conditionalize it, i.e. we would have to know all the conditions that have a role in the coming into being of $what_3$; then we could reduce "$what_1$ makes $what_2$ do $what_3$" into "$what_1$ makes $what_3$", which is identical with "$what_1$ causes $what_3$". For instance, in case of a Life-and-Death game I could claim to know all the $c_1, c_2, \ldots, c_n$ conditions required for eliminating the probability factor of an e_i event that has corresponded to a move in the original game, and consider their sum total $C\{c_1, c_2, \ldots, c_n\}$ as a cause of e_i. Then the idea of player may seem redundant: I could speak of some organic process in cells as causing e_i instead of speaking of Life as choosing a certain strategy. Although there are serious troubles about knowing C, i.e. whether C is enough to cause e_i, it will always allow a new question to a rise: while it reduces "$what_1$ makes $what_2$ do $what_3$" into "$what_1$ makes $what_3$" it asks for the extension of the latter into

"$what_4$ makes $what_1$ do $what_3$"; e.g. why are some chemical substances such that they cause e_i? And then there seems to be no way out of this infinite regress as the same extension can be applied to any $what_i$ element of a causal chain. The only reasonable solution appears to be to revert to some game--theoretical device considering all newly made extensions as infinite conditionalizing and making each chain correspond to an information processing. Our games then will be information--dependant; conditionalizing is made with respect to two possible moves of the players. The other point, which the introduction of game-theory seems to emphasize, is what we called (VSF). While the argument of causal chains may at least theoretically satisfy us, when applied to (VSF) it appears very unpromising; for as long as we deal with events we have to decide between two alternatives: it either comes down or not: if it does, we may more-or-less be happy with our definition of C and need not bother with a possible negative answer: but when we deal with structures we have almost infinite alternatives, and what we would like to do is decide why certain alternatives are preferred and others neglected. To apply the causal chain argument here would be an irremediable failure since it would never be able to account for the problem of mutated variants. For, to solve it we should also examine all possible variants, some of which need not be instantiated, or if so, we should not have come across any of them; and there can be no causal chain for possible structures which have never been observed to hold. The way-out again appears to be game-theoretical: to

decide whether a mutation is preferable is strategy-dependant. Preference naturally relied on some pre-conditions C', but no possible extension of it can amount to explaning why a certain preference relation prevails. The most a heavily empirically biased scientist could say is that they are "out there".

From the two arguments above it is clear that game-theory blurs the distinction between a "de dicto" and a "de re" reading; for, appealing to the causal chain argument we arrive at a process of infinite conditionalizing of probabilities, and in this case a recurrance to strategies covers a lack of "de dicto" knowledge; whereas appealing to (VSF) we arrive at a preference selection of certain mutations and the probability of their survival, which is not information-dependent, and then recurrence to strategies would explain away a "de re" selection of forms. The ambiguity, or on the contrary, the disambiguation of ambiguities, is a characteristic feature of game-theory. From both arguments it follows that game-theory is adopted as a means to examine relations differently manifested and not concrete individuals, although it is always a concrete case that the theory can be applied to. And this seems to be the major advantage of game-theory; i.e. being thoroughly general it gains body from each new collection of data. The supposition of there being players making moves does not then require any substantial formulation, but it is the price we have to pay for the failure of founding all our theoretical knowledge on the principle of induction. And we consider it is a very

small price to pay.

Now, how does this bear on the assumptions we have to make when we introduce game-theory into the field of humanities, the subject matter of which is basically characterized by the use of language? It is an ironical assertion that game-theory has been neglected in a field where a metaphysical reading of players would be once and for all excluded, while it has been being developed over since its first formulation in such fiedls as biology, mathemetics and abstract languages where the concept of player can never be defined in a philosophically satisfying way. The identification of the Speaker and the Hearer with the two players, then, is almost trivial. Where the trouble seems to lurk is in the value-assignment of possible moves or in the testing of the reasonableness of a given strategy. And even if we succeeded in this, it would always remain a hopeless effort to account for the players as being governed by a reasonable choice from their possible moves. What (PCR) tells us is just that speaking is intentional in that possible outcomes of games always rely on the expectations of the players. Although by stating some such expectations as pre--conditions of games we could achieve a pragmatic disambiguation, our semantic model is left inevitably ambiguous. For any method to restrict ambiguities would lead either to too narrow models (we simply exclude problematic data as irrelevant or erroneous) or to the introduction of some philosophically dubious entities (like possible worlds) in an infinite number. So, while we could

successfully substitute into the second two elements of a "$what_1$ - $what_2$ - $what_3$" chain, the interpretation of $what_1$ remains inadequate in a sense that no causal relationship should be assumed to hold between "$what_1$" and "$what_2$", whereas in the natural sciences we can have a good probability factor. This means that even if any of the players tends to be reasonable taking into consideration the probability of a given move, it may not guarantee the successfulness of his move for the intention of his opponent my still aim at something quite different: he may put in: "My move was not what you made it out!"; whereas in other games from chese to economics we have in a sense a direct understanding of what a previous move can be. But as language games are basically governed by something like our (PCR) and as we have no means to detect what takes place in the human mind, what intention a player has just conceived when making his move, although the move of his opponent is going to be a reaction to what he deems his intention to be, games played with linguistic utterances are two times open to failures; (i) moves contain not just utterances but the interpretations of them, (ii) even an unambiguously counted interpretation cannot be put into a causal relationship with a given intention of the player. The first problem has arisen from the non-unique predictability of a reasonable move, and brings home the idea what a semantic game can be about: the uncertainty of a value--assignment of a move; while the second problem calls for a means of pragmatic disambiguation of the semantic uncertainty.

But how can we assign values to moves at all? Even if we might not know why or which value-assignment, i.e. interpretation, is being intended by a given move, we can try to evaluate it. Here we encounter something similar to what we can know about a player: only his action; to decide what the value-assignment of an utterance can be an action of seeking and finding is required with respect to a given individual who is thought to belong to one or more predicate-assignment contained by the utterance. It is always on the basis of certain predicate--assignment that an individual can be found out there in reality. But what if this individual is not found or it does not exist? Did we make a move by choosing a predicate-assignment all the same? Of course we did; we must have done, or else we should dispense with the idea of playing. But when can we make sure of the non-existence of an individual? Possibly never; for, we cannot limit our search to a certain domain unless it is an empirical one containing a deictic term as "this world", "this house", etc.; or else it being linguistic like "the A which are B", we can get lost again in an infinite procedure of finding at least one representative of class B which is also A. But we are going to argue that it need not be a counter-argument against game-theory as a language game for, as there is no causal relationship involved in such a game, we can very easily say that in case of an infinite seeking and finding games get blocked and play is interrupted. But if so, we must have some means of constructing what a possible course of a game may be regardless of whether it can be concluded with a successful

search or not. To accomplish this we need (VSF); linguistic structures and their mutations in speech, together with the wide range of their possible interpretations, closely parallel the variability of forms in nature; in both cases we have to consider possible variants. We should be able to describe this semantic openness and how conflicting or correct selections from them are being realized. What we cannot do is predict without uncertainty whether a given selection will be realized as far as the players are concerned. But we do not see how else we could map the infinite variability of forms into concrete realisations other than game-theoretically.

The most extensive treatment of a field basically characterized by the use of language along the lines of game-theory has been accomplished by J. Hintikka and his followers.[3] So it may seem natural that in trying to apply game-theory to such an over--discussed problem as a literary genre we should go back to their major achievements in the field. There must be a very natural sense in which the strategies in ordinary communicative situations bear on the possible strategies of the riddle-poser and the riddle-solver respectively. This would not mean that there is nothing else in the latter that cannot be traced in the former. But the divergencies that can crop up would belong to what we called the pragmatic pre-conditions of games or to what can enter into the definition of a literary genre. But there should be a common semantic structure - let us term it 'Semantic Strategic Possibility' (SSP), which would run on parallel lines with our argument of (VSF). We call this possibility semantic because it involves reference. It should

add to the fact why Hintikka's game-theoretical semantics turns on games for quantifiers in a language. The interpretations of certain terms are then defined by the application of some of the strategies of any of the two players as different substitutions of individuals. The disambiguation of different readings can easily be understood as a constraint on individual selection; at the same time one and only one individual is to be chosen, for to understand a predicate-assignment both empirically and psychologically can only be possible if one single individual is being considered at a time. We will not understand "All men are clever" or "The murderer must be insane" unless we take concrete individuals from the class of men and examine them one by one whether he is clever or not, or we take an individual of whom it is true that he is the murderer and examine whether he is also insane. It is important to emphasize that this is how we can understand these sentences, but we need not pursue the quest till we can find such an individual. For the quest can atany time be interrupted and the play abandoned. Then we are left with a sentence in some way connected with the vague idea of an individual, of whom we can have no direct perceptual knowledge. But we still have to understand the sentence, and our behaviour in understanding it is characterized by (SSP). So, we no longer need the distinction between definite and indefinite, notional and referential, 'de dicto' and 'de re' readings just because they are external to language. Of course, we can always add phrases like "Whatever he be", "I do not think there exists such a person", etc. but they would not tell us

anything about the meaning of the original sentence; they rather inform us about the Speaker's attitude or his intention in communicating the sentence. (Cf. the Speaker's intention in ordinary communication to specify referentially even if he has only some means of notional specification vs what we have called 'secret' as being a deviation from it, when he intends the Hearer not to specify referentially although he (the Hearer) has a conflicting intention to do so even if he (the Hearer) has only some means of notional specification.)

From the above passage it results that in some way we cannot neglect the problem of reference in cases of what should be called literature, although reference in fiction has turned out to be an almost insurmountable problem. But what the argument of (SSP) along (VSF) has taught us lies in that just as a mutated variant can never be causally linked to any of the players (although it is "out there") no player can be made responsible for causally blocking the reference of expressions used in fictional discourse. Of course, he may intend to do so, or intend this intention to be recognized by his opponent in the game, but the posibility of a different move is already contained by (SSP). (SSP) is then a basic criterion of literature for it embraces (VSF) for the interpretations of utterances, without which no game for literature can have a beginning; otherwise it turns out to be like ordinary communication, in which unambiguous results, the lowest possible degree of variability, are expected.

To sum up our basic claims we can say the following: if we wish to apply game-theory in literature basically characterized by the use of some language, and if a game-theoretical model of semantics involves different intepretations of sentences, literature must be viewed as a possible extansion of divergent interpretations. This amounts to stating our (SSP), which should, in a very natural way, explain away every possible mutated variant that can crop up in a game. Moreover, if literature is considered from a game-theoretical point of view, then the answer to what can count as a formula in a given genre is forthcoming: each game can be defined by constructing a matrix or a fragment of a matrix which will contain what the players believe, i.e. the interpretations that are available for them. Such a matrix is a regular unit of speech in that it generates possible variants that belong to a given genre.

2. The Variability of the Surface Forms of Riddles and their Possible Logics

In the works of different ethnologists riddles have turned out to be such a complex phenomenon that even the categorizations of the variants appear divergent or conflicting; besides the term 'riddle', occasionally 'enigma', 'pun', and 'puzzle' are equally used to cover a range of utterances in which something is to be found out. In some cases 'enigma' is defined so that it should comprise data figuring in folk narrative' e.g. Flahault[4] seems to appeal to this kind of use, but later in

his paper he uses the French 'devinette' almost interchangeably with 'enigme'. We feel that a distinction between riddles and enigmas as being narrative in character should be adequately grounded. Enigmas would then make up a different genre comprising stories that are ciphered in a certain way. But this is not all; for there are some Hungarian legends or folktales, which contain special utterances ordering particular actions to be carried out, but to do so they first need to be deciphered. We may dub them as 'enigmatic orders'. Somewhat similar to them are some childish sayings giving the order to draw what one can make out of them so that they might be deciphered. What all these examples have in common is that one needs to decipher them is a certain way to comprehend what they say. Something must be found out. This naturally relates to the problem of codes: we somehow do not seem to understand them at first sight. So, there is a unique character underlying each of these utterances, i.e. the way they can be comprehended. If to be understood they need to be decphered, the modes of deciphering them should reveal the modes of understanding that play an important part in their comprehension. And these modes should reflect the possible logics that can be applied to them. By giving a logical form to riddles, then, we should aim at developing a procedure governing our minds in comprehending them. And this procedure should give us the deciphering clues. This procedure is what a strategy in a game can prescribe. The procedure of finding a solution is a particular content of an

algorithm by which it can be computed. When we choose such an algorithm to cipher a given utterance, we make a move in a language game. This language game differs in a very important sense from games for quantifiers: we do not select an individual at once and go over to see whether he instantiates a certain property, but we select a clue called algorithm, and as it is a language game, this clue has to be identified linguistically, i.e. it has to be an expression, be it a predicate or a term, for we have to be able to communicate it or make it manifest as a move, and what else can be communicated other than what can be part of an utterance? Seen from this point every utterance that would require the use of an algorithm will belong to a field characterized by the question of something to be found out. But the 'thing' itself should not enter into the definition of the algorithm; i.e. we have now a logical procedure in which all the former analyses of riddles can be reintegrated. These analyses are determined by the underlying question: What is there to be deciphered in a given utterance? Then a question for the clue is a question for the type of data it can be applied to. From this it follows that there should be as many logical forms of riddles as there are ways for the above question to be answered. According to Barabanova[5] there are not more than forty. From an entirely different point of view, Faik-Nzuji[6] enlists three different structures of riddles while specifying some sub-classes for each. E. Köngäs-Maranda[7], on the other hand, deals with one single structural type which is included in Barabanova's list. We give some of the criteria they can have used in setting up their categories in order to show

how our game-theoretical approach can reintegrate them.

(i) Now many objects are described?

(ii) What kind of a relationship is there between the predicates and the object introduced first?

(iii) What kind of a relationship is there between the predicates and the object introduced second?

(iv) What kind of a relationship is there between the two objects?

(v) How much of this relationship is taken up by the predicates?

(vi) What kind of a relationship is there between the predicate themselves?

(vii) What kind of a relationship is there between the predicates given for the object introduced first and the predicates - that may not have been communicated - of the objects introduced second?

(viii) How does the relationship mentioned in (vi) relate to the object and/or its predicates introduced second?

(ix) Do meta-linguistic considerations play any part in the riddle?

(x) Does the riddle hint at a mathematical computation?

(xi) Does the riddle contain a question-word?

It is clear that any sort of combinations of these criteria would lead to different types of logical form. Naturally, the greatest problem is that other similar criteria can be added to the above (i) - (xi); e.g. we can define

(xii) Is an action other than speaking part and parcel of what a riddle says?

(xiii) Should an action other than speaking precede linguistic comprehension?

(xiv) Is there a narrative involved in what should be deciphered?

It is not that we do not admit any grounds for these criteria; they very well reflect some of the basic linguistic and extra-linguistic structures riddles can have, but it would be a mistake to identify a linguistic structure with logical form as such. If the underlying character of riddles proves to be algorithmic, then what we have to do is show in some straightforward sense how an algorithm is used in computing a solution to a riddle. Our approach then will be a further contribution to what Hintikka called the need for a fresh symbolism. He hinted at the possibility of this but never developed it. To achieve this aim we think it promising to resort to mathematical game-theory. Of course, we have no room here to work out everything in detail, so instead we rather present the mainlines of a transcriptional procedure in connection with a sub-domain of literature with the assumption that it can easily be generalized. This relates to the place of reference in literature or in fiction. Reference in case of riddles has always been an underlying problem; considering some of the criteria we have defined we note that objects enter into the picture that riddles describe. This would call for them to have a naming character, as to what can be named a straightforward answer is a

class. This idea gathers force when a second term is introduced to name another class and the riddles are taken to be answered if an utterance of this term follows. This is the way in which E. Köngäs-Maranda's analysis is developed; it puts forward the view that riddles unfold the possible connections of the two classes named respectively in the two parts of their utterance. Formulated in this way however it would lead to a meta-linguistically-biased theory of riddles asserting similarities and identities of classes. We have already given a critical account of such an approach and have pointed out the absurdities that might follow.[8] We do not want to reproduce our argument here; suffice to say that riddles can neither be wholly extensional nor express intensional or meta-linguistic identity; Riddles do not assert an identity between mere extensions of classes for it cannot be permitted that one and the same object is referred to by any of its terms, i.e. the two general terms introduced in the first and in the second part respectively are just intensional variants of one and the same referent; and riddles cannot be mere analytical truths, i.e. intensionally identical terms used for extensionally different classes, something that happens when a child is learning a language, for it is unacceptable that, given a riddle about e.g. trees and men, which, say, defines a man as a kind of evergreen, anyone from among the community where such a riddle appears, should perceptually take a tree for a man. This will be further emphasized when we speak about the didactic role of riddles among the primitive.

It does not mean however that the role of naming does not have any part in riddle sessions.

Objects do figure in riddle sessions in a sense, i.e. as prototypes of classes. But they are recalled by means of explicating some of their properties. Naturally these properties do not remain the same; others can serve to convey reference to either the same or to a different class. These properties are used only to fix reference to one or another reference class. They do not have the role of proper names, nor that of general terms, for they cover a wide range of possible uses. This is exactly how stereotypes are used. To choose the right use of a stereotype in a given context would amount to computing the right algorithm of a possible strategical move in the correlated language-game of the utterance the stereotype occurs in. What we can say already at this point of the analysis is that riddles are somehow the prototypes of such computational processes. But it cannot be wholly segregated to a field of some literary genre, for it can become indispensable at any point of an ordinary communication, if the Hearer wants to have a thorough understanding of what has been said by the Speaker. For instance, saying that "The Daily News did not come to the press conference"[9] the Speaker intends the Hearer to recur to some algorithm about publication of newspapers in order to select the correct use of "Daily News" as a stereotype. But what would this mean? Do we refer all the time to such an algorithmic function when uttering a sentence? Are there hidden riddles in everyday speach? We could save something from the original idea on the difference

between ordinary and literary communication by saying that riddles should contain composite functions; but a quick survey of data soon refutes such a claim. The only thing we can do is give some criteria of linguistic identification of riddles as stereotypes necessitating certain computational procedures to get the correct referent. It would first of all call for some syntactical rules to be correlated with our forthcoming game--theoretical model. But what syntax can be defined along the lines of strategical matrixes? This syntactical problem has been already dealt with by Hintikka; he affirmed that in laying down the syntactical rules for a game-theoretical semantic model one will always include some elements which are in reality the formulations of some semantic conditions.[10] Moreover, syntactical transformation will be never meaning--preserving. Bearing this in mind we would like to extend Hintikka's insight over one important field: stereotypal reference. We would like to argue that this is the only type of reference that can be relied on in speaking, although there are different modes of carrying it out; refering to what Wittgeinstein called the entanglement of language with action we should emphasize that game-theoretical semantics has been conceived just in order to reveal this fact, namely that the mode of realizing a strategical move can be either an utterance or an act; reference, then, should be viewed as the possibility of correlating such an act with a linguistic mode of carrying out a move, i.e. an utterance. And it should be added again that there is no causal relationship between the two different modes of manifesting a strategical move: it is just the possi-

bility of correlation that is required for the Hearer to understand the Speaker's utterance; namely, the Hearer should at any time be ready to look for such a correlation. The act of refering need not then be deictic, but rather any act whatsoever which carries out a certain order conveyed by the utterance. However, reference itself is not needed for the construction of the possible strategies as a matrix. It is just the special content of what we called (PCR), i.e. its possibility is incumbent on what the Speaker intends in a particular game. And this is what substitutes preference in language games. This is natural, for preference in case of human beings as players can be nothing else but intentional. An intention, which corresponds to preference relations between surface forms, and which is defined by (PCR), is an intention to correlate two model of carrying out a move in a game. From this argument results the possibility we have already hinted at that the two modes of carrying out a move in a game are, in reality, parts of two entirely different games. We will develop this idea further on when we have accomplished the construction of our game-theoretical model.

To sum up: stereotypal reference is intentional in that it is involved in computing a certain algorithm for a correct move in a game; it is linguistic in that it is carried out by uttering a stereotype with the possibility of correlating an act with it. The semantics of an utterance containing several similar stereotypes can be given with a matrix of a language

similar stereotypes can be given with a matrix of a language game. So far as the linguistic formulation of such an utterance is concerned, it depends on the identification of a stereotype by a move. This is done by applying an algorithm to it. But a stereotype need not be uttered in order to necessitate the use of an algorithm. For instance, if I go to see the pictures in an art exhibition with a friend of mine, and looking at one of them I exclaim: "I like him", my utterance will carry different meanings according to how the stereotype "picture" is intended to be used without being uttered: whether (i) I mean to refer to the painter, or (ii) to the possessor; in the first case I should make use of a function like "x painted y", whereas in the second something like "x is possessed by y". But at the same time I can use the stereotype "picture" in a sentence with the intention of necessitating a function for understanding it correctly; e.g. saying "The picture you liked best won the two--thousand dollar prize in the end" I may convey reference not to the picture itself but rather to its painter in the sense that it must have been him - and not the picture - who got the prize. What makes this sentence more interesting is that to understand it one has not only to compute a function for the painter but to consider the very same stereotype once again as calling for a normal interpretation with respect to the clause "you liked"; in this latter case we simply use the identity function. What we have to underline is that not only the functions, which are used as algorithms to compute the correct

referents, may not be uttered, but even the stereotypes themselves may not enter into the sentences to be uttered. This again raises the problem of identifying a stereotype. Although it may prove to be an insurmountable problem, we will never be able to make do with stereotypes and the functions they necessitate, for otherwise we cannot single out the correct referent in some ordinary examples like the one above; for, consider the same sentence "I like him" and suppose there are other visitors in the gallery, and one of them, a man, is even standing near the picture I happen to be looking at when uttering the sentence. How then could the correct referent be singled out as the painter of the picture against the spatio-temporally given without recurring to the stereotype "picture"? In the next part we investigate the problem of identifying riddles as stereotypes, how they can be singled out by some syntactic rules, and how these syntactic rules can correspond to the semantic moves of the players.

3. Some Games for Riddles

In the foregoing passage we tried to argue that riddles contain some means of conveying references the modes of which can be either linguistic or not. As to what these means can be, we have said that they are certain computational algorithms selected by the use of different stereotypes. The idea of riddles as a means of reference may seem at first sight a bit outlandish; however many scholars observing the role played by riddles in

primitive society do state something similar when they take the criterion (i) about how many objects can figure in a given riddle seriously. How should we understand 'objects' in (i) if not as something being referred to? How can we compare different objects without referring to them? We have seen that it is no way-out to say that riddles are about classes. On the other hand it seems natural that riddles are not references in the same way as for instance a proper name is in ordinary communication. This might result in a futile effort to prove in a straightforward sense of the word that riddles "refer" in some detectable way; we have seen that reference is not causally linked to speaking, which means that we cannot use any kind of proof procedure in going from an utterance to the objects referred to by it. But we can have empirical evidence for the role reference of riddles; we expect to find thus in the didactic role they play in the life of the members taking part in the sessions. Among many observers it is Permyakov[11] who discusses at some length the didactic role of riddles. In general it can be re-assumed in that they serve as means of storing up and transmitting the knowledge of the aged toward the new generation. Riddles had to convey adequately-founded information to provide some practical clues to nature for the young. Sessions were not simply for the sake of fun but served a very practical aim: they were a kind of school for the illiterate. Although this fact is not thought to be crucial by Permyakov as far as logical form is concerned, we believe that it has to be formulated as an important pre-condition of riddles; we may say something like

(PC1) The riddle-poser's intention must not aim at something far-fetched or even abnormal in the given folklore but at something available to the riddle-solver.

From (PC1) it follows that

(PC2) The riddle-poser must not aim at winning the game in the sense that the correct solution be never found.

Of course, what counts as 'far-fetched', 'abnormal' or 'available' in a given folklore is to be properly defined. Though (PC1) and (PC2) belong to the field of pragmatics, they heavily bear on how a winning strategy can be given as they govern the Speaker's intention, which according to (PCR) basically characterizes what can count as correct in a game. Considering the following examples we will see that as far as variants taken from the folklore are concerned the more possible ways there are to compute a solution the more indispensable the role of (PC1) and (PC2) gets. This means that the Didactic Argument focusses on the restriction of (SSP) and on reducing the possibilities of winning for the riddle-poser while it ensures a victory for the riddle solver. This would amount to saying that riddle games are unjust forward the riddle-poser. But they have to be if they are to guarantee that all profitable information should pass over to the young. The Didactic Argument then is evidence for the historical relationship between everyday life and a present literary genre. When we pass from literary

utterances closely connected with practical life to more sophisticated forms of the same genre, what needs modifying is the definition of what counts as a winning strategy in the game. The first type of riddles that we are going to examine blocks totally the winning possibilities of the riddle-poser. They belong to what scholars have described as meta-linguistic riddles. Consider the following examples:[12]

(1) Woman has got one,
Rock has got two,
Worm has got one,
While leech none. Letter 'O'

(2) In ball there is,
In earth there is not,
In baby there are two,
In children there is none. 'B'

The logics of these and similar riddles is obvious: one has just to count the letters according to the list of numbers presented in the first part of the riddle to find the solution. Indeed, after the second word in (1) one is ready with the answer as in 'rock' there cannot be any other letter twice, which is also found in 'woman', than 'O'. Redundancy although should not be a common feature, for in (2) it is only after the third word that we can count for sure the correct answer, and it is only a change in the order of the words that is required to exclude redundancy at all. The logics of this kind of riddles is then a procedure of a virtually infinite well-ordering in which to each of the words an integral is assigned; so, we have an infinite set of well-ordered pairs, the first element of which is a lexical item, while the second an integral. If we would

like to generalize this procedure to any possible ordering of words and numbers so that each ordering would map words into those integrals which indicate how many times each word contains an arbitral letter, we can draw the following matrix; let each horizontal line correspond to a series of numbers consisting of as many places as the number of the letters in a given alphabet; let each number in the series correspond to the times a certain letter is contained in the word written at the beginning of the line. As the number of the words that can be formed with the letters of a given alphabet is infinitely countable, the vertical lines will have infinitely many elements. Below we try to represent a small fragment of what such a matrix can be;

FIGURE I

	A	B	C	D	E	..	..	..	..	..	..	..	Z
W_1	a_i	b_j	c_k	d_l	e_m	..	..	..	..	..	..	..	z_n
W_2	a_j	b_k	c_l	d_m	e_n	..	..	..	..	..	..	..	z_o
W_3	a_k	b_l	c_m	d_n	e_o	..	..	..	..	..	..	..	z_p
..	..	..	..	..	..	..	..	..	..	..	..	..	..
W_n	a_n	b_o	c_p	d_q	e_r	..	..	..	..	..	..	..	z_s

In FIGURE I each word is coded uniquely according to how many times it contains a given letter of the alphabet provided that there is no letter which is contained more than nine times in

any of the words. This seems however a very reasonable restriction. Each horizontal line runs through the whole alphabet, and the index of each letter in each line indicates how many times the given letter is contained in the word written at the beginning of the corresponding horizontal line. If we now correlate with each such line a possible strategy of the riddle--poser (call him Player I) and with each vertical line a strategy of the riddle-solver (call him Player II), then it will result that the utterance of a W_i is a move made by the riddle-poser (and the utterances of different $W_i, W_j, \ldots, W_n$ are a joint move of his respectively), whereas the utterance of any of the letters of the alphabet is a move made by the riddle--solver. Then the matrix of (i) appears as the following:

FIGURE II

	A	*C*	*E*	*H*	*K*	*L*	*M*	*N*	*Q*	*R*	*W*
Woman	1	0	0	0	0	0	1	1	1	0	1
Rook	0	0	0	0	1	0	0	0	2	1	0
Worm	0	0	0	0	0	0	1	0	1	1	1
Leech	0	1	2	1	0	1	0	0	0	0	0

By a closer scrutiny it becomes clear that each letter i_j in each line can be assigned a probability value with respect to a W_i and depending on how many letters W_i consists of and on how many times each letter is contained in it. We can easily formulate this condition:

$$(3) \qquad P_k = \frac{\pi = k}{(\alpha k+\beta l+\ldots \iota r)-(\beta l+\gamma m+\ldots+\iota r)} = \frac{k}{\alpha k} = \frac{1}{\alpha}$$

where any $1 \leq \pi \geq 9$ corresponds to how many times a given letter is contained in W_i, which consists of $s = \{\alpha k+\beta l+\ldots+\iota r\}$ different letters, where k, l, m,...r one by one stands for a number indicating how many times each letter is contained in W_i, while the Greek signs one by one stand for a number indicating how many letters are contained in W_i on a par. Usually P_k does not amount to 1, which means that if the riddle-poser wants the solver to be capable of computing a solution for sure, he has to play with a joint strategy with respect to the sum total Σ of each P_{k_i} for each strategical word. Naturally, if $P_k = 1$, then no possible inclusion of $n+i$ strategies into his original one would increase the probability of a possible correct answer; otherwise riddles become redundant. The riddle-poser's intention - if we accept (PC1) and (PC2) - is to maximalize P_k, so he chooses $W_i, W_j, \ldots, W_n$ accordingly. Whereas the riddle-solver's task is to find an algorithm to $W_i, W_j, \ldots, W_n$, which could select a vertical line as his correct strategy such that Σ be as near as possible to 1. In other cases there will be more than one vertical line for him to choose as a possible strategy. To compute Σ amounts to a selection of those letters in each W_i for which each P_{k_i} has been counted; then a new computation of probability is required with respect to them. It is clear that the new probability, i.e. the sum total Σ of all independent probabilities of the words uttered by Player I as his joint strategies will equal 1 only if there is one single letter for

which each P_{k_i} has been counted. Formulating it we have

(3) $$\Sigma = P_{k_i} + P_{k_j} + \ldots + P_{k_n} = \frac{1}{m}$$

where P indicates an independent probability and m stands for the number of the letters which satisfy the above criterion. A final mention must be made concerning words which contain none of the letters satisfying that criterion. We write then a zero--sign in the place of the corresponding letter in the matrix. These words can for all purposes be neglected when one draws up an algorithm, for they add no new information to the previous words of the joint move, which contain such a letter. The riddle game described above has clearly brought home what we first stated about algorithms; they are applied to compute what strategy a player has to choose if he wants to maximalize his probability of finding a correct answer. So an algorithm does not coincide with a strategy; for, to define what should properly count as a strategy we ought to fill an infinite vertical line; the algorithm only selects some value-assignments of such a strategy. This game is naturally information-dependent: to count the probability value of a given series of words and to select an algorithm therewith, requires a knowledge of what moves the first player has made when uttering the words in question; the winning strategy of Player II can be defined as the correct computation of an algorithm, i.e. the selection of that strategy from among the vertical lines expressing a given letter of the alphabet which uniquely contains the value assignments indicated by the move of Player I (in case of (1) this

is (1,2,1,0) which is the code of the letter 'O'); what we have is that each riddle contains only one such strategy, which means that the solution to it can be counted for sure; but theoretically it need not be the case, i.e. the game need not be unjust for Player I; so the winning strategy of Player I should be one that does not allow a unique computation of an algorithm for any of the letters of the alphabet for Player II. But it is easily seen that even in this case Player II might turn to the correct computation, and if so, he might turn a winning strategy of Player I into a losing one for him. This means that the concept of winning strategy can only be defined for Player II along the lines of ordinary game-theory: to select a strategy that secures winning; while Player I can only make ambiguous the selection of such a strategy, in which no strategy of Player II can be considered winning unless by (PCR) Player I is ready to decide which should be taken to be correct. If we turn to other games for riddles we note that it is this latter feature which has to be undelined: the importance of (PCR) increases as there is no easy way of computing the correct algorithm. It is obvious for we no longer have exact value assignment but reference to objects; in (1) and (2) we did not have to consider reference unless we wanted to take numbers or letters as something being referred to. But most of the riddles one encounters deal with objects and their properties. We have argued that reference has to enter into the way we understand sentences; but how can it be conveyed? This question has been so variously answered in the literature that it may seem

tiresome even to list them: from causal chain theory to that of disguised descriptions, from notional to referential specification, from individual concepts to world-lines, from commonly believed bundles of descriptions to kinds of individuals. What our analysis is meant to illuminate is that the two aspects couched in the definitions are two sides of the same coin: the act of referring is then analogous to an act of ordering and re-ordering procedure accomplished by means of language, i.e. it is a linguistic function by which a re-ordering of objects can be achieved. We have seen that this function need not be uttered but is presupposed by the intention of the Speaker. Mutual recognition of it then runs on a Gricean line; but to construe such a function the moves of both players are needed. This is why we have to define whole matrixes to get the right re-ordering of objects, or at least that which the Speaker intends to be correct. These functions enter into the algorithms with which the correct reference is being computed. This brings home the fact that reference is accomplished by using a stereotype necessitating a given function. This is one side of the coin; the other is the possibility of correlating an act with each possible strategy; we can even say - further extending the idea of winning strategy - that a strategy is winning if such a correlation is actually carried out. A winning strategy then splits into two parts: first it selects the right functions to the stereotype uttered and establishes what the correct use of it can be, and second, it expresses an extra-linguistic

act to find out the referents in reality. To explain away this two-faced character and their non-causal relationship, we have introduced the idea of two different games played independently. From now on this idea should be kept in mind. Consider then the following example:

(4) Red mastiff in red courtyard - Tongue.

Let us give a matrix to (4) first. Modify our original in FIGURE I in the following respects; still define the horizontal lines as the possible strategies of Player I, and suppose that the first part of a riddle like (4) contains a selection from among these strategies, i.e. it expresses a joint move of his; the number of these lines then still remains to be infinite; correlate now with each vertical line a function (or a composite) that is needed for the correct re-ordering of objects (4) prescribes for the riddle-solver in order to give the correct solution. Allow that in some cases these functions are the identity itself, and indicate it by choosing a vertical line whose head-word corresponds exactly to that of a given horizontal line which is thought to require the application of the identity function. Now, we should naturally modify the value-assignments of possible moves (the cross-points of each horizontal and vertical line); as letters of the alphabet have given place here to what we can call reference to objects, the values should reflect somehow the possible referents of a given stereotype.

We are here in favour of a so-called Fregein alternative to accept objects as values of functions; we could assign a value according to whether a given move has achieved a successful re-ordering, i.e. it aims at existing objects. Then we can either define this value so that it corresponds to the number of these existing individuals, or consider only two cases: whether there is at least one such existing individual or there is none, and define the first case as a positive value 1, whereas the second as a zero value o. We prefer the latter choice just to escape futile complications; but it is important to note that a value 1 for a move does not decide between an existential or a universal quantification, but rather indicates existing individuals there. Absurd properties can easily be evaluated in this way; a stereotype like 'angel' or 'unicorn' indicates a zero-value if any player happens to choose it for a move; they necessitate an identity function which results in a zero-value. While an expression like 'winged horse' necessitates a function other than the identity but results in a zero-value as well. Of course, there will be possible moves to which no value can be assigned at a certain stage of the play; but this is no surprise if we think of language as means of expressing, transmitting and preserving knowledge about objects: for it is shown by our construction of a matrix that the divulgation of a move is only possible with the help of one or the other head-expression, i.e. it can be a move made either by the Speaker or by the Hearer, or both. If it is the first case, the stereotype has been communicated, if it is the second, it has

been left to be a presupposition of what was uttered, and if it is the third, no re-ordering is required by the Speaker for it necessitates the use of the identity function while in the first case it is some other function that he gives which is intended. From this it is clear that one and the same property can convey reference to distinct classes of objects depending on what strategy Player II selects. A sequence of riddle games or of any other form of communication can be viewed as a gradual filling up of a potentially infinite matrix, i.e. newer and newer combinations of properties are achieved through the help of different functions other than the identity; every new correct move indicates an extension of the set of objects players have already encountered during the play. A play is then a potentially infinite series of games that aims at transmitting as much information about the world as possible. The domain of all existing individuals will not be defined in advance just because it is a domain that can only be described by the actual stage of the play, i.e. how many games have been already played off. The realm of known objects is always extending, its boundaries always questioned with a new assignment. We think it is a very reasonable account of what an epistemological process can be. Of course, the process can have started at a certain time, but why should we have noted it; we can start playing again, and need or need not take into consideration what the previous games resulted in. It may very easily happen that a game played long ago is restarted again for

the players simply do not remember what the original moves were. This equally bears out the fact that the actual seeking and finding of the individuals referred to with the selection of functions are inevitably removed from the moves made in the course of an algorithmic game; so much so that it must count as a new game. The relationship of the two types of games is postponed to a later stage of our analysis.

We can now represent the matrix according to which players play with respect to (4);

FIGURE III

	Red	...	in the mouth	...	in a closed space	Red
Mastiff	0	...	0	...	1	0
Red	1	...	1	...	1	1
In a courtyard	0	...	0	...	1	0
Red	1	...	1	...	1	1
...	...	...	...	...	...	...
Tongue	1	...	1	...	1	1

In FIGURE III we proceeded as it was prescribed; the strategies of Player I are indicated horizontally and those of Player II vertically; we designated the words appearing in the first part of the riddle of (4) as moves of Player I and selected some functions as moves of Player II and indicated them by their natural ranges: so, 'in the mouth' stands for "x is in the mouth of y" or equally for "y has in his mouth x", and 'in a closed space' stands for "x is in the closed space of y", while

'Red' indicates an identity function. Finally we filled in a possible solution (indeed the solution (4) presents) and defined it as what has a positive value for each assignment with respect to the functions indicated vertically. We indicated it in as a possible strategy of Player I just to show that it is his intention that decides whether a solution can be correct and that uttering a corresponding term like this he may have necessitated only the identity. All possible solutions should satisfy this criterion, but it is not necessary that there should be only one such term. For the ominious point in computing an algorithm for (4) with the matrix of FIGURE III is how we name our move as Player II. This we have to do because the selection of an algorithm is heavily influenced by what we deem to be the intention of Player I. In FIGURE II each different veritically running algorithm gives us the very same result, i.e. the same letter can be coded in different games but requires the same algorithm; this goes for our vertical head--expressions here as well; but the algorithms which these expressions determine are no longer the same just because the value-assignments they run through indicate different configurations of objects, which may even overlap, and not simple integrals. With other words we can say that their integrals stand in a sense for 'themselves' or are unanimous, while here integrals or the zero-sign stand for objects. But as we have said we cannot extend our knowledge of these individuals without recurring to a commonly accepted term. We can wholly formulate how to count value-assignments by using algorithms: we consider

one or many assignments already counted in a vertical line and try to find or select an algorithm with the properties belonging to those assignments and/or to another property with still a zero-assignment by using a function defined by a veritical property. A joint move by Player I may necessitate a joint move by Player II, i.e. a selection of a composite function or diverse independent functions; and the more strategies a joint move of Player I goes back to, the easiest it is for Player II to compute a correct algorithm. We then formulate a route to fill in a matrix for (4) in the following manner:

(a) Define class A as the class of mastiffs and as an already computed move from a previous stage of the play, and enter it as a strategy of Player I (naturally A would contain all possible value-assignments along its horizontal line); call A as the Designatum Class;

(b) Define class B as the range of reference so that it contain red things, and enter it both as a strategy of Player I and Player II (note: it necessitates the identity function);

(c) Select a function f from a set of reference functions RF such that "x has in his mouth y";

(d) Define Y as the natural range of f, i.e. things in one's mouth, and enter it as a strategy of Player II;

(e) Allowing that no A is B

(f) Select a class B' such that it be the intersection of B and Y;

(g) Define B' as a possible move of Player II, and term it (if it has not been termed yet) like 'tongue'.

The same computation can be given for each expression of (4). We indicated it on our matrix. If we computed a function for each expression (note: identity functions have to be computed first) we may be able to formulate them in a composite like "x has in his mouth y in a closed space of z". This is then the correct algorithm for (4). It is a composite function extending from a Designation Class A to a reference class Y which are W. Naturally, computing such an algorithm depends on the selection of the range of reference to which an identity function is available; here it amounted to the choice of red things as such; this may seem arbitrary, but it is many times indicated by the fact that a riddle contains incompatible properties; namely that mastiffs and courtyards cannot be red. This is in accord with saying that a game at a certain stage of play presupposes some already counted assignments from previous stages. Mention must be made about the kind of functions that can enter into an algorithm; there are two possibilities: it either extends from a zero-assignment to any other one, or considers an already counted positive value and looks for any other such that it be equally true of the corresponding individuals. The first we call a normal reference function, while the second can be called an Equal Distribution Function as it maps the sub-classes of a class into sub-classes of another. Selecting a correct algorithm then depends on uttering more and more properties to which an identity function can be applied and/or M-intending functions which can make up an

algorithm as a whole. All this seems right except for one point: nothing can guarantee that an identity function has to be computed in each case where it is possible. There are riddles which are based on exactly this feature, i.e. they necessitate a new function to be applied although they can necessitate an identity. But consider a more difficult example, namely

(5) Blind cock jumping crows - Axe.

In constructing a matrix for (5) no function f seems to be available for the term 'hen'. We may choose something like "x is cut down by w" but it would not press our computation further, for a range of reference B_1 defined as things that jump will not select out a significant sub-class of the natural range Y of f like things used for cutting, while the fact whether it can be true of the class of cooks A_1 adds nothing to our computational algorithm. Then we can proceed as follows: start with a range of reference B_1, for example jumping things;

(a) Define a function "x is cut down by w" such that W be a class of men;

(b) Define a function "w uses in cutting y" such that Y intersects with B_1;

(c) Define an Equal Distribution Function g such that it equally maps Y into Z or A_1 into A_2 where g is "y makes a sound of z", A_1 is the class of hens and A_2 a class of things that crow;

(d) Define the new composite function as "w uses in cutting y making a sound of z";

(e) Define a function h as "t directs v" such that it intersects with a range of reference B_2 like the things that are blind;

(f) Allowing that W and T, V and Y have common sub-classes

(g) We arrive at a final composite like "w directs in cutting y making a sound of z" that should have overlapping sub--classes with both ranges of reference B_1 and B_2.

The single moves through which the above algorithm runs along may or may not be given a name in the course of the game; cf. the definition of tongue in FIGURE III. If we do not name each range our functions map out we can have in the end something like "a means used for cutting that is jumping while being directed by somebody". This has to serve for as adequate information to provide the term 'axe'. Representing (5) in a matrix we can have the following figure; this time we indicate only those assignments that are required during the computation of the algorithm;

In FIGURE IV we wrote with capital letters the moves of Player II when he rearranged the matrix by corresponding a natural range of a function with a new range of reference. Our new game then again turns out to be information-dependent, for it is based on the selection of a correct range of reference. This modifies a bit what we have said about a possible winning

FIGURE IV

	jumping	cut down	used for cutting	making a sound	directed	blind
Cock	1	0	0	1		0
Jumping	1		1			
Crows	1			1		
MEANS TO CUT THAT JUMP	1		1	1	0	
Blind	0				1	1
MEANS TO CUT THAT JUMP AND MAKE A SOUND	1		1	1	1	0

strategy of Player I; to minimalize the possibility of Player II winning he should select his joint move either so that it contains very few - probably no - moves that express a zero-assignment, or so that it contains almost only - probably all - moves that express zero-assignments. From FIGURE IV it is clear that (5) belongs rather to the first than to the second case. If it did not contain the expression 'blind', (5) would very much resemble normal communication in that an identity function could be used for each element it contains. Whereas in the other case riddles would be similar to metaphores used in more sophisticated litarary forms. Another important thing that FIGURE IV illuminates is that although value-assignments depend on what common knowledge about previous stages of the play is presupposed and there can be no restriction to what function Player I intends Player II to select - be it the identity or not, the most what we can say about the winning strategy of Player I is that his only choice is to minimalize

his opponent's possibility of winning by carefully selecting his joint move from among his possible strategies expressed by the expressions that can be formulated within a given language. From this it follows that what the pre-conditions of a game do is that they clearly prescribe in what sense Player I can minimalize the possibility of Player II winning. In other words they tell us what his possible intentions could be during a series of games; and moreover, by defining such notions as 'available', 'absurd' etc. we can significantly restrict the chances of Player I cheating: what may be resonably expected in a game must be intended by Player I. Of course this cannot go as far as a "reductio ad absurdum", for then playing will have no sense and the game will be wholly unjust for Player I and very partial to Player II. And this is the point where normal communication may start; although even in the latter there remains a slight impartial feature from which new games might have a start. And this possibility of new games, we urge, is an inherent character of language; it can be suppressed or it can be set free but it can never be totally eliminated.

4. Some Syntactic Considerations: A Semantic Dependence

In drawing some conclusions about our matrixes from their syntactic characteristics we should instead turn to the results of game-theoretical semantics. However there are two important points in which our games differ from those described by Hintikka

and his followers; namely that (i) the roles of the two players are assigned to the Speaker and the Hearer respectively, and (ii) they often introduce individuals, the seeking and finding process of which has been interrupted or deadlocked or simply has not already been accomplished.[13] What our matrixes have taught us is that we can very easily use a zero-assignment in computing a correct move, i.e. a move which expresses a positive value; nothing impedes me saying: "Going to sweep the house?" - "There are some very nice witches in the bathroom." - giving that there is a function "x is used to fly with by y" intended with which a correct computation of the stereotype 'brooms' can be carried out. From this it results that a verification process relies heavily on what we called the computation of an algorithm. This dependence we believe is already in Hintikka's works when he speaks about partial functions as being substituted into propositions. Such a function is a further specification of some individual(s), and a forthcoming seeking process should be pursued on the basis of such a specification. G. Nunberg[14] procided some very explicit cases when a seeking process cannot even have a beginning unless such specifications are computed. Sentences like "The soprano played wrong" "I like chicken", "I have not read Dickens", etc. can only be understood if we are aware of such functions as "x play y", "x is the meat of y", "x wrote y", etc. In riddles we do nothing but ask for such functions, or rather for those further specifications that such functions can map. In riddles however we are not for concrete referents as in ordinary communication when we consider

to the use of such a function; we rather map out whole classes, which we may or may not redub when making a move. This very naturally parallels what Hintikka called the naming of an individual to be substituted into a given variable. What needs further emphasizing is that it is not the communication of such given functions that is required but the moves themselves, which becomes possible by re-dubbing them. But how can this be done? The most simple answer is that we as Player II have to make a quick survey of assignments of the properties enlisted as the possible strategies of Player I along the line of a given function and select the greatest of them, and define the horizontal property as a new specification required by Player I in the game. This amounts to saying that he could have used this new specification as a definition of his move, but then he would have intended the identity function, which in turn reduces the possibility of playing. This throws open our matrix to infinite possiblities.

In laying down our rules for syntactic formulations we have to answer some very important questions; first, how can rules of introducing these specification functions be incorporated into a general syntactic framework? Second, at what stage will our rules introduce these functions into propositions or other types of utterance in order to leave variables unbound, and when should games for quantifiers start? Third, how can we account for the fact that our matrixes do not differentiate between general terms and predicates? How can functions for

verbs be introduced? And forth, how can the difference between propositions and such specification functions be explained away?

Syntactically riddles are like propositions or can be transformed into constructions similar to propositions; however what refutes such a claim is that in applying some rules from game-theoretical semantics to arrive at atomic sentences, one will find them unverifiable or irremediably false. As the latter cannot be accepted empirically (if they are false how could they serve as means of transmitting important information?), we have to account for their different character. Take e.g. the following construction after Hintikka as explicating a riddle:

(6) *X* - every *Y* who *Z* - *W*

If we apply Game (every) to (6) we undoubtedly get a false proposition:

(7) *b* is a *Y* and *b Z*

just because *Y* and *Z* may very well contain incompatible properties as in (5) "blind cock" or in (4) "red mastiff", etc. This comes down to the fact that (6) requires some specification functions. However, as we have seen, many riddles contain property for the range of reference so that the solution could be computed. If so, consider *Z* such a range and take *T* as a computable property for *Y*; then our verifying rule has to give us something like

(8) *b* is a *T* and *b Z*

(8) can now be put to a verification test of individual seeking and may still prove either true or false; if it is the former, then we have solved the riddle correctly; if it is the latter, then we have committed some mistake and a corresponding game should start again. This approach naturally would raise the problem of false constructions; for, it follows from what we have already said, that a false truth-value can at any time make us re-consider our original sentence and may suggest the need of applying a new specification function to it, i.e. it may necessitate a new game. If so, then a false proposition cannot be false in reality but rather it calls for the game to be played anew. The straight-forwardness of this claim appears to be grounded if we differentiate once again between the two kinds of game: to play a verificational game is based on the seeking and finding processes of individuals, i.e. it is a game played in and with Nature, and it seems right that games for quantifiers should be given in this way; if a sentence results in being verified by such a process, then we are get confirmed by having uttered it; whereas if it proves to be false, then there can very easily be some problem with any of the expressions occurring in it, and we may feel an urgent need to eliminate and substitute it. But this latter process is no longer a process in and with Nature; it is a process within the boundaries of language and theory: they simply have to be re-written, and our new game rules should provide us with instructions about the way they can be reformulated. Call this

game a sort of transcriptional game; its role will be to re--write a sentence so that it could prove to be true with the greatest probability, i.e. it maximalizes our winning probability in the second, verificational game. And this is the most we can make out of their relationship: each successful verificational game presupposes a successful transcriptional game, whereas a lost verificational game will prove a sentence false only if it does so with each outcome of a different transcriptional game that can be played over the given sentence. This latter claim may not seem normal, but this is what makes riddles possible to be posed: a necessarily false truthvalue calling for a transcriptional game; and this is what our (SSP) has already indicated. Riddles then can be considered as a special call for such games; although they are not propositions, they can be correlated with an act, be it an act of referring or not, i.e. the possibility of a verificational game cannot be excluded, but their semantic structure is based on the rules one can associate with transcriptional games in order to provide new surface forms. Their semantic structure should contain in some sense those specification functions that are required for arriving at the new surface forms. We distinguish two such functions, namely one that takes any of the expressions of the original sentence as an argument or a correct substitution instance and specifies a new one as a corresponding value, and we call it a Reference Function, and another that we have called an Equal Distribution Function; we can correlate two different transcriptional rules with our matrix:

$G_{(RF)}$ If a sentence has the form X - every Y who Z - W, play should not proceed unless a new function F has specified one or other of its constitutents; if Y is such a constituent, the Hearer may choose F with T as a corresponding value, and the game can start with respect to X - every Y who $F\ T$ who Z - W.

$G_{(RF)}$ clearly does not depend on every, i.e. on what quantifiers a given sentence may contain. So $G_{(RF)}$ can really be generalized to any kind of sentence.

$G_{(EDF)}$ If a sentence has the form X - every Y who Z - W, play should not proceed unless a new function G has equally specified one or other of its constituents and any new constituent too; if W is is auch a constituent to be equally specified as V, the Hearer may choose G and V respectively and the game can have a start with respect to

X - every Y who Z and $G\ V$ - $G\ W$.

The same goes for $G_{(EDF)}$ as for $G_{(RF)}$. The two rules naturally can be applied together, the Hearer then is making a joint move. If we apply them to (4) we can say something like: applying $G_{(RF)}$:

(9) Every mastiff who has in his mouth a tongue which is red is in a red courtyard.

applying $G_{(EDF)}$

(10) Every mastiff who has in his mouth a tongue which is red and is in the closed space of a cavity which is red is in the closed space of a courtyard.

In getting the surface form (10) we should further segment *W* into *U* who *Z* and apply *G* to *U* or to *U* who *Z* depending on what constituents we consider can be eliminated. This need not be any restriction on our rules but amounts to predicting that by the help of a function a syntactically dependent constituent may or may not be eliminated together with its head-phrase. But to bring the idea home we should pair our game-rules for the introduction of certain functions with game-rules for real elimination. As we never answer with (10) to a riddle, we have to get rid of all those constituents for which the new functions have been introduced. To generalize it we can formulate all our conditions in one rule as the Hearer may have applied $G_{(RF)}$ and/or $G_{(EDF)}$ many times,

$G_{(Eli)}$ If a game has resulted in a sentence of the form

X - every *Y* who *F T* who *Z* and *G V* - *G W*

all constituents for which new functions have been introduced, all functions *F* and all functions *G* with eliminable constituents can be left out, and the Hearer may define his (joint) move with respect to

T who *Z* and *G V*.

Applying $G_{(Eli)}$ to (10) we get the acceptable form of (11):

(11) A tongue which is red and is in the closed space of a cavity which is red.

In some cases a modified version of $G_{(Eli)}$ is applied when all functions G can be eliminated except the new constituents each G_i has introduced. To make a move in a transcriptional game amounts to applying $G_{(RF)}$ and/or $G_{(EDF)}$ together the correspondent $G_{(Eli)}$. Having played off this game the players can start a new verificational game as soon as they agree on a surface form like (11). To start a verificational game appears to be dependent on the players' recognition that no transcriptional semantic game could be played. This adds to the interdependence of the two games; for, it is not only that a verificational game actually verifies a surface structure sentence but the possibility of such verification must be presupposed before any new game can start. This we called the maximalization of winning probabilities in the new verificational game. This amounts to defining a given sentence as containing expressions whose categories are licensed by what G. Nunberg calls 'normal beliefs'. This would mean that the final output of a transcriptional game has always to be governed by normal beliefs. This condition can also be imposed as a pre-condition of games for a certain sub-domain of linguistic data. The use of transcriptional games always shows the level of conventionalized beliefs correlated with a specific utterance. From this it follows that maximalization relies on what has been accepted as normal in a

given context. This accords very nicely with our (PC1) and (PC2). The end of transcriptional games is tested by such beliefs of the players. And as long as no such surface structure is arrived at, a sentence cannot be deemed true or false. But if riddles are considered to be special calls for such transciptional games, they cannot again be either true or false. They are just 'waiting' to be verified. But if so, riddles cannot be taken to be normal questions, either. For, questions are correctly viewed as what can be truely answered by responding with a given proposition. How else can we account for the fact that almost any riddle can be made to be part of a syntactic question? If question-words do give an interrogative character to riddles, then to keep up with an erotetic logic we could say that our rules map the input forms against the output so that they preserve meaning; but it should be clear already that no two surface forms can be considered perfectly the same for different strategy applications would have resulted in different output sentences; this means that each output sentence has a quasi-uncountable output structure set into which it can be mapped provided there are certain functions contextually available for the players. Then the relationship specified by riddles is quite different from the question-answer relationship. Another piece of evidence for this is that questions are usually thought to be functions over individuals, whereas riddles contain functions over expressions that we called stereotypes, and so question-words here can only be taken to be functions over functions. So while there is syntactic evidence for riddles

being considered as questions, there is a strong semantic argument against this. For we can by all means transform (4) into a syntactically interrogative structure and say

(12) What dog is red and is in a red courtyard?

But we can by no means reply to (12) with something like (13) trying to meet the demands of erotetic logic:

(13) The tongue is a red dog and is in a red courtyard.

That (13) is highly flawed can be seen from there being eliminable expressions in it, which would mean in turn that, if put to a verificational game, (13) is going to be found hopelessly false. And this should amount to telling us that in making a move like (13) in our transcriptional game we became irremediably lost. To clarify what we have said about the interrogative character of riddles, we can try to re-formulate (12) in order to show correctly what the role of a question--word can be;

(14) What function(s) can be applied to a red dog in a red courtyard?

or (14') What function is such that a red dog is in a red courtyard?

Question-words in riddles cannot be applied directly to the referents of the expressions therein, but to the expressions themselves. Each interrogative form like (12) if found in the

data should be transformed into something like (14) or (14'). It would prompt a meta-linguistic reading; however it is immediately seen that it is meta-linguistic only in the sense that an answer informs as about what moves have or will have been made in the course of a given game; i.e. question-words specify our $G_{(RF)}$ and $G_{(EDF)}$ rules, but do not tell us anything about the actual input structures and their possible verification. But without the latter, as we have seen, riddles cannot have a full sway in the life of a given community. Question-words in riddles belie then an ambiguous character: they do not belong to the same linguistic level as the remaining elements do, but they express the need for playing a transcriptional game before playing any other.

5. Actions and Riddles: A Problem of Narrativity

That verificational games are functions of transcriptional ones is borne out by the general relationship of language and action as such; we have seen that a language game consists of two separate games: a 'pure' semantical game in which the correct reference expressions are sorted out and a 'referential' in which the right individuals are singled out. Their interdependence was straightforward: every referential game presupposes a correct surface-structure with which its moves can be correlated, but any surface structure results from a previous game played over the expressions themselves. In case no such game seems to be apparent, the function of identity is presupposed, and it then means that the beliefs licensing it are readily available.

On the other hand a transcriptional game is always dependent on previously played-off referential games when strategical functions are being selected from among (SSP); for these functions should always select a natural range of individuals so that it overlaps with what has been defined as the range of reference for the utterance. Their interdependence clearly illuminates the entanglement of language with notions; but it also illuminates the lack of any causal relationship; for their functional interdependence relies on which algorithm has been selected in the first transcriptional game; but it is always contingent on the strategical move of Player II, even if he does his best to make up with his opponent's intention. Whereas even Player I, the Hearer himself may intend the most far-fetched functions when uttering a sentence. And in some cases, such as in fiction, it can result that the intersection of the range of reference and of any natural range is empty; this amounts to acquiring new information; then we can either set out on our search, which may turn to be infinite, or else interrupt the second game as deadlocked. But there are no such ways out if the correlated action is not an act of reference but something different; we have already hinted at the possibility of a special riddle session when each answer should be accompanied by a deictic gesture with respect to the object meant. But the riddle-solver may be requested to carry out some action as well; he may be expected to do something with the correct referents; then the actions themselves have to be deciphered by the use of some transcriptional game-rule. And a

correct deciphering is indicated by carrying out the action in question and not just by uttering it: e.g. in a legendary folktale King Matthias asks a young maiden - among many other things - both to bring and not to bring him a present; this is all the more interesting because it is the last game in a riddle session in which she always has to reply in a cunning way but never to do anything. And in the last she answers by bringing a dove as a present which flies away at the moment of its deliverance. To draw up an algorithm for it may appear a bit complicated, but it should precede the accomplishment of any kind of action; first, a choice has to be made on the correct range of reference: select 'present' as such for 'bringing-and--not-bringing' is contradictory, so unrealizable; now, a function must be counted for the latter: it can either give another action like 'sending', or be further segmented into a correct range and an aliminable part: then it can be either 'bringing' or 'not-bringing'; in either cases the contradictory character is dispensed with by finding another predicate like 'flying away' for 'not-bringing'; as 'not-bringing' is to be specified as a three-placed predicate 'x not-bringing y to z' and 'flying away' is only two-placed 'y flying away from w', during the transcriptional game different pairings of the corresponding variables are possible; from them y=v and w=z are selected on the basis of a function like "t does not have/possess/get/etc. u" which is an *EDF* for y and v, and w and z respectively; then we should select a sub-domain of the intersection of the natural range of 'flying away' with the

range of reference of 'present' so that we negate something that is a present but cannot fly away. This with 'bringing' as also a range specifies birds as such presents. In computing the final 'x bringing to z y flying away from z' composite function we have alternative choices; they would specify other results like the previously mentioned 'x sending y to z', or 'x not-bringing to z y flying to z'; computing them would necessitate the accomplishment of other actions.

In the above case we substituted another action into the second, verificational game usually taken up by an act of reference. The range of actions is naturally as wide as the range of objects that can be referred to; what makes possible the introduction of actions into riddles is that to understand what one should do requires the use of certain functions as well as to understand what some stereotypes or predicates mean. This accounts for the universal character of riddles. To put it more exactly, if transcriptional games are played over some range into which the Hearer of the utterance containing it can be substituted, then to play off a game might involve the Hearer as a sample of the correct individuals. This is a syntactic device to show it can be the imperative; then the whole sequence of transcriptional and verificational games have to be played off; but this need not bear on the general character of riddles; a riddle game can stop at any point. Of course, we can introduce new terms for riddles when the second, verificational game is played off differently. But if sequences can be interrupted, how can we define winning

strategies? Naturally a winning strategy in a sequence must be a composite of each; but whether there is a winning strategy in the first, transcriptional game strongly depends on whether it is also winning in the second, verificational game, which in turn can never be considered as winning unless it is a function of some transcriptional game from which a correct surface structure has resulted. This leads to a vicious circle; a winning strategy in a transcriptional game depends on whether three is a winning strategy in a correlated verificational game, while one in the latter depends on there being a transcriptional winning strategy of which it can be the function. However this is as it should be; for to escape from such a vicious circle language can do nothing else but resort to conventionalized uses, i.e. it accepts certain surface structures as a priori correct, although this 'a priori' has nothing to do with analiticity. It means that convention licenses certain correlations as accepted to be correct; but there are no once-and-for-all winning strategies in transcriptional games that uniquely define winning strategies in the second, and there are no once-for-all winning strategies in verificational games that uniquely define winning strategies in the first; neither analiticity nor inductivity works perfectly. Speaking is not only an act of referring but an act of selecting linguistic expressions by which an act of referring can be most easily and most probably carried out. But nothing prescribes that any particular correlation should be fixed for ever. And if

it can vary once, then it has to be allowed that it might vary at other times. This way we naturally lose the possibility of determining meaning uniquely if meaning has anything to do with reference. But this is what game-theoretical semantics seems to prompt us to do all the more. If we dispense with all fixed correlations, then any surface structure may convey the possibility of correlation. This was what helped in creating fictional discourses, although there may be some ultimate barrier to our (SSP) that something like "Finnegans' Wake" indicates.

Our game-sematnical approach shows then some very important ways of disambiguations: terms, predicates, imperatives and stereotypes are all treated on a par; so far so good; but how can we explain away the ambiguity in a riddle about samples of objects and actions which are particular in the sense that persons like the Hearer can carry them out? How can we explain away the difference between the universal character of riddles and the existential character of an action? As far as transcriptional games are concerned we have observed many times that there is no uniqueness of individuals being required but rather a sample of them (Cf. the abbreviated form of value-assignments of our matrixes). And this goes for our game-rules, too: there is no specially quantified character involved; variables are still open. This accords with the fact that games for quantifiers are verificational games; a player chooses an individual which is no longer a sample but concrete in the sense that even he

should be named if he has not been already. If we speak about riddles with a universal character, it is Player II who, playing the part of Nature, should select an individual in the second, verificational game of the sequence, and prove the resulted surface structure against his choice; whereas if we speek about existentially quantified sentences, particular actions or narrative texts, it should be Player I to choose an individual but it is still Player II to prove the resulted surface structure against his opponent's choice. But this considerably adds to the difficulty of Player II to prove a certain surface structure; for any instance would not do; so much so that in most cases Player II gives up, and Player I should verify his own riddle. Communication breaks down: the winning strategy of Player II is always the condition of successful communication.

6. Some Conclusive Remarks: A Parable of Fiction

To end our investigations we should revive some of the previous assumptions and state them in a more concise form. First, riddles are played, and can be either a sequence of sequences of two games, a transcriptional and a verificational game, or a sequence of transcriptional games. Of course, a given sequence need not be the same all through the play for it may incorporate different actions or different transcriptional games as well: Player II has always to decide what game the moves of his opponent define before he can correctly react. We presented two kinds of transcriptional games, a meta-linguistic and one

for property-selection; there are certainly others, but they are analyzable along the lines described here. Second, riddles reveal a very important character of language in that the reference classes of the expressions can further be removed from the utterances the expressions appearing or not; so much so that the Hearer first should compute possible reference functions to get to the correct referents. If so, then third, cur transcriptional rules are part and parcel of what an utterance may mean, and as such it should contain the Hearer without which it will be simply meaningless or ununderstandable. In this and only in this sense can riddles enter a text whether narrative or not. For narrativity depends just on which player chooses an individual in the verificational game with respect to which a given sequence should be played off over a surface structure that resulted from the first, transcriptional game. This means that there is no constraint on forthcoming role selection, i.e. the games for quantifiers or for other verifying processes must be independent in type from what functions have been chosen to compute a correct surface structure before. It can be either verified universally by Player II or existentially by Player I choosing an individual. This seems right; for our transcriptional rules cannot have any direct bearing on Hintikka's rules for quantifiers. Variables are still unbound for no moves have been made to bind them; The use of 'any' comes in handy here to show the openness of transcriptional games; for, in "I like anything there is to eat" there can be nothing against a possible verification of it by the Hearer's saying "There is only

spinach". If you say "I will have any horse you give" I can make you agree with saying "I've got only Blackie left". In both cases a single instance verifies a sentence containing 'any' with the only difference to an existential quantifier that it is always the Hearer that can come up with it; for it would sound strange if the Speaker put in something like "Okay, please, bring beefsteak with roast potatoes" and "Right, I will have any horse you own, so please give me Brownie". Although in the above examples there was one and only one instance that could verify what the Speaker said. If 'any' were ab ovo universal, the Hearer could not verify the Speaker's utterance containing 'any' in case of there being a single existing individual that can count as an instance. Naturally it is possible to answer that there is nothing to eat, or that there are no more horses left. Then nobody could choose an individual with respect to which a given surface structure can be verified or not. Then a sequence of games gets deadlocked. This can equally happen when we speak about dragons that do not exist or of horses that are winged. The corresponding moves in the game scan zero-assignments; but one can never know that it is zero because no strategy can lead to a correct substitution instance, that the predicates are true of no possible object, or because there are no objects such that the given predicates could be true of; in the first case a sequence of games are thought to have been played off and proved to have been played with losing strategies; in the

second no such play has been conducted yet, or if it has it has been deadlocked. But how can we prove that a strategy is losing by finding none? What difference can there be between a game that is deadlocked and another that cannot have come up with a true instance? Fictional discourse indicates this kind of ambiguity: there can at any time start a new seeking process which becomes deadlocked without being able to prove that strategies in the transcriptional games are losing. There is a last corollary of this argument; namely that if a value--assignment belonging to a move in a transcriptional game is zero, then Player II has got nothing to choose as his forthcoming move in the second, verificational game, which turns out to mean that with fictional surface forms, i.e. with structures of deadlocked games, no universal conclusions are possible. If a move-assignment is already positive, then a new instance can add to its universal character. So, about fictional beings - if there are any! - we cannot coherently assert universal propositions like "All dragons are seven--headed" just because we have no single true instance with respect to them. So, in fiction we are forever doomed to be narrative; for, we can always claim that a new verificational game might start although later becoming deadlocked, while we can never say that there are fictional objects because then we should have other than zero-assignments belonging to the moves we make in asserting something about them. Naturally in many cases values are assigned by different belief contexts,

in epistemic logics or in fiction within fiction. The problem of beliefs looms large, for false or misfired beliefs can threaten our conception of winning strategy since within a certain text there is no explicit criterion about what can count as a possible endpoint of search. A normally deadlocked strategy can then turn out to be winning as well. Universal statements can also appear to be verifiable, although we do not think that the can destroy all our whole argument; for any kind of play consisting of a transcriptional and a verificational game needs the incorporation of something which counts as ultimately verifying a sentence; why cannot we have e.g. a text in front of us as players in order to look for each correct surface structure in it? If we can find one, it is true, if not, then it is false. But we can even play with a sage of the tribe and ask him after each move whether there is anything on the plate of his memory to verify a given form. And we could go on. But whatever conventions we do have about truth, the logic of our games would not change: we are still computing algorithms with the help of which we want to keep up with the Speaker: understand him and follow him. Truth is always a sort of correlation, here a correlation of two games making up a sequence; but in many cases we as Speakers and much loss as Hearers know on.nothing about actual end-points of verificational games; we presuppose that some - if any - correlation obtains, and revert to (SSP).

Notes

[1] Cf. Abrahams (1969).

[2] Cf. Eigen-Winkler (1975).

[3] The main lines of such an approach can be found in "Language--Games for Quantifiers" in Hintikka (1973), and in Hintikka (1979).

[4] Cf. Flahault (1981).

[5] Cf. Permyakov-Barabanova (1982).

[6] Cf. Faik-Nzuji (1973).

[7] Cf. E. Köngäs-Maranda (1972).

[8] L. Tarnay "Megjegyzések a találós egyszerü formájához", manuscript.

[9] Cf. Nunberg (1978).

[10] Cf. Hintikka (1976), especially Chapter 11.

[11] See fn. 5.

[12] These are taken from Barabanova's text, but naturally they cannot be word-for-word translations of the original.

[13] For the idea of interrupted games see Tennant (1979).

[14] See fn. 9.

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GRUNDLAGENPROBLEME EINER THEORIE DES WITZES
(EIN WISSENSCHAFTSTHEORETISCHES EXPERIMENT)

ANDRÁS KERTÉSZ
L. Kossuth Universität Debrecen

0. Problemstellung

Die Fülle der existierenden Witztheorien, die Vielfaltigkeit und Zersplittertheit der Aspekte, unter denen an diese Problematik herangegangen wird, sowie die angebliche Unlösbarkeit der Grundfragen dieses Gebietes scheinen den Entwurf einer neuen Theorie kaum zu rechtfertigen. Der Grund dafür, daß wir dieses vieldiskutierte Thema hier trotzdem wieder aufgreifen und das Entwickeln einer Witztheorie anstreben, besteht in erster Linie darin, daß dadurch Anlaß gegeben wird zur Behandlung einiger methodologischer Grundfragen der Textwissenschaft.

Das Ziel der vorliegenden Arbeit ist es, den *Vorgang der Theorienbildung* im Hinblick auf die Untersuchung des Witzes zu analysieren. Die Probleme ergeben sich dabei vor allem auf den folgenden Ebenen:

1. Ebene des untersuchten Gegenstandes: Welche immanenten Struktureigenschaften besitzt der Witz? Wie kann seine Position im Sprachsystem bestimmt werden? Welche Funktionen hat er in der menschlichen Kommunikation?

2. Ebene der Untersuchungsmethode: Die Witztheorien scheinen darin einig zu sein, daß der Witz eine die Regeln der Sprache, der Logik und des "normalen" menschlichen Denkens verneinende, sich von ihnen grundsätzlich abhebende und ihnen entgegengesetzte sprachliche Erscheinung sei, wobei gerade deshalb die exakten, d.h. mathematischen und logischen Methoden als machtlos erscheinen. Auf der anderen Seite ist aber nicht zu leugnen, daß der Witz eine durchaus verständliche, informationsreiche und interpretierbare sprachliche Struktur darstellt. Es erhebt sich also folgende Frage: ist es möglich, eine Methode zu finden, die imstande ist, sowohl die inkongruente, widersprüchliche oder paradoxe Grundstruktur des Witzes zu modellieren, als auch eine Erklärung für seine Systemhaftigkeit und kommunikative Funktion zu liefern?

Die Tatsache, daß die uns zur Verfügung stehenden bisherigen Untersuchungen zum Witz keine sprachwissenschaftlichen, sondern psychologische, ästhetische, soziologische, politische, geschichtliche, volkskundliche Analysen sind, weist eindeutig darauf hin, daß die wesentlichen Eigenschaften des Witzes auf der Überlagerung solcher komplexer und vielfältiger pragmatischer Faktoren beruhen, die innerhalb eines Sprachmodells nicht zu behandeln sind, ohne daß die in der Wirklichkeit eine untrennbare Einheit bildende pragmatische Komponente in isolierte Teilgebiete zerfallen würde. Demgemäß stellt sich die Frage, ob es möglich ist, eine solche methodische Grundlage zu entwickeln, die als Ausgangspunkt zur einheitlichen Behandlung der pragmatischen Teilkomponenten (so z.B. der

psychologischen, ästhetischen, soziologischen, volkskundlichen, kognitiven usw. Aspekte) dienen kann und aus der diese Komponenten abzuleiten sind?

3. Die Ebene der epistemischen Systematisierung. Unsere Untersuchungen zum Witz, wobei von einer bestimmten Untersuchungsmethode Gebrauch gemacht wird, führen zu Schlußfolgerungen, die als *Erkenntnisse* zu bewerten sind und in der Form von Thesen oder Aussagen oder Gesetzen formuliert werden können. Diese Thesen stellen jedoch eine ungeordnete Menge dar: die Aufgabe besteht in der Systematisierung dieser Menge. Da es sich hier um Erkenntnisse handelt, vollzieht sich der Vorgang der Systematisierung auf einer allgemein epistemischen Stufe, die von der Stufe unterschieden werden muß, auf der die Ermittlung dieser Thesen geschieht (also von der Ebene der Untersuchungsmethode und der des Gegenstandes). Demgemäß lautet die Frage: Wie läßt sich die gewonnene Menge von Thesen adäquat systematisieren? Unter adäquater Systematisierung verstehen wir, daß (i) das entstehende epistemische System den Eigentümlichkeiten des behandelten Wirklichkeitsbereiches gerecht wird und (ii) das epistemische System exakt, d.h. mit logischen oder mathematischen Mitteln beschrieben werden kann. Diese zweite Forderung ist unbedingt nötig, um Widersprüche and Anomalien auszuschließsen und die Interpretierbarkeit sowie die empirische Prüfbarkeit des Systems zu bewahren. Eine weitere Motivation für die epistemische Systematisierung besteht darin, daß eine Theorie nur aufgrund von hinreichend systematisierten Thesen errichtet werden kann.

4. Die Ebene der Theorienstruktur. Die Aufgabe einer jeden Erfahrungswissenschaft besteht darin, das Verhältnis zwischen der mathematisch-logischen Struktur einer Theorie und dem untersuchten Wirklichkeitsbereich aufzudecken. Dieses Verhältnis ist dann adäquat, wenn die Theorie einem empirischen Signifikanzkriterium gehorcht. Das Problem lautet demgemäß: ist die Theorie des Witzes, die aus den Untersuchungen auf den ersten drei Ebenen hervorgegangen ist, empirisch? Hier ergeben sich erhebliche Schwierigkeiten: denn nimmt man die Signifikanzkriterien der naturwissenschaftlich fundierten traditionellen Wissenschaftstheorie an, so wird sich eine Theorie des Witzes als nicht empirisch erweisen; verzichtet man auf sie. so muß man anerkennen, daß unsere Theorie wissenschaftstheoretisch nicht beschrieben werden kann. Deshalb ergibt sich die Aufgabe, einen allgemeinen wissenschaftstheoretischen Rahmen zu entwerfen, in dem (i) die Vorurteile, die die steife Gegenüberstellung "Gesellschaftswissenschaften vs. Naturwissenschaften" unterstützen, widerlegt werden können, (ii) ein allgemeines Kriterium zu finden, nach dem die Theorie des Witzes sich eindeutig als empirisch erweist und (iii) alle anderen, in der traditionellen Wissenschaftstheorie als regressiv bewerteten Eigentümlichkeiten dieser Theorie wissenschaftstheoretisch adäquat beschrieben und erklärt werden können.

Infolge dessen, daß die methodischen Voraussetzungen immer von den Eigentümlichkeiten des untersuchten Gegenstandes mit bestimmt werden, muß nachdrücklich hervorgehoben werden,

daß die, auf den aufgezählten Ebenen formulierten Problemstellungen und die zu ihrer Beantwortung führenden methodischen Voraussetzungen voneinander streng abzugrenzen sind und aufeinander nicht bezogen werden dürfen. Demgemäß wird es im Laufe der Untersuchungen des öfteren vorkommen, daß eine Methode, die auf der einen Ebene sich als fruchtbar heraustellte auf einer anderen verworfen werden muß. Die Notwendigkeit einer solchen strengen Unterscheidung läßt sich leicht rechtfertigen, wenn man die untersuchten Objekte der einzelnen Ebenen miteinander vergleicht: im ersten Kapitel bilden Witze, d.h. Texte, im zweiten epistemische Systeme und im dritten Theorien den Gegenstand der Untersuchung, die natürlich ganz verschiedene Entitäten sind.

Es soll weiterhin bemerkt werden, daß die nachfolgenden Untersuchungen sich in einem bedautenden Maße auf logische und mathematische Mittel stützen. Um die Lektüre zu erleichtern, wird jedoch relativ informell vorgegangen. Es ist aber zu betonen, daß die Definitionen und Theoreme auch formal exakt expliziert bzw. bewiesen werden können. Grundlegende Kenntnisse zur Logik und Mengenlehre werden jedoch trotz allem vorausgesetzt.

1. Untersuchungen zum Witz

1.1. Arbeitshypothesen und Voraussetzungen

Da eine eingehende Behandlung der existierenden Witztheorien weitläufige Ausführungen fordern würde, wozu im gegebenen Umfang der vorliegenden Arbeit keine Möglichkeit besteht, werden wir als Ergebnis der Auswertung dieser Ansätze eine

Standardtheorie konstruieren, die die allgemein vertretenen Auffassungen der Theoretiker widerspeigelt.[1] Sie enthält die folgenden Thesen:

T1 Witze können nicht mithilfe der *Logik* modelliert werden, da sie auf Inkongruenz, Paradoxien, Widersprüchen gründen.

T2 Das Wesen des Witzes bilden seine *pragmatischen* Eigenschaften.

T3 Die zentrale Funktion des Witzes ist seine *Metafunktion*, d.h. seine metakognitive, metasprachliche, metamoralische usw. Funktion.

T4 Der Witz führt seine Metafunktion dadurch aus, daß er durch die *Verletzung* der Regeln der Logik und des "normalen" menschlichen Denkens die Mitglieder einer Sprachgemeinschaft zur Neubewertung und Neuinterpretation ihrer als geltend vorausgesetzten Systeme von sprachlichen, gesellschaftlichen, kognitiven Normen, ihrer Denkweise und Weltbetrachtung zwingt.[2]

Dieser Standardtheorie setzen wir unsere Arbeitshypothese gegenüber, die ähnlicherweise als eine Menge von Thesen angeführt wird. Diese untershceidet sich von der Standardtheorie dadurch, daß T1 und T4 durch die folgenden Thesen WT1 und WT4 ersetzt werden, unter Übernahme von T2 und T3 als WT2 und WT3:

WT1 Der Witz kann mithilfe der Logik modelliert werden, trotz der Tatsache, daß er auf Inkongruenz, Paradoxien, Widersprüchen gründet.

WT4 Der Witz führt seine Metafunktion nicht durch die Verletzung der Regeln der Logik und des "normalen" menschlichen Denkens aus, sondern dadurch, daß er unter ihrer

Beibehaltung diese "aufhebt" und auf einer anderen Stufe neubewertet und neuinterpretiert.

Da die folgenden Untersuchungen lediglich als eine erste Annäherung zur Unterstützung dieser Thesen zu gelten haben, wird kein Anspruch auf einen vollständigen Beweis erhoben. Es wird ausschließlich ein Entwurf der Möglichkeit eines solchen Beweises angestrebt. Im Zusammenhang damit erfolgt keine eingehende Analyse des ausgewerteten Korpus, sondern unsere Erwägungen werden einfach mit Hilfe einiger paradigmatischer Beispiele erläutert.[3]

Mit Hinweis auf eine Rechtfertigung, die aber erst im Kapitel 3, ausgeführt wird, geben wir keine Arbeitsdefinition der Textsorte Witz an - bei der Identifikation gewisser Texte als Witze bedienen wir uns lediglich des Begriffs der *Familienähnlichkeit*, im Sinne Wittgensteins. Es soll jedoch soviel vorausgesetzt werden, um den Bereich der in Frage kommenden Erscheinungen einigermaßen zu beschränken, daß wir Witze als *Texte* betrachten, die sich in einer *Witzsituation*[4] als *Sprechakte* manifestieren.

1.2. Präsuppositionen

Fast alle Theoretiker weisen in irgendeiner Form darauf hin - und das ist natürlich auch intuitiv einzusehen -, daß eines der wesentlichsten Momente des Witzes in der Überraschung wurzelt, die die im Abschnitt 2.1. dargelegten metareflektorischen Reaktionen des Rezipienten auslöst. Diese These kann auch - um uns einer anderen Terminologie zu bedienen - so formuliert werden, daß die Witzstruktur auf das Präsuppositionssystem des

Zuhörers störend wirkt und zu seiner Umwertung führt. Eine erste intuitive Ausführung dieser Behauptung lautet folgendermaßen. Der Witzerzähler äußert einen Satz, der eindeutig von einer bestimmten Menge von Präsuppositionen begleitet wird: es besteht kein Zweifel, daß der Rezipient diese Präsuppositionen auf Grund seiner sprachlichen und außersprachlichen Kenntnisse mit der genannten Äußerung in Zusammenhang bringt. Von diesen Prämissen ausgehend versucht der Rezipient den Inhalt der erwarteten nächsten Äußerung zu erschließen, deren Präsuppositionen ebenfalls bekannt sind. Demgegenüber aber wird er mit einer solchen Äußerung konfrontiert, die zwar zweifellos in irgendeiner Weise auf die ihr vorangehende Äußerung zurückzuführen ist, aber deren Präsuppositionen keinesfalls aus den Präsuppositionen dieser Äußerung hervorgehen.

Bevor wir auf die Analyse der Präsuppositionsstruktur einiger Witze eingehen, scheint es angebracht, den von uns angewandten Begriff der Präsupposition zu klären. Es sei vor allen Dingen betont, daß es sich in unserem Falle um *pragmatische Präsuppositionen* handelt, deren Definition sich von der geläufigen logisch-semantischen Festlegung der Präsuppositionen in einem beträchtlichen Maße unterscheidet: es geht nicht darum, daß man aus der Wahrheit eines Satzes auf die Wahrheit eines anderen Satzes schließen kann, sondern, daß der Sprecher gewisse Gegenstände und Sachverhalte als unbestreitbar gegeben und dem Hörer bekannt voraussetzt, was sowohl für die Formulierung der Aussage als auch für ihre Inter-

pretation nicht ohne Folgen bleibt. Stalnaker charakterisiert den Begriff der pragmatischen Präsupposition wie folgt: "To presuppose a proposition in the pragmatic sense is to take its truth for granted, and to assume that others involved in the context do the same ... Presuppositions are propositions implicitly *supposed* before the relevant linguistic business is transacted ... It is important that the participants in a single context have the same set of presuppositions if misunderstanding is to be avoided. This is why presuppositions involve not only taking the truth of something for granted, but also assuming that others do the same...".[5]

Mit Anlehnung an Karen H. Ebert unterscheiden wir drei Typen der pragmatischen Präsuppositionen.[6] Die Annahme der Bekanntheit und Identifizierbarkeit von Referenten wird *starke pragmatische Präsupposition* genannt. Aber es ist oft der Fall, daß der Hörer eine Äußerung auch dann versteht, wenn er keine festen Vorstellungen in bezug auf die erwähnten Sachverhalte besitzt, z.B. wenn er nicht weiß, was das Wort "auch" in dem folgenden Satz andeutet:

"Auch Peter war in Berlin."

Die Präsupposition kann folgendermaßen formuliert werden: "Außer Peter war noch jemand in Berlin, den ich entweder kenne, oder nicht kenne." Aber der Sinn des Satzes ist ohnehin klar, unabhängig davon, ob ich diese Person kenne, oder nicht. Das läßt darauf schließen, daß bei der vollständigen Interpretation des Satzes der Hörer sich neben der Kenntnis der Refe-

renten auch auf die Bekanntheit anderer Sachverhalte stützen muß, um die Äußerung sinngemäß dekodieren zu können (z.B. wer, wann, warum war noch in Berlin, außer Peter), aber die Kenntnis dieser Tatbestände ist keine notwendige Voraussetzung für das Verstehen und für die Ermittlung des Wahrheitswertes. Anhand dieser Erwägungen wird die Kenntnis solcher Sachverhalte, die sich aus dem Text ergeben, die aber, was das Wesen der Äußerung anbelangt, keinen Einfluß auf das Verständnis der Äußerung ausüben, *schwache pragmatische Präsupposition* genannt.

Die Bestimmung des dritten Typs soll mit den Worten K.H. Eberts wiedergegeben werden: "Notwendige Voraussetzungen für das Verstehen und die Beurteilung eines Sprechaktes, die sich aus der Formulierung ergeben, nenne ich *logische Präsuppositionen*. Logisch präsupponiert sein, bedeutet für Referenten, daß sie identifiziert werden müssen, für Sachverhalte, daß sie für wahr (existent) gehalten werden müssen, bevor die Assertion abgelehnt oder akzeptiert werden kann... Die hier gegebene Bestimmung der logischen Präsupposition weicht von der üblichen logischen Definition (Implikat von S und -S) insofern ab, als sie nicht Bedingungen für die Wahrheit von Sätzen, sondern Bedingungen für die Interpretation und Beurteilung kommunikativ intendiertet Äußerungen angibt."[7]

Die folgende Analyse dient zur Rechtfertigung der Hypothese, daß die den Witzen zugrundeliegende Polarität oft auf der Inkongruenz der Präsuppositionssysteme beruht.

(1) Richter (streng): "Die nächste Person, die die Verhandlung unterbricht, wird nach Hause geschickt."
Angeklagter: "Hurraaa!"

Die Präsuppositionen der Äußerung des Richters:

1. Im Saal sind solche Personen anwesend, die in der Lage sind, die Verhandlung zu unterbrechen.
(Starke pragmatische Präsupposition)

2.a. Diese Personen gehören zum Publikum
oder

2.b. Der Angeklagte ist nicht unter ihnen.
(Logische Präsupposition)

Die Präsuppositionen der Äußerung des Angeklagten:

1. Im Saal sind Personen anwesend, die in der Lage sind, die Verhandlung zu unterbrechen.
(Starke pragmatische Präsupposition)

2. Auch der Angeklagte gehört zu ihnen.
(Logische Präsupposition)

Es besteht kein Zweifel, daß die Reaktion des Angeklagten auf Grund des Unterschiedes zwischen den logischen Präsuppositionen der beiden Personen zu erklären ist.
Die Entscheidung des Problems, inwieweit die Qualität des Witzes vom jeweiligen Typ der miteinander in Diskrepanz stehenden Präsuppositionen abhängt, würde eingehendere Untersuchungen erfordern und sei deshalb dahingestellt.

1.3. Mitverständniesse

Bei den Witzen, deren Kern als eine sprachliche Ambiguität zu erfassen ist, sind auch metasprachliche Präsuppositionen aufzuweisen.

(2) "Wurden in dieser Gegend irgendwelche großen Männer geboren?" - fragt ein Tourist im abwertenden Ton. "Nein", antwortet der Ortseinwohner, "Das Höchste, wozu wir fähig sind, sind Babys. Anders in der Stadt, nicht wahr?"

Die Präsuppositionen der Frage des Touristen:

1. In der Sprache gibt es den Ausdruck "großer Mann". (Metasprachliche, starke pragmatische Präsupposition)
2. Dieser Ausdruck bezieht sich nicht auf die körperliche Beschaffenheit eines Menschen, sondern auf die Bedeutung seiner Persönlichkeit. (Metasprachliche, logische Präsupposition)
3. Es ist durchaus möglich, daß in diesem Dorf (dieser Gegend) solche Menschen geboren wurden, die die Eigenschaften eines "großen Mannes" besitzen. (Starke pragmatische Präsupposition)

Der Ortseinwohner gibt jedoch eine Antwort, als ob man die Frage im Einklang mit dem, aus den folgenden Präsuppositionen bestehenden Hintergrund geäußert hätte:

1. In der Sprache gibt es den Ausdruck "großer Mann". (Metasprachliche, starke pragmatische Präsupposition)

2. Dieser Ausdruck bezieht sich auf die körperliche Beschaffenheit eines Menschen. (Metasprachliche, logische Präsupposition)
3. Die Menschen werden als Säuglinge geboren. (Starke pragmatische Präsupposition)

Die Struktur des Witzes kann durch die Analyse zweier Ebenen nachgewiesen werden: einerseits wird die komische Wirkung durch eine sprachliche Zweideutigkeit, das heißt, die wortwörtliche Interpretation eines im übertragenen Sinne verwendeten Ausdrucks ausgelöst - das läßt sich zweifellos auf die Diskrepanz zwischen den Präsuppositonssystemen zurückführen, andererseits aber ragt die Tendenz des Witzes darüber weit hinaus und gipfelt in der Tatsache, daß dieses Mißverständnis nicht einem Zufall zu verdanken ist, sondern die Überheblichkeit des Touristen bewußt an den Pranger stellt. Diese zweite Ebene kann durch die Analyse der Präsuppositionen nicht aufgedeckt werden, denn die Annahme, die die Antwort des Ortsbewohners anfechtet, ergibt sich zwar aus der Frage des Touristen, kann aber auf keinen Fall mit einer Präsupposition identifiziert werden:

(A) "Dieses Dorf ist so klein und unbedeutend, daß nicht einmal eine berühmte Persönlichkeit hier geboren wurde."

Satz (A) kann deshalb nicht als Präsupposition klassifiziert werden, weil dem Touristen durchaus zugestanden wird, diese Behauptung zu leugnen, und zwar mit Recht, angenommen, der Ortsbewohner stellt die Frage

(B) "Wollen Sie damit sagen, daß mein Dorf so klein und unbedeutend sei, daß es nicht einmal der Geburtsort einer bekannten Persönlichkeit sein könne?"

steht dem Touristen nichts im Wege, diese Zumutung mit gutem Gewissen zurückzuweisen:

(c) "So etwas habe ich überhaupt nicht gesagt: ich habe bloß gefragt, ob in dieser Gegend große Männer geboren wurden?"

Dagegen aber besteht das Wesen der Präsupposition gerade darin, daß sie die notwendige Bedingung einer Äußerung darstellt, an deren Wahrheit nicht gezweifelt werden kann und die sowohl vom Sprecher als auch vom Hörer bedingungslos akzeptiert werden muß.

Um eine angebrachte Lösung des Problems zu finden, scheint es deshalb vorteilhaft, mit Anlehnung an Ducrot den Begriff des "Mitverständnisses" einzuführen.[8] Aus dem analysierten Beispiel ergibt sich, daß Mitverständnissen nur in dem Fall ein tatsächlicher kommunikativer Wert zugewiesen werden kann, wenn - im Gegensatz zu den Präsuppositionen - eine Oppositionsrelation zwischen dem Mitverständnis und dem wortwörtlichen Sinn des Satzes vorhanden ist, trotz der Tatsache, daß es aus der Äußerung erschlossen werden kann. Wir berufen uns auf Ducrots Ausführung: "Wenn X und X' zwei Äußerungen sind, die auf ein und derselben Bedeutungsskala liegen, und wenn die zweite sich von der ersten nur darin unterscheidet, daß sie eine höhere Stufe dieser Skala innehat, wenn weiterhin eine *Schicklichkeitsregel* der Verwendung von X' entgegensteht oder

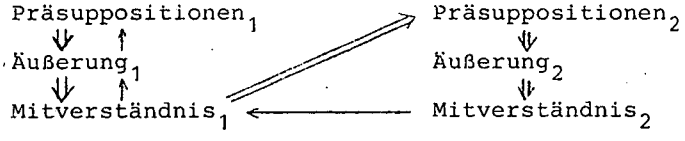
entgegenzustehen scheint, dann neigt der Hörer, der X hört, dazu, sie als X' zu interpretieren."[9] Diese Definition soll insofern präzisiert werden, als die, der Interpretation der Äußerung zugrundeliegende Regel als eine *soziale Regel* hingenommen wird, die das kommunikative Verhalten der Teilnehmer einer Sprechaktsituation steuert. Demnach *bestimmen* solche Regeln die Interpretation von Äußerungen. In unserem Fall soll das soviel bedeuten, daß die Äußerung (A) vom Hörer als eine Beleidigung hingenommen werden könnte: deshalb stellt der Tourist die am Anfang des Witzes stehende Frage. Der Ortsbewohner aber, da er die Äußerung versteht und sich im Klaren über die der Beleidigung entgegenstehende Regel ist, interpretiert die Frage als (A'), und zwar folgendermaßen: der Tourist ist nicht berechtigt, (A) mitzuteilen: als er also die Frage gestellt hat, die semantisch sich am nächsten zu (A) befindet, dann besteht eine recht große Wahrscheinlichkeit dessen, daß er (A') gemeint hat.

Bei diesem Witz soll ein weiteres Moment von grundlegender Wichtigkeit hervorgehoben werden. Ducrot weist überzeugend nach, daß in bezug auf eine Äußerung das Mitverständnis den Präsuppositionen zeitlich nachgeordnet ist, oder genauer gesagt, daß, während die Präsuppositionen Elemente der linguistisch-semantischen Komponente bilden, sind die Mitverständnisse in der rhetorischen Komponente enthalten, die sich als das Output der linguistisch-semantischen Komponente manifestieren. Aber eine wesentliche Struktureigenschaft des

behandelten Witzes besteht darin, daß zwischen der zu der linguistich-semantischen Komponente gehörenden Präsupposition und dem in der rhetorischen Komponente enthaltenen Mitverständnis eine Art Rückkopplung hervorgerufen wird: das heißt, die linguistisch-semantische Komponente kommt - mag es als noch so paradox erscheinen - als das Output der rhetorischen Komponente zustande. Als nämlich der Ortsbewohner die Frage des Touristen als (A´) deutet, gestaltet er seine Antwort diesem Mitverständnis entsprechend: eine Antwort, die sich auf die der Frage widersprechende Präsuppositionsstruktur gründet - das führt dann zu der sprachlichen Zweideutigkeit, der die Pointe des Witzes zu verdanken ist. Aus diesen Präsuppositionen ergibt sich wiederum ein Mitverständnis, das sich annähernd in der folgenden Form darstellen läßt:

(D) "Wollen Sie darauf anspielen, daß jeder Mensch, der in einer Großstadt geboren wurde, ein großer Mann sei?"

Und dieses Mitverständnis ist eine Antwort auf das aus der Frage erschlossene Mitverständnis. Der hier skizzierte Mechanismus läßt sich mit dem folgenden Schema verdeutlichen:



1.4. Assoziationen

(3) Wenn ein Diplomat "ja" sagt, dann meint er "vielleicht". Wenn ein Diplomat "vielleicht" sagt, dann meint er "nein"; und wenn ein Diplomat "nein" sagt, dann ist er kein Diplomat.
Wenn eine Frau "nein" sagt, dann meint sie "vielleicht". Wenn sie "vielleicht" sagt, dann meint sie "ja".
Und wenn sie "ja" sagt, dann hat sie kein Feingefühl.

Die Struktur des Witzes findet ihren Niederschlag in den folgenden Struktureigenschaften:

1. in der Textstruktur: zwischen den beiden Texteinheiten herrscht nicht nur eine Art Parallelität, sondern die zweite Einheit bildet gerade das Spiegelbild der ersten. Daraus enfaltet sich der Prozeß, der Anlaß gibt zur Betrachtung einer spezifischen gemeinsamen Eigenschaft von Diplomaten und Frauen unter einem bestimmten Gesichtspunkt, und zwar so, daß der zwischen ihnen bestehende Unterschied durch ihre analogen Züge hervorgehoben wird. Mit anderen Worten: die Struktur des Textes veranschaulicht die "Identität der Nicht-Identität".
2. in den metasprachlichen Reflexionen: der Erscheinung, die Ducrot "Mitverständnis" nennt, kommt hier eine explizite sprachliche Form zu;
3. dadurch, daß der Witz so offen auf die Entfernung zwischen dem Gedanken und dem ausgesprochenen Wort hinweist, lenkt er die Aufmerksamkeit des Rezipienten auf eine bekannte

Eigenschaft der Denotate, die ungefähr die folgende sprachliche Form erhalten kann:

(E) "Diplomaten und Frauen sagen nie, was sie meinen."

Wenn wir diese Aussage unter die Lupe nehmen, kann uns die Folgerung nicht entgehen, daß sie weder als Präsupposition, noch als Mitverständnis zu qualifizieren ist.

Beachtenswert ist die Tatsache, daß Satz (E), bzw. die Eigenschaft der Diplomaten und der Frauen, daß sie nie das sagen, was sie denken, nicht in der primären Bedeutungsebene der beiden Begriffe enhalten ist. Dieser Tatbestand ist mit der Annahme gleichzusetzen, daß diese Eigenschaft nichts anderes als eine, sich an die Begriffe knüpfende *Assoziation* ist, die - obwohl sie natürlich keinesfalls mit der Bedeutung der Wörter "Frau" und "Diplomat" identifiziert werden kann - im gesellschaftlichen Bewußtsein eng mit den Begriffen des Diplomaten und der Frau verbunden ist. Während also im Falle der Präsuppositionen gewisse Eigentümlichkeiten der Witze auf die Denotationsebene der semantischen Struktur von Äußerungen und bei den Mitverständnissen auf die, außerhalb der linguistisch-semantischen Sphäre fallende rhetorische Komponente zurückgeführt worden sind, scheint die Struktur von Witz (3) auf der zweiten Ebene der semantischen Komponente, der der Konnotation zu beruhen. Die Bedeutungsstruktur des Witzes wird also von der Ebene der Denotation in die Richtung der der Konnotation verschoben und das läßt darauf schließen, daß die Struktur des Witzes gesellschaftlich akzeptierte Asso-

ziation als unbestreitbar gegeben voraussetzt, die die Interpretation der Äußerungen bestimmen.

Dieser Bedeutungsstruktur kommt deshalb Relevanz zu, weil sie zur Erklärung einer grundlegenden Eigentümlichkeit des Witzes beiträgt: seiner manipulativen Kraft. Es war notwendig, zu dem Erkennen der manipulativen Kraft des Witzes zu gelangen, denn es versteht sich von selbst, daß der Witz die Denkweise, das Sprach- und Weltbild des Rezipienten außerordentlich stark modifiziert, indem er die, über ein breites Bedeutungsfeld verfügende aktuelle Bedeutung eines Begriffs durch ein konnotatives Element, das ursprünglich nicht in der lexikalischen Bedeutung des Begriffs enthalten war, modifiziert. (Dazu sei noch die Bemerkung hinzugefügt, daß das Wort "manipulativ" in einem neutralen Sinn, ohne seine negativen und pejorativen Konnotationen zu der Bezeichung der auf den Empfänger ausgeübten Wirkung einer sprachlichen Konstruktion verwendet wird, die seine Denkweise beeinflußt, ohne daß er sich im Klaren über diese Einwirkung wäre.)

Um jetzt zu den Präsuppositionen zurückzukehren, wird es zweifellos ersichtlich, daß auch sie eine starke manipulative Wirkung ausüben - jedoch aus einem anderen Grund. Schon Frege weist darauf hin, daß die Präsuppositionen, da sie als selbstverständlich einer Äußerung vorauszusetzen sind, wodurch der Hörer gezwungen ist, sie ohne jegliche Begründung anzunehmen, ihre manipulative Verwendung zu fördern scheinen.[10] Ihr Akzeptieren läßt sich schon deshalb nicht bestreiten, weil sie nie in expliziter Form zur Geltung gebracht werden.

Das hat zur Folge, daß der Hörer seine Aufmerksamkeit vielmehr der Kritik des Aussageinhaltes zuwendet als dem Aufdecken und Dekodieren der Präsuppositionen. Da der Rezipient keinesfalls dem Annehmen der Präsuppositionen entgehen kann, es sei denn, daß er die Kommunikationssituation im Grunde zurückweisen will, kann er viel leichter zur Übernahme der Präsuppositionen bewegt werden, als zum Anerkennen der Wahrheit einer Aussage.

Ähnliche Schlußfolgerungen können auch im Fall der den Mitverständnissen zugrundeliegenden sozialen Rageln gezogen werden. Aus unseren Überlegungen läßt sich die manipulative Struktureigenschaft eindeutig ableiten, denn diese Regeln treten in einer kommunikativen Situation nicht explizit zum Vorschein, sondern funktionieren als implizit gegebene Bestimmungsfaktoren der Interpretation von Äußerungen.

Um das bisher Gesagte zusammenzufassen, läßt sich feststellen, daß die drei untersuchten Erscheinungen über folgende gemeinsame Eigenschaften verfügen: erstens, werden sie nicht explizit sprachlich realisiert: zweitens üben sie eine manipulative Funktion aus und drittens, im Zusammenhang damit, bestimmen sie eindeutig die Interpretation einer Äußerung, oder anders formuliert, geben sie Anweisungen zur Interpretation der Äußerung an, wodurch sie gewisse explizit nicht gegebene *Obligationen* in Gang setzen und dadurch zur *normativen* Bestimmtheit des Witz-Sprechaktes beitragen.

Aufgrund dieser gemeinsamen Eigenschaften fassen wir sie zu einer Einheit zusammen. Im weiteren werden wir eine Konjunk-

tion von Präsuppositionen, Assoziationen und Regeln der erwähnten Art, wobei diese natürlich als Propositionen zu rekonstruieren sind, eine *konditionale Basis* nennen. Das Vorhandensein wenigstens eines Elements ist notwendig und hinreichend für eine konditionale Basis. Das soll bedeuten, daß sie einerseits nicht leer sein darf, andererseits genügt aber eine einzige Präsupposition oder eine einzige Assoziation zum Zustandekommen einer konditionalen Basis. Falls mehrere solche vorhanden sind, so werden sie miteinander konjunktiv verknüpft.

1.5. Die Ermittlung der Grundstruktur

(4) X: "Hast du Streichhölzer, Karl?"
Y: "Nein, aber ich habe ein Feuerzeug."
X: "Wie soll ich mir denn die Zähne mit einem Feuerzeug stochern?"

Im gegebenen Fall sind zwei konditionale Basen vorzufinden: die eine aktualisiert sich, wenn man die Streichhölzer zum Feuerzünden, die andere, wenn man sie zum Zahnstochern verwenden will. In einer Mehrdeutigkeit ausschließenden Situation realisiert sich nur die eine Basis; im Witz (4) treten jedoch beide zum Vorschein, und zwar folgendermaßen:
1. X stellt eine Frage, die sich auf Streichhölzer bezieht. Die im Kontext gültige aktuelle Interpretation dieser Äußerung ist aber mit der folgenden Aussage gleichzusetzten: "ich brauche Streichhölzer".

2. Y, um der Frage Rechnung tragen zu können, wendet sich an seine konditionale Basis. Von den ihm zur Verfügung stehenden Systemen - sich auf die jeweilige Situation und seine außersprachlichen Kenntnisse stützend - wählt er eine konditionale Basis aus und versucht, auf Grund ihrer die Frage zu beantworten: die Streichhölzer werden zum Feuerzünden benötigt.
3. Die Antwort von X ermöglicht die eindeutige Eingrenzung der konditionalen Basis, die der Frage zugrunde lag. Es stellt sich heraus, daß diese nicht mit der von Y vorausgesetzten Basis übereinstimmt.
4. Also: eine Äußerung, die sich ursprünglich auf zwei, voneinander getrennt erscheinende konditionale Basen bezieht, aktualisiert sich mit Bezug auf beide Basen.

Mit Anlehnung an Stalnaker betrachten wir eine interpretierte Äußerung als eine Funktion, die Kontexte auf Propositionen abbildet.[11] Demgemäß läßt sich die in einem gegebenen Kontext geltende aktuelle Interpretation einer Äußerung als Proposition darstellen. Führen wir nun das Zeichen "(" und die propositionalen Variablen p, q, r ... ein. Es bezeichne die vom Zeichen ")" rechts stehende Variable die Proposition, die die aktuelle Interpretation einer Äußerung repräsentiert, die von dem Zeichen ")" rechts stehende Variable die konditionale Basis, die unbedingt im Vordergrund stehen muß, damit innerhalb des Rahmens eines Sprechaktes der Sprecher die Äußerung wenigstens einem Rezipienten mitteilen kann, so, daß der Hörer den intendierten Inhalt zu entnehmen imstande ist.

Führen wir weiterhin die logischen Konstanten "-", "&", "v", "→", "≡" zur Bezeichnung jeweils der Negation, der Konjunktion, der Disjunktion, der Implikation und der Äquivalenz, sowie die Klammer "(", ")" ein. Dann erhält die im Punkt 4. dargelegte Beobachtung die folgende Form:

$$(p/q) \ \& \ (p/r) \equiv (p/q\&r)$$

wobei

p = "Ich brauche Streichhölzer"

q = die konditionale Basis, die mindestens die folgende Proposition enthält: "Streichhölzer werden zum Feuerzünden gebraucht".

r = die konditionale Basis, die mindestens die folgende Proposition enthält: "Streichhölzer werden zum Zahnstochern gebraucht".

Das Problem läßt sich aber auch in einer anderen Weise erfassen. Man betrachte die Menge r aller zu einer bestimmten Äusserung gehörenden konditionalen Basen. Nun stellt sich die Frage, ob sich die Äußerung "Hast du Streichhölzer, Karl", mitteilen läßt, wenn r gegeben ist. Eine bejahende Antwort kann nur in dem Fall gegeben werden, wenn man diese Äußerungen als zwei, sich voneinander semantisch unterscheidende Interpretationen der Äußerung ansieht, die, falls sie sich einzeln aktualisieren, aus dem potentiell beide umfassenden System r die der interdierten Mitteilung entsprechende Basis auswählen; die andere Basis, obwohl sie potentiell vorhanden ist, übt keinen Einfluß auf das Dekodieren der Äußerung aus. Somit er-

halten wir die folgenden zwei Interpretationen der eingangs erwähnten Äußerung:

p = Ich brauche Streichhölzer zum Zahnstochern

q = Ich brauche Streichhölzer zum Feuerzünden.

r = die Konjunktion mindestens der Propositionen "Streichhölzer werden zum Feuerzünden gebraucht" und "Streichhölzer werden zum Zahnstochern gebraucht".

In dem Witz treten jedoch beide Interpretationen der Äußerung gleichzeitig auf, also es gilt die Äquivalenz:

$$(p/r) \ \& \ (q/r) \equiv (p \ \& \ q/r)$$

Es besteht keine Möglichkeit, die hier abgeleiteten Grundgesetze anhand einer großen Anzahl von Witzen zu explizieren. Deshalb wird die These, daß diese zwei Gesetzmäßigkeiten wenigstens *einen* Grundtyp des Witzes hinreichend charakterisieren, nur als eine Hypothese formuliert.

1.6. Ein System der deontischen Logik

Den Gegenstand der deontischen Logik[12] bilden Handlungen, zu deren Beschreibung sie normative Operatoren verwendet, wie z.B. "ist geboten" ("O"), ist erlaubt" ("P") und "ist verboten" ("F").

Eine Motivation für die Anwendung der deontischen Logik haben wir schon erwähnt, indem darauf hingewiesen wurde, daß die konditionalen Basen eng mit Obligationen normativer Natur zusammenhängen, wodurch gewisse Interpretationen der Äußerungen geboten werden.

Eine zweite Motivation ergibt sich aus der Analyse von Sprechakten bzw. Sprechaktsituationen - dabei sollten die folgenden kurzen Bemerkungen genügen.[13]

Erstens: Searle unterscheidet zwischen konstitutiven und regulativen Regeln.[14] Die letzteren sind jedoch eindeutig, dem logischen Status nach, auf normative Grundlagen zurückzuführen.

Zweitens: Grice identifiziert die Mechanismen, die die Interpretation einer Äußerung in einem Sprechakt bestimmen, mit allgemeingültigen Maximen.[15] Da diese Maximen Aufforderungen sind, ist ihre logische Beschaffenheit normativ und sie können dementsprechend leicht mit Hilfe der deontischen Logik formalisiert werden.

Drittens: Wunderlich betont ausdrücklich, daß jede Sprechhandlung gewisse Obligationen für Sprecher und Hörer erzeugt und/oder erfüllt.[16] Mit den Obligationen sind soziale Regeln verbunden: "Jede mit einer Obligation verbundene soziale Regel läßt sich in der folgenden Form beschreiben: Man sollte, wenn die Bedingungen G bestehen, eine Handlung vom Typ A tun (bzw. unterlassen), andernfalls könnte man eine Sanktion aus dem Bereich T erwarten."[17]

Mögen diese Hinweise noch so oberflächlich sein, scheinen sie jedoch die Anwendung der deontischen Logik zur logischen Beschreibung von Sprechakten eindeutig zu rechtfertigen.

Dies soll also soviel besagen, daß im Zusammenhang mit einer jeden Äußerung gewisse Obligationen auftreten, die eine gewisse Interpretation dieser Äußerung gebieten. Die

oben von Wunderlich erwähnte soziale Regel, die den Äußerungen zuzuordnen ist, macht die Aktualisation einer der Interpretationen der Äußerung für die Teilnehmer der kommunikativen Situation obligatorisch. Diese Regel kann demnach als eine deontische Formel dargestellt werden, deren erstes Element ein deontischer Operator, also z.B. "obligatorisch" (O) und dessen zweites Glied diejenige Proposition ist, die die aktualle Interpretation der Äußerung repräsentiert. Wir ergänzen somit die im vorangegangenen Kapitel angeführten Ausdrücke mit dem Operator "O". Ausdrücke der Form "O(p/q)" werden wie folgt gelesen: "Wenn die konditionale Basis (d.h., wenn die Bedingung) *q* gegeben ist, ist die Interpretation der Äußerung als die Proposition *p* geboten". Solche Formeln können, falls nötig, auf die Person des Sprechers oder des Hörers relativiert werden: $O^{s}(p/q)$ oder $O^{h}(p/q)$, wobei die obige Lesart mit den Ausdrücken "für den Sprecher" oder "für den Hörer" ergänzt wird.

In der deontischen Logik wird zwischen monadischen und dyadischen Systemen unterschieden. Während die ersteren sich mit absoluten, d.h. bedingungslos geltenden Normen beschäftigen, behandeln die dyadischen Systeme sog, hypothetische Normen, die immer nur aufgrund bestimmter Bedingungen auftreten. Die im vorangehenden Kapitel durchgeführte Analyse zeigt, daß im Witz die Interpretation einer Äußerung durch die konditionalen Basen bestimmt wurde, wodurch die Anwendung eines dyadischen Systems hinreichend motiviert zu sein scheint.

Das hier vorzuschlagende Modell gründet sich auf ein System der dyadischen deontischen Logik, das von G.H. von Wright entworfen wurde.[18] Dieses System wird jedoch sowohl modifiziert, als auch uminterpretiert. Dies wird einerseits dadurch gerechtfertigt, daß das ursprüngliche Anwendungsgebiet der deontischen Logik die Ethik und die Rechtsphilosophie bilden, wir aber hier sprachliche Erscheinungen untersuchen, und zweitens dadurch, daß ein deontisch logisches System immer auf einen bestimmten normativen Kodex bezogen werden muß. Die Logik selbst bietet lediglich einen formalen Rahmen dar, der immer dem gegebenen normativen Kodex gemäß spezifiziert werden muß. Aber die Gültigkeit der Formeln ist nicht nur auf den Kodex zu relativieren, sondern auch auf eine pragmatische Interpretation. Es dürfte klar sein, daß die deontische Logik grundsätzlich pragmatisch ausgeprägt ist, denn sie setzt die Existenz derjenigen Personen voraus, die die Normen befolgen - semiotisch betrachtet hat man hier also mit den Interpretatoren im Sinne von Morris zu tun. Das System wird demgemäß den Witzen entsprechend interpretiert.

Der wichtigste formale Unterschied zwischen unserem und von Wrights System betrifft sein Axiom B3, das folgendermaßen lautet: $O(p/q \vee r) \equiv O(p/q) \ \& \ O(p/r)$. Dieses Axiom wird durch unser A1 ersetzt. Zwar ist die Plausibilität von B3 in einem ethischen Kontext nicht zu leugnen, doch erweist es sich in unserem Kodex als unbrauchbar. Der Grund dafür liegt darin, daß B3 infolge des Wahrheitsmatrixes der Disjunktion auch dann wahr wäre, wenn auf der linken Seite der Äquivalenz nur

eine Basis sich realisieren würde: dagegen aber war es eine wichtige Struktureigenschaft der Witze, daß eine Äußerung auf beide Basen gleichzeitig bezogen werden mußte.

Wenn wir die im Kapitel 1.5. ermittelten Formeln, die die grundlegendsten Struktureigenschaften des Witzes darstellen, mit dem deontischen Operator "O" ergänzen und sie im oben ausgeführten Sinne deuten, erhalten wir die ersten zwei Axiome des Systems. Es soll aber auch das folgende dritte Axiom A3 eingeführt werden: $-(O(p/q) \ \& \ O(-p/q))$. In dem (monadischen) Standardsystem der deontischen Logik ist das folgende Axiom gültig: $-(Op \ \& \ O-p)$; das erwähnte A3 scheint also eine einfache dyadische Adaptation dieses Axioms zu sein. Die Funktion dieser beiden Axiome besteht darin, daß sie die Konsistenz des Systems garantieren sollen, indem sie die Ableitung einander widersprechenden Obligationen von vornherein ausschließen.

Es ergibt sich also das folgende System:

Axiome

A1 $O(p/q) \ \& \ O(p/r) \equiv O(p/q \ \& \ r)$

A2 $O(p/r) \ \& \ O(q/r) \equiv O(p \ \& \ q/r)$

A3 $-(O(p/q) \ \& \ O(-p/q))$

Ableitungsregeln

R1 Eine jede Variable oder jeder molekuläre Ausdruck in einem jeden Axiom oder Theorem kann durch andere Variable oder molekuläre Ausdrücke ersetzt werden.

R2 modus ponens

R3 Eine jede Variable oder jeder molekuläre Ausdruck in einem jeden Axiom oder Theorem kann durch eine tautologisch äquivalente Zusammensetztung von Variablen ersetzt werden.

R4 Ein jeder O-Ausdruck, der aus einer Tautologie der Aussagenlogik abgeleitet wurde, indem die Aussagen-Variablen durch O-Ausdrücke ersetzt wurden, ist ein Theorem.

Die ersten drei Ableitungsregeln sind mit den üblichen Regeln des Aussagenkalküls identisch: die vierte ist die sogenannte Extensionalitätsregel, die die Gültigkeit der aussagenlogischen Formeln in der deontischen Logik sichert.

Das System ist entscheidbar. Bei der Entscheidung, ob eine Formel ein Theorem des Systems ist, d.h. ob es eine deontische Tautologie darstellt, oder nicht, bedienen wir uns des folgenden Verfahrens.[19] In jedem atomaren O-Ausdruck der Formel ersetzte man die von dem Zeichen" /" links stehenden Variablen oder molekulären Ausdrücke durch ihre kanonische konjuktive Normalform: die von dem Zeichen" /" rechts stehenden Variablen oder molekulären Ausdrücke durch ihre disjunktive Normalform. Nun wende man die in A1 und A2 dargelegten Distributionsregeln an. Die so entstehenden atomaren O-Ausdrücke werden die O-Konstitutenten der Formel genannt. In jeder O--Konstituente ist auf der linken Seite des Zeichens" /" die Disjunktion aller Variablen oder molekulären Ausdrücke, auf der rechten Seite des Zeichens" /" die Konjunktion aller Variablen oder molekulären Ausdräcke zu finden. Zu der, in

dieser Weise umgestalteten Formel kann eine Wahrheitsmatrix konstruiert werden, mit Rücksicht auf die folgende Beschränkung, die durch A3 auferlegt wird. Man betrachte all die O-Konstituenten, in denen eine gegebene Konjunktion rechts vom Zeichen" /" steht. Man bilde die Konjunktion der links von" /" stehenden Disjunktionen in allen O-Konstituenten. Ist diese Konjunktion kontradiktorisch, so kann nicht *jeder* O-Konstituente der Wert "wahr" zugeordnet werden. Wenn der untersuchte Ausdruck sich als Tautologie erweist, ist er ein Theorem des Systems.

Im folgenden werden einige interessante Theoreme angeführt.

(T1) $O(p/q) \rightarrow O(pv\text{-}p/q)$

Das Theorem ergibt sich unmittelbar aus A2 und der aussagenlogischen Tautologie $p = (pv\text{-}p)\ \&\ p$, mit Hilfe von R3 und R4. Es wird wie folgt interpretiert: "Wenn eine Interpretation einer Äußerung auf einer bestimmten Basis obligatorisch ist, dann ist jede beliebige Interpretation der Äußerung obligatorisch auf derselben Basis." Somit schließt das Theorem die Aktualisation anderer, sich von p unterscheidender Interpretationen nicht aus, wodurch es eine notwendige, aber nicht hinreichende Bedingung der Realisation von Witzen liefert.

(T2) $O(p\ \&\ q/r) \rightarrow O(p\ \&\ q/p)$

(T3) $O(p\ \&\ q/r) \rightarrow O(p\ \&\ q/q)$

Diese beiden Theoreme können unmittelbar aus A2 mit Hilfe von R1 und R4 abgeleitet werden. Die Interpretation lautet: "Wenn aufgrund zweier konditionaler Basen zwei Interpretationen obligatorisch sind, dann sind beide auf einer Basis obligatorisch, die nur einer der beiden entspricht". Die Theoreme werden sofort verständlich, wenn die Bedeutung eines Ausdrucks von der Form $O(p/p)$ geklärt wird. In diesem Zusammenhang betont von Wright: "Sometimes the world is as it ought to be. It is thoroughly meaningful to make it a duty that $O(p/p)$. The duty to see to it that p when it is the case that p requires us to take heed that the state of affairs in question does not disappear. Not always, howerver, is the world as it ought to be. Then the duty may be that $O(p/-p)$. The duty to see to it that p when this is not the case requieres us to take care that the state of affairs in question comes to be. It should be clear from these considerations that there is no objection, from the point of view of interpreting the formulae, to the possibility that the same variable appears both to the left and to the right of the "/" in the same atomic expression".[20] Demgemäß sagen die Theoreme soviel aus, daß zwei verschiedene Interpretationen einer Äußerung auf einer einzigen Basis geboten sind, wobei die Basis die perfekte Aktualisierung der einen ermöglicht - zwischen der Basis und der anderen obligatorischen Interpretation besteht eine Art Inkongruenz oder Diskrepanz, die in den bekannten Witztheorien immer wieder erwähnt wird.

(T4) $O(p \,\&\, q/r) \equiv O(p \,\&\, q/p) \,\&\, O(p \,\&\, q/q)$, wobei $r = p \,\&\, q$

(T4) ergibt sich unmittelbar aus (T2) und (T3) mit Hilfe von R4, des Konjunktionsprinzips P, Q, ⊢ P & Q (wobei P und Q gültige Formeln sind) und der Tautologie $(p \rightarrow q) \ \& \ (p \rightarrow r) \equiv \equiv (p \rightarrow q \ \& \ r)$. "Auf einer bestimmten konditionalen Basis sind zwei Interpretationen obligatorisch gdw. jede Interpretation sich auf der ihr entsprechenden Basis obligatorisch aktualisiert." Es ist leicht einzusehen, daß dieses Theorem eine wichtige Struktureigenschaft der Witze formuliert: ihre Polarität.

Ähnlich wie (T2)-(T4) ergeben sich die folgenden Theoreme und werden analog intepretiert, deshalb wird darauf nicht eingegangen:

(T5) $O(p/q \ \& \ r) \rightarrow O(q/q \ \& \ r)$ wobei $p = q \ \& \ r$

(T6) $O(p/q \ \& \ r) \rightarrow O(r/q \ \& \ r)$ wobei $p = q \ \& \ r$

(T7) $O(p/q \ \& \ r) \equiv O(q/q \ \& \ r) \ \& \ O(r/q \ \& \ r)$ wobei $p = q \ \& \ r$

An dieser Stelle ist jedoch nicht mehr zu übersehen, daß, obwohl die Theoreme einige wichtige Struktureigenschaften des Witzes formulieren, sie einen grundlegenden Zusammenhang verschleiern: wenn nämlich z.B. auf einer Basis zwei verschiedene Interpretationen obligatorisch sind, dann *schließen sie einander aus*, d.h. die gleichzeitige Aktualisierung der beiden Interpretationen führt zu einem *Widerspruch*. Formal soll das bedeuten, daß, wenn $O(p/r) \ \& \ O(q/r)$, dann gilt in jedem Fall $(p \rightarrow -q)$, was zur Gültigkeit der Formel $O(p/r) \ \& \ O(-p/r)$ führen würde. Und diese Formel ist es gerade, die durch Axiom A3 ausgeschlossen wird, denn sie würde zur Inkonsistenz des Systems führen. Daß aber diese Formel eine grundlegende Eigenschaft des Witzes

repreäsentiert, ist anhand von Beispiel (4) leicht zu zeigen. Falls der Sprecher mit seiner Äußerung die Interpretation intendiert hat: "Ich möchte meine Zähne stochern" (p), dann hat er offensichtlich nicht gemeint: "Ich möchte Feuer zünden" (q, dh. -p). Aber gerade in der konjunktiven Verknüpfung und in dem gleichzeitigen Gebotensein dieser beiden Propositionen besteht der Kern des Witzes. Damit bietet sich die Schlußfolgerung an, daß unser System den Witz nicht hinreichend modellieren kann, denn es ist nicht imstande, seine wichtigste Struktureigenschaft zu erfassen. Es stellt sich die Frage, ob es möglich ist, die Unzulänglichkeit des Systems zu korrigieren?

Wir gehen davon aus, daß das ominöse Axiom A3 aufgrund von Analogie aus dem monadischen Standardsystem übernommen wurde, ohne die Eigentümlichkeiten der dyadischen deontischen Logik zu berücksichtigen. Es bietet sich der folgende Gedankengang an.[21]

Ausdrücke, die den Operator "O" vor der Disjunktion von Variablen enthalten, werden monadische O-Konstituenten genannt. Im Fall von n Variablen ist die Zahl der monadischen O-Konstituenten 2^n. Diese nennen wir die O-Einheiten des von n-Variablen bestimmten deontischen Raumes. Eine Variable p bestimmt einen deontischen Raum, der zwei O-Einheiten enthält, nämlich Op und O-p. Demnach sagt A3 soviel aus, daß diese zwei O-Einheiten nicht zugleich gültig sein können, mindestens eine von ihnen muß ungültig sein. Zwei Variablen bestimmen einen deontischen Raum von vier O-Einheiten: $O(pvq)$, $O(-pvq)$, $O(pv-q)$,

$O(-pv-q)$. Es ergibt sich unmittelbar, daß nicht alle vier O-Einheiten gültig sein können. Dieses Prinzip wird auch im dyadischen System beibehalten.

Es sei nun eine Menge von n Variablen gegeben. Man wähle m Elemente dieser Menge aus, verknüpfe sie disjunktiv miteinander und bilde die Negation der übrig gebliebenen. Man wähle weiterhin k Elemente der Menge aus, verknüpfe sie konjunktiv miteinander und bilde die Negation der übrig gebliebenen. Eine Formel, die aus dem Operator "O" und der erwähnten Disjunktion und Konjunktion besteht, wobei die letzteren voneinander durch "/" getrennt werden, nennen wir eine dyadische O-Konstituente.

Die Zahl der von n-Variablen determinierten dyadischen O-Konstituenten beträgt $2^n \cdot 2^n$, d. h. 2^{2^n}. Für $n = 1$ ist diese Zahl vier, also $O(p/p)$, $O(-p/p)$, $O(p/-p)$, $O(-p/-p)$. Dementsprechend läßt sich die Einführung eines Axioms A3' anstelle von A3 rechtfertigen. Dieses Axiom sagt aus, daß von den O-Konstituenten, die von einer Variablen bestimmt worden sind, nicht alle gleichzeitig wahr sein können:

A3' $-(O(p/p) \;\&\; O(-p/p) \;\&\; O(p/-p) \;\&\; O(-p/-p))$

Die Gültigkeit des Axioms für den allgemeinen Fall von n Variablen ist leicht zu beweisen mit Hilfe von A1, A2, R4 und der zweimaligen Anwendung von A3'. Damit erhalten wir das folgende endgültige Axiom:

A3'' $-(O(p/q) \;\&\; O(-p/q) \;\&\; O(p/-q) \;\&\; O(-p/-q))$

Das Axiom sagt also aus, daß von den vier dyadischen O-Konstituenten nicht alle gleichzeitig wahr sein können, d.h.

das Axiom ist schon dann erfüllt, wenn wenigstens eine Konstituente als falsch ausgeschlossen wird und demgemäß werden alle anderen als gültig angenommen, unabhängig davon, ob sie unter anderem auch die Ausdrücke $O(p/q)$ und $O(-p/q)$ enthalten.

Dieses Axiom ist von fundamentaler Wichtigkeit im Hinblick auf die logische Repräsentation der Strukturmerkmale des Witzes, indem es die Identifikation seines Strukturkernes mit einem *Normenkonflikt* ermöglicht.[22] Wir sagen, daß Normen miteinander im Konflikt stehen, wenn die Gültigkeit zweier Obligationen auf derselben Basis gefordert wird. Einen solchen Normenkonflikt stellt z.B die Formel $O(p/r)$ & $O(-p/r)$, oder die Formel $O(p/r)$ & $O(q/r)$, wobei $(p \rightarrow -q)$ dar; und diese sind ja mit denjenigen Formeln identisch, die den Strukturkern des Witzes formulieren, die aber unter Beibehaltung von A3 nicht abgeleitet werden konnten. Das Axiom A3'' ermöglicht eindeutig sowohl die Ableitung dieser Normenkonflikte als auch das Zurückführen der Witzstruktur auf einen Normenkonflikt.

1.7. Schlußfolgerungen: die Thesen

Bei der Untersuchung des Witzes wurde eine Methode verwendet, die enerseits auf semantisch-pragmatischen Faktoren, andererseits auf einem deduktiv aufgebauten System der deontischen Logik beruht. Diese Methode liefert uns neue Erkenntnisse über das Wesen des Witzes, die in der Form von Thesen oder gesetzartigen Aussagen zu formulieren sind. Aus der Betrachtung der Hauptcharakteristika der Methode ergibt sich der folgende Gedankengang.

Da die Gültigkeit aller drei Axiome exakt zu beweisen ist und da alle drei die Struktureigenschaften des Witzes darlegen, wodurch zur Ableitung weiterer Eigenschaften Anlaß gegeben wird, läßt sich eideutig die folgende These aufstellen:

TT1 Der Witz kann mit der deontischen Logik modelliert werden.

Über die deontische Logik wissen wir, daß sie die klassische zweiwertige Aussagenlogik nicht leugnet, sondern ihre Regeln und Tautologien beibehält. Also:

TT2 Die deontische Logik enthält die Gesetze der klassischen Logik.

Unsere Analysen haben weiterhin eindeutig bewiesen:

TT3 Den Kern des Witzes bildet der Normenkonflikt.

In der deontischen logik stellen Normenkonflikte keine Inkonsistenz dar im aristotelischen Sinne; Systeme, die diese dulden, sind nicht inkonsistent. Da nach TT2 die deontische Logik die Gesetze der klassischen Logik enthält, indem diese durch die deontischen Gesetze ergänzt worden sind, und nach TT1 der Witz mit einem deontisch logischen System modelliert werden kann, ergibt sich unmittelbar die folgende Schlußfolgerung:

TT4 Die Metafunktion des Witzes beruht nicht auf der Verletzung der Regeln der Logik und des konsistenten menschlichen Denkens, sondern auf ihrer Beibehaltung und Neuinterpretierung auf einer qualitativ anderen Ebene.

Weiterhin folgt unmittelbar aus diesen Thesen:

TT5 Die logische Struktur des Witzes ist konsistent.

Anhand von TT3 kann nun die in der Einführung genannte scheinbar widersprüchliche Doppelseitigkeit des Witzes klar erklärt werden:

TT6 Die inkongruente Natur des Witzes folgt daraus, daß er auf der Ebene der Normen Konflikte enthält.

TT7 Für die Interpretierbarkeit des Witzes folgt daraus, daß er auf der Ebene der Logik konsistent ist.

Normenkonflikte bilden die zentralen Elemente von Normensystemen und der deontischen Logik und spielen eine äußerst progressive Rolle in diesen. Sie sind verantwortlich für ihren Dynamismus, ihren Selbstorganisierungsmechanismus, ihre ständige Umstrukturierungsfähigkeit und dialektische Natur. Daraus, daß Witze als Normenkonflikte dargestellt wurden, folgt also:

TT8 Witze sind Elemente eines dynamischen, sich ständig neustrukturalisierenden Systems.

TT9 Witze gehören zu den Herauslösern dieser Umstrukturierungsprozesse.

TT10 Witze spielen eine progressive Rolle in diesem System.

TT11 Witze sind nicht statisch, sondern prozessual.

Die deontische Logik ist grundsätzlich pragmatischer Natur, denn sie setzt die Existenz von Personen voraus, die an den normativen Vorgängen teilnehmen:

TT12 Der Witz ist grundsätzlich pragmatisch.

Auf den ersten Blick scheint die folgende These sich unmittelbar ableiten zu lassen:

TT13 Aus der logischen Struktur des Witzes lassen sich seine pragmatischen Teilkomponenten ableiten, nämlich die psychologische, anthropologische, ästhetische, volkskundliche, soziologische, usw.

Könnte man diese These bestätigen, so wäre bewiesen, daß das vorgeschlagene Modell tatsächlich die Grundlagen zur einheitlichen Behandlung der pragmatischen Teilaspekte des Witzes schuf, wodurch die konsistente Integration der auf diesen Gebieten vorliegenden Untersuchungen in eine kohärente Theorie geleistet wäre. Demgemäß könnte man u.a. auf die folgenden Zusammenhänge hinweisen:

Es baut sich z.B. alles, was über die Präsuppositionen, Mißverständnisse, Assoziationen gesagt wurde, einschließlich der manipulativen Kraft dieser Erscheinungen, auf psychologische bzw. anthropologische Momente auf. Die Erforschung der erwähnten sozialen und Schicklichkeitsregeln würde das Gebiet der Soziologie eröffnen. Das Verhältnis des Modells zu den einzelnen Bereichen der Logik, sowie zum menschlichen Denken im allgemeinen fordert kognitive und epistemologische Untersuchungen. Auch die Frage, was für ästhetische Inhalte dieser Struktur zukommen können, erscheint auschlaggebend. Die Konsequenz, daß aufgrund des Modells der Witz in einen speziellen Bereich gesellschaftlicher Handlungsschemata gehört, der unter anderem von Lügen, einander widersprechenden ethischen Anweisungen und dem Versprechen verbotener Handlungen bestimmt ist, wirft schwerwiegende gesellschaftsphilosophische Probleme auf.

Von äußerst großer Wichtigkeit ist die Frage, was für eine Position der Witz, als ein über eine eigenartige logische Struktur verfügendes kommunikatives Mikrosystem, in den Vorgängen der gesellschaftlichen Kommunikation einnimmt. Wie ist die immanente Struktur seines Kodes zu beschreiben usw. These TT13, die Anlaß zu diesen äußerst wichtigen Erwägungen gibt, kann jedoch nicht bewiesen werden.

Um das einzusehen, soll man die Tatsache in Betracht ziehen, daß all die Thesen aufgrund der Anwendung einer bestimmten Methode aufgestellt wurden - diese Methode war ein *logisches* System. Deshalb können wir nur auf die Thesen folgern, die unmittelbar aus logischen Objekten zu erschließen sind. Demgegenüber sind die Begriffe, die in TT13 vorkommen, nichtlogische Begriffe - und uns stehen keine Schlußregeln zur Verfügung, aus logischen Prämissen auf nichtlogische Konsequenzen zu schließen. Deshalb können wir TT13 aufgrund der angewendeten Methode nicht beweisen.

Auf der anderen Seite ist es einleuchtend, daß TT13 unbedingt Element der Theorie sein muß, um einerseits, die anfangs aufgestellte Arbeitshypothese WT2 nachweisen zu können, und andererseits, damit die angestrebte Theorie den Bereich des Witzes nicht auf eine leere logische Struktur beschränkt, die nichts mit den eigentlichen Wesensmerkmale des Witzes zu tun hat. Es folgt also, daß TT13 nicht nur ein Desideratum, sondern ein tatsächlicher Bestandteil der Theorie ist. Zusammenfassend läßt sich also feststellen, daß TT13 ein Element der Theorie darstellt, jedoch in der Theorie selbst nicht

bewiesen werden kann. Eine solche Theorie wird im deduktiv - logischen Sinne *unvollständig* genannt.

Diese Feststellungen führen zu einem nächsten Problemkreis. Mit Hilfe unserer Untersuchungen gelangten wir zu Erkenntnissen, die in der Form von Thesen formuliert wurden. Auf dieser Stufe bilden aber diese Thesen lediglich eine unsystematisierte Menge, da es unklar ist, welche Beziehungen unter ihnen herrschen. Eine ungeordnete Menge von Sätzen ist jedoch noch keine Theorie - deshalb besteht die nächste Aufgabe in der Systematisierung dieser Erkenntnisse, wobei unter anderem auch eine Lösung des aufgeworfenen Problems der Unvollständigkeit gesucht wird.

2. Epistemische Systematisierung

2.1. Die axiomatische Methode

Die epistemische Systematisierung, deren Aufgabe in der Aufdeckung der, unter den einzelnen Thesen oder Gesetzen der hypothetisch angenommenen Kenntnisse herrschenden Beziehungen besteht, soll zunächst ausschließlich auf einer allgemeinen erkenntnistheoretischen Stufe behandelt werden, die scharf von der wissenschaftstheoretischen Beschreibung der Theorienstruktur abgegrenzt werden muß. Es soll dabei nachdrücklich hervorgehoben werden, daß es uns bei der Diskussion der Systematisierungsmöglichkeiten der ermittelten Thesen weder um die Befolgung der von anderen Einzelwissenschaften gesetzten Normen, Desiderata und Ideale geht, wie das z.B. bei der

Übernahme der naturwissenschaftlichen Denkweise der Fall wäre, um einen verhältnismäßig hohen Grad an Präzision und Exaktheit zu erreichen unter Vernachlässigung der Eigentümlichkeiten des Gegenstandes; noch handelt es sich um einen Anschluß an literaturwissenschaftliche Traditionen, wobei die Forderung der präzisen Darstellbarkeit des epistemischen Systems preisgegeben wird, unter dem Vorwand, daß eine solche dem untersuchten Gegenstand nicht entspräche, denn dadurch würde eine mit Anomalien beladene, uninterpretierbare Theorie entstehen. Die Zielsetzung der folgenden Untersuchungen besteht darin, ein Verfahren zu finden, das zugleich präzise und gegenstandsbezogen ist.

Eine eingehende Analyse epistemischer Traditionen weist nach, daß uns grundsätzlich zwei Verfahren zur Verfügung stehen: das axiomatische und das kohärentistische. Etwas vereinfachend formuliert, läßt sich feststellen, daß der ersten Methode vorwiegend in der Mathematik und in den Naturwissenschaften, der zweiten dagegen in den Gesellschaftswissenschaften der Vorzug gegeben wird. Zunächst wird die Anwendbarkeit der axiomatischen Methode untersucht. Eine kurze schematische Zusammenfassung ihrer wesentlichsten Merkmale läßt sich wie folgt darstellen:

(a) Grundsätzlich gibt es zwei Arten von Wahrheiten: grundlegende (Axiome) und abgeleitete (Theoreme).
(b) Die Erfahrung liefert die grundlegenden Kenntnisse.
(c) Nur wohlbekannte Wahrheiten finden Eingang in die Menge der diskursiven Kenntnisse.

(d) Die in den späteren Phasen des Erkenntnisvorgangs gewonnenen Kenntnisse können nicht auf die früher als wahr angenommenen Thesen zurückwirken.

(e) Es wird zwischen Beobachtungssätzen und allgemeinen Gesetzmäßigkeiten unterschieden.

(f) Die Widerspruchsfreihet der beim Argumentieren verwendeten Evidenz wird vorausgesetzt.

Zur Bewertung der axiomatischen Methode läßt sich folgendes sagen.

(1) Der wesentlichste Vorteil der Axiomatisierung besteht darin, daß, wenn schon einmal die Axiome ermittelt und geprüft worden sind, man die aus ihnen abgeleiteten Thesen nicht mehr einzeln der Wirklichkeit gegenüberzustellen braucht, es genügt, lediglich nachzuprüfen, ob sie aus den Axiomen folgen oder nicht. Die Vollständigkeit und Konsistenz des Axiomensystems garantiert also den höchsten Grad an wissenschaftlicher Zuverlässigkeit, Exaktheit und Präzision. Es ist sehr leicht einzusehen, daß in dem im Kapitel 1.7. angeführten Gedankengang zur Argumentation die Schlüsse der klassischen Logik angewendet wurden (diese Argumentation, sowie die Thesen selbst lassen sich ohne weiteres formalisieren, das ist jedoch keine notwendige Voraussetzung). Es ergibt sich demnach, daß es genügt, nur die Thesen TT1, TT2, TT3 aufgrund des Modells aufzustellen, alle anderen Thesen (mit der Ausnahme von TT13) lassen sich aus ihnen unter Verwendung der Schlußregeln ableiten. Dementsprechend wären also TT1, TT2, TT3 die Axiome,

die anderen Thesen die Theoreme des epistemischen Systems. Bei einer solchen Axiomatisierung ergeben sich jedoch folgende Probleme.

(2) Der erste Einwand folgt aus dem analytischen Charakter eines jeden Axiomensystems. Das soll bedeuten, daß die Theoreme, die mit Hilfe wahrheitswertbewahrender logischer Regeln von den Axiomen abgeleitet werden, keine solchen Informationen tragen können, die in den Axiomen nicht enthalten wären. Das heißt, die Axiome tragen, wenn auch implizit, den ganzen Informationsgehalt des Systems; die Aufgabe der Theoreme besteht lediglich darin, diese implizite Information explizit zu machen. Auf einer allgemeinen erkenntnistheoretischen Stufe kann diese Tatsache durch die folgende These der epistemischen Logik verdeutlicht werden:

$$W(a,p) \rightarrow W(a,W(a,p))$$

Lies: "Weiß die Person a, daß p gilt, so weiß sie auch, daß sie das weiß." (Wobei "W" für das Prädikat "wissen", "a" für eine Person und "p" für einen Sachverhalt steht.) In der vorliegenden Interpretation sagt die These soviel aus, daß aus impliziten Kenntnissen auf ihre Explizierung logisch zu folgern ist, wodurch das Implicandum keineswegs informationsreicher sein kann als das Implicans. Da das eine unvermeidbare Konsequenz eines jeden Axiomensystems ist, lassen sich schon an dieser Stelle Bedenken gegenüber der Axiomatisierung der Theorie des Witzes hervorbringen: es soll nämlich eine solche Systematisierung ermöglicht werden, in der jede These Träger selbständiger Informationen ist, um die durch neue Untersuchungen

gewonnenen Kenntnisse ständig in das epistemische System integrieren zu können, wobei auch die Ergebnisse der nichtlogischen Untersuchungen mit berücksichtigt werden können.

(3) Die Axiome, deren grundlegende Wahrheit hypothetisch angenommen wird, verfügen über die folgenden zwei Eigenschaften: erstens, müssen sie als maximal gesichert und begründet gelten, um die Wahrheit der aus ihnen abgeleiteten Thesen garantieren zu können, damit auf die Einführung eines Verifikationsmechanismus in das System verzichtet werden kann. Zweitens müssen sie einen reichen Informationsgehalt besitzen, um, im Sinne der obigen Ausführungen, die im ganzen System enthaltene Information zu tragen. Es ist leicht einzusehen, daß diese beiden Voraussetzungen in einem unauflösbaren Konflikt miteinander stehen: denn (wie das die umfangreiche Diskussion zur analytisch-synthetischen Dichotomie, worauf hier nicht eingegangen werden kann, nachweist), je reicher der Informationsgehalt einer Aussage, desto kleiner die Wahrscheinlichkeit ihrer Verifizierung; und umgekehrt, je sicherer die Wahrheit einer These begründet werden kann, desto weniger Informationen sind in ihr enthalten. Wenn man also möglichst sichere Kenntnisse speichern will, dann wird das System gehaltlos. Wenn man dagegen nach Informationsreichtum strebt und eine Bereicherung der Kenntnisse als Ziel setzt, dann hat man keinen Grund mehr, die Wahrheit und die Konsistenz der als Ausgangspunkt dienenden Thesen (Axiome) anzunehmen. Da die analytischen Sätze die informationsärmsten und die kontradiktorischen die informationsreichsten sind, soll ermöglicht

werden, aus einer widersprüchlichen Menge von Sätzen wahre Schlußfolgerungen zu ziehen. Innerhalb des Rahmens der axiomatischen Methode ist jedoch die Entwicklung eines solchen Verfahrens nicht denkbar.

Gegen diesen Gedankengang könnte folgendes eingewendet werden: zum Witz liegen bereits solche Ergebnisse vor, die mit Hilfe der korrekten Anwendung einer exakten, zuverlässigen und bewährten wissenschaftlichen Methode gewonnen wurden, nämlich durch das deontisch logische System, und die deshalb als maximal gesichert und wahr anzunehmen sind. Eine solche Argumentation wäre jedoch aufgrund der folgenden Überlegungen zurückzuweisen.

Die Tatsache, daß die Axiome durch eine zuverlässige wissenschaftliche Methode aufgestellt wurden, liefert kein Argument für die Annahme ihrer Wahrheit und Konsistenz, denn die Anwendung einer noch so erfolgreichen wissenschaftlichen Methode kann in sich genommen noch keine Evidenz für die Wahrheit der mit ihrer Hilfe gewonnenen Thesen darstellen.

Dieses Problem berührt eine der zentralen Fragen der epistemischen Logik, worauf im folgenden kurz eingegangen werden soll. Die Frage lautet folgendermaßen: Wie soll die Aussage "die Person a weiß, daß p" definiert werden? Eine der Möglichkeiten wird von der folgenden Formel dargestellt[23]:

$W(a,p) =_{df} G(a,p)$ & $B(a,p)$ & p

wobei: $W(a,p)$ = "die Person a weiß, daß p", : $G(a,p)$ = "die Person a glaubt, daß p"; $B(a,p)$ = "die Person a kann p begründen". Die Formel wird also gelesen: "die Person a weiß, daß p

genau dann, wenn sie glaubt, daß p, und sie kann diesen Glauben bestätigen und p ist der Fall". Nun stellt sich die Frage, was man unter "begründet" versteht, d.h., wie läßt sich der Ausdruck $B(a,p)$ definieren? Will man sich dabei auf die wissenschaftliche Erkenntnis beziehen, ergibt sich das Folgende:

Sei m die auf den Witz angewendete wissenschaftliche Methode (d.h. das logische System), die über die folgenden Eigenschaften verfügt: (i) sie zeichnet gewisse Aussagen aus, (ii) sie zeichnet die Ergebnisse von gewissen Beobachtungen aus, und (iii) gibt gewisse Folgerungsschemata an, mit deren Hilfe aus den von m ausgezeichneten Aussagen auf andere Aussagen gefolgert werden kann, die von m ebenfalls ausgezeichnet werden. In diesem Fall ergibt sich die folgende Definition: $B_m(a,p)$ besagt, daß die Person a ihre Überzeugung, daß p gilt, durch die Anwendung der Methode m gewonnen hat.

Es ist jedoch ziemlich leicht zu zeigen, daß die mit Hilfe von m gewonnenen Ergebnisse nicht notwendig wahr sind. Um das einzusehen, braucht man nur die Tatsache in Betracht zu ziehen, daß diese höchstens so gut begründet sein können, wie die Prinzipien von m und höchstens so zuverlässig sind, wie die Beobachtungs- und Folgerungsverfahren von m. Da aber m gerade durch diese Prinzipien und Verfahren definiert wird, können diese nicht allein durch m begründet werden, sonst gerät man in einen Zirkel. Es kann also keine m-Kenntnis angegeben werden, wonach die Thesen von m wahr und die Verfahren von m zuverlässig wären. Wenn wir diese begründen wollen,

dann brauchen wir eine zweite Methode m', die aber die genannten Probleme erneut aufwirft. Also Kenntnisse können nicht einfach methodisch begründet werden, die Zuverlässigkeit wissenschaftlicher Methoden läßt sich wissenschaftlich nicht begründen. Aus diesen Überlegungen ergibt sich folgende Schlußfolgerung:

Wir verfügen über keinerlei wissenschaftliche Evidenz darüber, daß die, mit Hilfe irgendeiner wissenschaftlichen Methode aufgestellten Thesen über den Witz wahr sind, oder eine Menge solcher Thesen konsistent ist. Deshalb können wir die aus ihnen abzuleitenden weiteren Thesen nicht auf ihre angenommene Wahrheit gründen. Demgemäß soll, wie schon erwähnt, ein logisches Verfahren ermittelt werden, das die Konsistenz der als Ausgangspunkt dienenden Menge von Thesen *nicht* voraussetzt und trotzdem wahre Schlußfolgerungen ergibt.

(4) Die metamathematischen Resultate von Gödel, Church, Rosser und Kleene weisen entscheidende Konsequenzen für ein jedes formales axiomatisches System auf. Gödels Theorem hat gezeigt, daß ein spezielles formales System, nämlich die Zahlentheorie, nicht vollständig axiomatisierbar ist. Kleene ging jedoch nicht von einem bestimmten System aus, sondern von einem intuitiven Prädikat, wodurch eindeutig nachgewiesen werden konnte, daß es überhaupt kein formales axiomatisches System gibt, das die vollständige Formalisierung des Prädikats enthalten würde.[24]

Zwar handelt es sich in dem Falle der Theorie des Witzes nicht um ein rein mathematisches, sondern um ein empirische Kenntnisse enthaltendes System, aber das Theorem von Kleene hat insofern eine Bedeutung, als bei einer strengen Formali-

sierung der Theorie immer solche Thesen vorgegeben werden können, die den Theoremen und Axiomen des Systems nicht wiedersprechen, aber im System unbeweisbar sind, deren Wahrheitswert also nicht entschieden werden kann. Diese Tatsache findet in TT13 ihren Niederschlag. Man nehme an, durch die Anwendung unserer hinreichend exakten logischen Methode seien Thesen zu formulieren, wobei einige von ihnen als Axiome ausgezeichnet werden können, aus denen die anderen abzuleiten seien. Da es sich hier aber um die Untersuchung von Texten handelt, deren Wesenszüge keinesfalls auf die mit mathematischen oder logischen Mitteln beschreibbaren Eigenschaften beschränkt werden darf, ist es wünschenswert, auch solche Thesen in die Theorie zu integrieren, die mit Hilfe anderer nichtformaler Methoden gewonnen werden, und die z.B. die pragmatischen Aspekte der Witze, d.h. ihre ästhetische, psychologische, soziologische, kognitive Leistung erfassen. Es dürfte jedoch einleuchtend sein, daß überhaupt keine Schlußregeln angegeben werden können, die es ermöglichen, von mathematischen oder logischen Prämissen auf nichtmathematische Konsequenzen zu schließen. Aus diesem Grunde müssen diese zuletzt genannten Thesen aus einer streng formalen Theorie unbedingt ausgeschlossen werden, obwohl sie eng mit den formalisierbaren Aspekten zusammenhängen und wichtige Informationen enthalten. Versuchte man trotzdem, sie den Axiomen anzuschließen, würde die Theorie eindeutig inkohärent, da das in diesem System gültige Kohärenzkriterium, nämlich die Ableitbarkeit, nicht zu erfüllen wäre.

2.2. Die kohärentistische Methode

Diese Mangelhaftigkeiten der Axiomatisierung führen zur Untersuchung der Leistungen der anderen Alternative, die in der kohärentistischen Systematisierung besteht. Diese Methode verfügt über folgende Grundeigenschaften:

(a) Die Thesen sollen als wahr akzeptiert werden, die mit der Ganzheit unserer Kenntnisse kohärieren.

(b) Die Erfahrung liefert lediglich rohe, undifferenzierte Kenntnisse.

(c) Rückkopplungen ermöglichen die ständige Neubewertung der Thesen.

(d) Es wird von einer inkonsistenten Menge von Thesen ausgegangen.

(e) Es wird zwischen Beobachtungssätzen und allgemeinen Gesetzmäßigkeiten nicht unterschieden.

(f) Die Konsistenz der beim Argumentieren verwendeten Evidenz wird nicht vorausgesetzt.

Da der Ansatz zur kohärentistischen Methode in seiner ausgereiftesten Form in den Werken N. Reschers vorliegt[25] wählen wir diese Konzeption als Ausgangspunkt für die nachfolgenden Erwägungen.

Reschers Ausführungen verfügen über die oben skizzenhaft aufgezählten allgemeinen Züge des Kohärentismus. Darüber hinaus bieten sich aber die folgenden Anmerkungen zu seiner Konzeption an.

(1) Rescher betont, daß ein epistemisches System erst im Laufe einer *Kohärenzanalyse* ermittelt werden kann, wobei das Hauptziel in der Aufdeckung der unter den einzelnen Thesen herrschenden Beziehungen besteht. Dabei spielt die Logik eine wesentliche Rolle; sie bildet jedoch, im Gegensatz zur axiomatischen Methode, nicht das Endergebnis, sondern den Ausgangspunkt der Kohärenzanalyse.[26] Er geht aber inkonsequent vor, indem er das grundlegendste Problem außer Acht läßt, nämlich in welcher Weise die Berührungspunkte zwischen den logischen und nichtlogischen Elementen des kognitiven Systems hergestellt werden können. In dieser Hinsicht entbehrt also sein System eines wichtigen Kohärenzkriteriums.

(2) Sein System ist mangelhaft insofern, als der Schlüsselbegriff der Kohärenz im Rahmen der epistemischen Systematisierung nicht eindeutig und exakt definiert wird.[27] Dadurch wird seinen überzeugenden Ausführungen der Boden entzogen.

(3) Die von Rescher angebotene kohärentistische Methode kann der Forderung der formalen Strenge nicht genügen. Rescher betont zwar, daß die Mittel der klassischen Analysis nicht ausreichen, um ein solches System zu formalisieren, er gibt jedoch keine positive Lösung dieses Problems an.[28] In dieser Hinsicht ist also die axiomatische Methode dem Kohärentismus weit überlegen.

(4) Da die Wahrheitsbedingungen der in einer kohärentistischen Weise systematisierten Aussagen nicht darin bestehen, daß diese den Sachverhalten der Wirklichkeit entsprechen, sondern in ihrer kohärenten Beziehung zu den anderen Elementen des

Systems stehen, scheint die empirische Signifikanz der kohärentistischen Systematisierung anfechtbar zu sein. Rescher versucht das Problem dadurch zu lösen, daß er neben dem kohärentistischen Wahrheitsbegriff, dessen Funktionieren als ein zeitlich ausgedehnter Mechanismus mit ständigen, zyklisch verlaufenden Rückkopplungen dargestellt wird, einen zweiten pragmatischen Zyklus definiert. Die Aufgabe des letzteren ist es, die Thesen, die von dem Kohärenzmechanismus als wahr qualifiziert wurden, an die Wirklichkeit zu knüpfen, indem sie auf ihre Verwendbarkeit, Brauchbarkeit und ihr Funktionieren in der Praxis untersucht werden. Aber obwohl Rescher seinen Pragmatismus als methodologischen Pragmatismus bezeichnet, wodurch er anscheinend einige offensichtliche negative Konsequenzen der pragmatistischen Philosophie vermeiden will, scheint er doch die Tradition der amerikanischen Pragmatisten weiterzuführen, indem er als einziges und alleiniges Akzeptierbarkeitskeriterium einer These sein Funktionieren in der Praxis anerkennt.[29] Da wir in der vorliegenden Arbeit den Standpunkt vertreten, daß eine adäquate epistemische Systematisierung als Ausgangspunkt für die wissenschaftstheoretische Darstellung der Theorienstruktur dienen soll, dürfte es einleuchtend sein, daß ein solcher pragmatistischer Ansatz dieser Forderung nicht gerecht werden kann.

(5) Eine nähere Betrachtung der Grundthese Reschers gibt zu ähnlichen Bedenken Anlaß. Rescher bezeichnet diese These als "Hegelsche Inversion" und versteht darunter die Erscheinung,

daß in der nachhegelschen Periode der Erkenntnistheorie das bis dahin gültige Grundprinzip der Systematisierung umgekehrt wurde: anstelle der These "was wahr ist, ist systematisierbar", die das Grundprinzip der Axiomatisierung darstellt, ist deren Umkehrung: "was systematisierbar ist, ist wahr" als Leitwort angenommen worden. Diese "Inversion" hätte dann den Ausgangspunkt für den von Rescher vertretenen Kohärentismus geschaffen.[30] Wie aber schon erwähnt, kann eine solche Auffasung den Wirklichkeitsbezug des epistemischen Systems nicht herstellen. Da es sich also herausgestellt hat, daß weder die axiomatische, noch die kohärentistische Methode auf einer allgemeinen epistemologischen Stufe Anspruch auf die Ermittlung der Wahrheit der zu systematisierenden Thesen erheben kann, liegt die Schlußfolgerung nahe, daß die Lösung dieses Problems *nicht Aufgabe der epistemischen Systematisierung sein kann*, sondern von der wissenschaftstheoretisch angelegten *Beschreibung der Theorienstruktur* übernommen werden muß.

Im folgenden soll versucht werden, einen Ansatz zur Systematisierung der Thesen, die eine Theorie des Witzes formulieren sollten, anzugeben, wobei die progressiven Ergebnisse der Rescherschen Konzeption beibehalten werden, unter Bezugnahme auf einige notwendige Verfeinerungen, die aus der obigen Kritik ersichtlich sind. Die Probleme, die bei der Behandlung der axiomatischen Methode aufgeworfen wurden, lassen sich in einem demgemäß modifizierten kohärentistischen System wie folgt vermeiden.

(1) Wie bereits nachgewiesen wurde, müssen wir von der Annahme ausgehen, daß die uns zur Verfügung stehende Menge der Ausgangsthesen *inkonsistent* ist. Daraus ergibt sich die Notwendigkeit der Erarbeitung einer Methode, wonach aus einer inkonsistenten Menge von Prämissen auf wahre Konsequenzen gefolgert werden kann. In Anlehnung an Rescher wird das folgende Verfahren angegeben.[31]

Sei S eine beliebige Menge von Aussagen, wobei $S = \{p,q,r,s...\}$ ungeachtet dessen, ob S konsistent ist oder nicht. Eine jede Untermenge S_i von S wird eine maximal konsistente Untermenge von S genannt, gdw. sie die folgenden Bedingungen erfüllt:

1. S_i ist eine nichtleere Untermenge von S.
2. S_i ist konsistent.
3. Es gibt kein Element von S außerhalb von S_i, daß in S_i aufgenommen werden könnte, ohne die Konsistenz von S anzufechten. Also für jedes p in S, das aber nicht in S_i enthalten ist, gilt, daß die Menge $S_i \cup \{p\}$ inkonsistent ist.

Die Aussage p wird eine *unvermeidbare Konsequenz* (*I*-Konsequenz) einer Menge S von Aussagen genannt genau dann, wenn p deduktiv aus einer jeden maximal konsistenten Untermenge S_i von S folgt.

Die Aussage p wird eine *schwache Konsequenz* (*W*-Konsequenz) einer Menge S von Aussagen genannt genau dann, wenn es eine maximal konsistente Untermenge S_i in S gibt, aus der p logisch folgt.

Die maximale Konsistenz einer jeden Untermenge von S ist entscheidbar, im Sinne der Aussagenlogik. Die Menge der I-Konsequenzen einer Aussage bildet die Untermenge der Menge der W-Konsequenzen derselben Aussage; während die erstgenannte Menge immer konsistent ist, kann die letztere auch inkonsistent sein. Ist S inkonsistent, dann ist auch die Menge ihrer W-Konsequenzen inkonsistent. Es erhebt sich die Frage, wie die Konsequenzen von S ermittelt werden können? Wir führen die folgende Definition ein:

Eine Aussage p wird die P-Konsequenz einer Menge genannt, genau dann, wenn p deduktiv aus einer *präferierten* Untermenge S_i von S folgt. Dann werden die folgenden zwei Bedingungen erfüllt:

(i) Ist eine Proposition p die P-Konsequenz von S, dann ist sie zugleich ihre W-Konsequenz.

(ii) Ist eine Proposition p die I-Konsequenz von S, dann ist sie zugleich ihre P-Konsequenz.

Diese Bedingungen weisen darauf hin, daß sich eine P-Konsequenz einer Menge S zwischen den I-Konsequenzen und den W-Konsequenzen befindet. Das soll soviel bedeuten, daß die P-Konsequenzen sich aus *bestimmten* maximal konsistenten Untermengen von S ergeben, die als *präferierte* Mengen bezeichnet werden.

Der hier eingeführte Begriff der Präferenz soll etwas näher erläutert werden. Mit Anlehnung an Rescher reden wir hier von einem *alethischen* Präferenzbegriff, wobei von der ursprünglichen Bedeutung des Wortes Gebrauch gemacht wird. Der Begriff der Präferenz spielt also eine Rolle ausschließ-

lich in Bezug auf den angenommenen Wahrheitswert der Propositionen - das heißt, diejenigen Propositionen werden als alethisch präferiert ausgezeichnet, deren *Wahrheitspotential* am höchsten ist. Demgemäß handelt es sich bei dieser Eigentümlichkeit der Kohärenzanalyse keinesfalls darum, daß gewissen Aussagen gemäß den subjektiven Wünschen und Einstellungen des Forschers der Vorzug gegeben wird. Es muß jedoch zugegeben werden, daß keine allgemeingültige Methode der Ermittlung der Präferenzkriterien anzugeben ist - diese hängen immer von den jeweiligen Daten und den Möglichkeiten der jeweiligen Kohärenzanalyse ab.

An dieser Stelle soll ein weiterer Gesichtspunkt angeführt werden, der ein solches Verfahren im Falle der angesprochenen Theorie des Witzes rechtfertigen wird. Die Theorie des Witzes handelt von Texten. W. Stegmüller gelangte bei der Untersuchung des hermeneutischen Zirkels zu der Erkenntnis, daß dieser nicht nur in den Gesellschaftswissenschaften auftritt, sondern auch in den Naturwissenschaften, wodurch sich die Dichotomie zwischen den beiden Gruppen empirischer Wissenschaften aufgrund des hermeneutischen Zirkels als unbegründet erwies. Ein wichtiges Zwischenergebnis dieser Untersuchung besteht darin, daß sich folgendes herausstellte: im Falle der Wissenschaften, die *Texte* untersuchen (d.h. interpretieren, analysieren, beschreiben usw.) ist der hermeneutische Zirkel darauf zurückzuführen, daß die Grenzlinie zwischen den Ausgangsdaten und dem Hintergrundswissen des Forschers nicht

eindeutig gezogen werden kann. Dadurch kann z.B. die Tatsache erklärt werden, daß zwei verschiedene Forscher, die denselben Text untersuchen, über dasselbe Hintergrundwissen verfügen und denen dieselben Ausgangsdaten zur Verfügung stehen, zu einander grundsätzlich widersprechenden Endergebnissen gelangen. Der Grund für diese Erscheinung besteht darin, daß die Forscher nur aufgrund von *Werturteilen* zwischen dem Hintergrundwissen und den Ausgangsdaten unterscheiden können.[32]

In unserem System entspricht die Stufe, auf der nach Stegmüller das Einbeziehen der Werturteile stattfindet, der vortheoretischen Ebene, wo also erst von der Systematisierung der ermittelten Thesen und nicht von der Theorienbildung selbst die Rede ist. In diesem Sinne hängen also diese unvermeidbaren Werturteile mit dem Begriff des Präferenzkriteriums eindeutig eng zusammen.

Nun kann das folgende Verfahren zur Ermittlung der Konsequenzen einer inkonsistenten Menge S von Aussagen angegeben werden:

(i) Man bestimmt die Familie der Menge S, deren Elemente ihre maximal konsistenten Untermengen $S_1, S_2, \ldots, S_n$ bilden.[33]

(ii) Es wird eine Teil-Familie dieser Familie bestimmt, die aus den alethisch präferierten maximal konsistenten Mengen besteht.

(iii) Als P-Konsequenzen einer Menge S bezeichnet man also die Aussagen, die aus jeder P-präferierten maximal konsistenten Teil-Familie von S folgen.

Das Funktionieren dieses Verfahrens kann folgendermaßen illustriert werden.

Es ist bereits nachgewiesen worden, daß wir nicht berechtigt sind, die Wahrheit der durch unsere Methode ermittelten Thesen vorauszusetzen. Deshalb nehme man an, es sei die folgende inkonsiste Menge von Thesen (Aussagen) gegeben, wobei keines der Elemente dieser Menge sich eindeutig als wahr herausstellt:

$S = \{p, q, -p \vee -q\}$

Die maximal konsistenten Untermengen von S sind folgende:

$S_1 = \{p, q\}$

$S_2 = \{p, -p \vee -q\}$

$S_3 = \{q, -p \vee -q\}$

In der Aussagenlogik ist die folgende Ableitungsregel gültig:

$p, q \vdash p \,\&\, q,$

d.h. aus der Wahrheit zweier Aussagen folgt die Wahrheit ihrer Konjunktion. Unter Anwendung dieses Prinzips erhalten wir:

$S_1 = p \,\&\, q$

$S_2 = p \,\&\, -q$

$S_3 = -p \,\&\, q$

Also die Konsequenzen von S sind:

$(p \,\&\, q) \vee (p \,\&\, -q) \vee (-p \,\&\, q)$

Jetzt können wir wahre Ausdrücke ermitteln, wie z.B. $p \vee (-p \,\&\, q)$ und $q \vee (p \,\&\, -q)$ und falsche, wie z.B. $(-p \,\&\, -q)$, aber es dürfte klar sein, daß kein Element der

ursprünglichen Menge S als eindeutig wahr qualifiziert werden kann. Diese Schlußfolgerung ist ziemlich bedeutend insofern, als dadurch in dem vorliegenden Zusammenhang eine strenge wissenschaftstheoretische Forderung entschärft wird: wenn nämlich in einem System ein einziger Widerspruch auftritt, dann kann aus diesem Widerspruch auf jede beliebige Aussage gefolgert werden, wodurch das ganze System uninterpretierbar wird und verworfen werden muß. Der hier angebotene Lösungsversuch erlaubt jedoch solche lokalen Widersprüche, die nicht die globale Inkonsistenz des ganzen epistemischen Systems nach sich ziehen, sondern klar isolierbar und durch die Anwendung von Präferenzkriterien eliminierbar sind. Der hier dargebotene Mechanismus erfaßt somit die üblichen Rekonstruktionsverfahren von widersprüchlichen Theorien.

(2) Nach Rescher läßt sich das Problem der Vollständigkeit wie folgt darstellen.[34]

(i) Sei K eine Menge von als wahr anerkannten, aber unsystematisierten Thesen; die Aufgabe besteht in der Systematisierung dieser Menge. Bezeichne man weiterhin mit $p,q,r,\ldots$ usw. die Elemente dieser Menge.

(ii) Sei L eine Menge von Argumenten, die die in K enthaltenen Thesen beweisen. Man bezeichne mit $a,b,c,\ldots$ usw. die Elemente dieser Menge.

(iii) Bedeute weiterhin der Ausdruck "$a!p$" folgendes: "Das Argument a macht die These p gültig."

Anhand dieser Bestimmungen können wir das folgende Verhältnis beschreiben:

"$L!p$", das folgendes aussagt: "Das System L macht die These p gültig". Die Formalisierung lautet:

(1) $L!p \equiv (Ea)(a \in L \ \& \ a!p)$

Man sagt, daß L vollständig in Bezug auf K ist, oder daß L K-vollständig ist, falls gilt:

(2) $\forall p \ (p \in K \rightarrow L!p)$

Man sagt, daß L adäquat in Bezug auf K ist, oder daß L K-adäquat ist, falls gilt:

(3) $\forall p \ (L!p \rightarrow p \in K)$

Das deduktive System ist dann unvollständig, wenn

(4) $p \in K \ \& \ -L!p$

Das System ist dann inadäquat, wenn

(5) $p \notin K \ \& \ L!p$

In axiomatischen Systemen entspringt die Unvollständigkeit des Systems der Inkongruenz zwischen K und L. Das schlägt sich in denjenigen K-Thesen nieder, die nicht mit L-Argumenten gültig gemacht werden können. Also:

(6) $(Ep)(p \in K \ \& \ (\forall a)(a \in L \rightarrow -a!p))$

Diese Inkompatibilität zwischen den durch L-Argumente unterstüzten Thesen und der K-Gültigkeit ist im Grunde genommen darauf zurückzuführen, daß in deduktiven Systemen eine, von den L-Argumenten unabhängige K-Gültigkeit anerkannt wird; d.h. anhand eines nicht weiter bestimmten Kriteriums werden die Thesen in K für wahr erklärt. Die Inkompatibilität und demzufolge auch die Unvollständigkeit wurzelt somit in der potentiellen Irrelevanz der L-Unterstützbarkeit für die K-Gehörigkeit.

Geht man aber dagegen statt von einer deduktiven, d.h. axiomatischen, von einer kohärentistischen Systematisierung aus, deren Grundprinzip in der von Rescher verteidigten "Hegelschen Inversion" besteht, läßt sich das Problem der Vollständkigkeit leicht vermeiden. Dieser Konzeption nach liefert die L-Gültigkeit das einzige Kriterium der K-Wahrheit, d.h. den einzigen Weg, der zur Akzeptierung der Wahrheit einer These führt, also

(7) $p \in K$ gdw $L!p$, für ein jedes p[35]

Demgemäß ist die Bedingung für die K-Vollständigkeit, die in Formel (2) dargelegt wurde, keine unmittelbare Konsequenz der Definition der K-Gehörigkeit. Mit anderen Worten, wenn man eine schwächere Bedingung annimmt, nämlich daß hinreichend systematisierte Thesen als wahr zu gelten haben, die durch die These

(8) wenn $L!p$, dann $p \in K$

formuliert wird, dann tritt die Umkehrung dieser Formel, also das Prinzip der Vollständigkeit nicht notwendig auf. Durch die "Hegelesche Inversion" wird die Auffassung, daß die Systematisierung erst bei einer Menge von vornherein angenommener Wahrheiten ansetzt, vollkommen gebannt, indem diese Menge als das Ergebnis der Systematisierung selbst bestimmt wird.

Es ist jedoch einzusehen, daß dieses Vorgehen in unserem Falle als eine Pseudolösung erscheint. Denn das hier angestrebte Ziel besteht nicht in der Eliminierung des Problems der Vollständigkeit, sondern in der Erarbeitung einer Methode, die die exakte

Systematisierung einer unvollständigen Theorie ermöglicht. Und das soll soviel bedeuten, daß die Unvollständigkeit der Theorie des Witzes keine Mangelhaftigkeit der Theorie darstellt, sondern ganz im Gegenteil: die Theorie wird erst dann wissenschaftlich bewertbar, wenn ihre Unvollständigkeit im früher ausgeführten Sinne anerkannt und legitimiert wird, um dadurch, aufgrund unterschiedlicher Fragestellungen, Methoden, und Gesichtspunkte aufgestellte Thesen miteinander in Verbindung zu setzen und sie in ein einheitliches kohärentes epistemisches System integrieren zu können. Unter anderem soll damit auch eine grundsätzliche Schwäche von Theorien, die sprachliche Strukturen mit exakten Mitteln untersuchen, vermieden werden: denn diese bestehen aus solchen leeren formalen Strukturen, die - infolge der in deduktiven Systemen geforderten formalen Strenge - die nicht-formalisierbaren extra-logischen und extra-mathematischen Elemente, die aber wesentliche Bereiche von sprachlichen Konstruktionen bilden, ausschließen; oder sie versuchen diese an die formalisierbare Struktur willkürlich anzuhängen, wodurch die Theorie, infolge des Mangels an immanenten Beziehungen zwischen den mathematisch-logischen und den extra-mathematischen, bzw. extra-logischen Elementen, eine inkohärente Struktur aufweist und demzufolge ihrer epistemischen Funktion nicht Rechnung tragen kann.

Sowohl dieser Gedankengang als auch die Tatsache, daß in einer kohärentistischen Epistemologie das Aufnahmekriterium einer These in die Theorie nicht in dem eben geschilderten

Sinne exakt beschrieben werden kann, scheinen die Einführung eines neuen Verfahrens zu rechtfertigen. Wir schlagen den folgenden einfachen Lösungsversuch vor:

Sei R die *Kohärenz-Relation*, wobei R als eine Menge von n+1-stelligen Relationen bestimmt wird:

(9) $R = \{R_1^{n+1}, R_2^{n+1}, \ldots, R_k^{n+1}\}$ wobei für jedes R_i^{n+1}, $1 \leq i \leq k$ gilt: $\forall q_1 \ldots q_n \in K$: $pR_i^{n+1}q_1 \ldots q_n$

Aus dieser Bestimmung ergibt sich die folgende Wahrheitsdefinition, d.h. die Bestimmung der K-Angehörigkeit:

(10) $p \in K \equiv$ es gibt ein $R/R = R_1^{n+1} \ldots R_k^{n+1}$ so daß für jedes $R_i^{n+1} \in R$, $1 \leq i \leq k$, gilt: $\forall q_1 \ldots q_n \in K$: $pR_i^{n+1}q_1 \ldots q_n$.

An dieser Stelle bieten sich zwei Anmerkungen an:

(i) Offensichtlich kann eine solche kohärentistische Wahrheitsbestimmung für eine empirische Theorie nicht angenommen werden, denn sie verzichtet auf jeden Wirklichkeitsbezug. Es wird jedoch in dem anschließenden Kapitel versucht, nachzuweisen, daß eine solche Bestimmung *zusammen* mit der empirischen Behauptung einer Theorie, die jedoch erst auf der wissenschaftstheoretischen Stufe behandelt werden kann, ihre Funktion hinreichend erfüllt. In diesem Sinn ist es einzusehen, daß die Bestimmung des Wirklichkeitsgehaltes einer wissenschaftlichen These nicht Aufgabe der epistemischen Systematisierung sein kann, sondern von den wissenschaftstheoretischen Untersuchungen erzielt werden soll, denn sie setzt die Beschreibung der Theorienstruktur voraus.

(ii) In den angeführten Definitionen wurde über Relationen quantifiziert und das könnte den schwerwiegenden Einwand eines Nominalisten hervorrufen, daß wir einem extremen Platonismus zum Opfer gefallen sind. Denn Quines wohlbekannte These lautet: "To be assumed as an entity is, purely and simply, to be reckonned as the value of a variable."[36] In diesem Sinne würden wir hier also Relationen als platonistische Wesenheiten anerkennen. Es stellt sich jedoch die Frage, inwieweit ontologische Grundprinzipen bei solchen Untersuchungen gerechtfertigt sind, deren Hauptziel in der sachgerechten Beschreibung einer wissenschaftlichen Theorie besteht, wobei also nicht normativ, d.h. gewissen allgemeinen Prinzipien und Normen gehorchend vorgegangen wird, sondern die deskriptive Rekonstruktion des Mechanismus einer Theorie angestrebt wird. Zwar befinden sich die Überlegungen zur epistemischen Systematisierung auf einer allgemeinen erkenntnistheoretischen Stufe, d.h. sie sind ziemlich stark philosophisch ausgerichtet, scheinen jedoch ontologische Einwendungen in diesem Sinne verfehlt zu sein. Dieser Standpunkt soll aber keinesfalls bedeuten, daß der Platonismus anerkannt werde - es wird lediglich soviel behauptet, daß die Lösung von ontologischen Grundlagenproblemen der Logik *nicht* die Aufgabe der Systematisierung der Thesen einer Theorie sein kann: hier wird einfach das Vorgehen der Wissenschaftler beschrieben. Es sei jedoch bemerkt, daß dieses Problem selbst in der Logik nicht so streng verabsolutiert

betrachtet wird, wie das vielleicht das obige Quine-Zitat suggeriert. I. Ruzsa z.B., der in der Logik ein Verfechter der Quineschen These ist, betont, daß die ontologischen Voraussetzungen nicht wesentlich stärker werden, wenn man neben der Anerkennung zweier Quantifikationsbereiche auch die zwischen ihnen bestehenden Relationen oder Funktionen anerkennt, die die Objekte des einen Bereiches auf Objekte des anderen abbilden. In diesem Sinne werden in der extensionalen Logik neben den Bereichen der individuellen Objekte und der Wahrheitswerte auch die Bereiche anerkannt, die aus den anerkannten Bereichen mit Hilfe mengentheoretischer Operationen entstehen.[37]

Diese Kohärenz-Relation trägt zur Explikation der folgenden intuitiven Grundprinzipien der kohärentistischen Systematisierung bei:

(i) Ein jedes Element der epistemischen Struktur steht in einer Beziehung mit jedem anderen Element;

(ii) Die epistemische Struktur kann auf einzelne, verhältnismäßig selbständige Teilsysteme aufgeteilt werden. Dies kann durch eine Angabe einer Untermenge von R oder durch die Angabe einer Teilrelation von R geschehen.

(iii) Die Angabe einer einzigen solchen Relation bestimmt automatisch das ganze System.

(iv) Die Anordnung der Thesen ist nicht linear, wie bei axiomatischen Systemen.

(v) Infolge von (iii) und (iv) ist das System genau so handhabbar wie ein Axiomensystem.

(vi) Mit Hilfe der Spezifikation von Implikativ-Relationen des "wenn...dann" - Typs lassen sich innerhalb eines global kohärentistischen Systems lokal deduktive Teilsysteme bestimmen, wodurch einerseits die Axiomatisierung nicht steif und rücksichtslos auf ihre Vorteile aufgegeben werden muß und andererseits die gegebenenfalls deduktiv formalisierbaren Teilsysteme kohärent an die nichtdeduktiv darstellbaren Teilsysteme angeschlossen werden können.

(vii) Über die inferenziellen Verhältnisse hinaus lassen sich auch die viel feineren Beziehungen unter den Thesen beschreiben.

(ix) Mit Hilfe der Relation R kann die kohärentistische Wahrheitsbestimmung leicht formalisert werden: wahr ist die These, die mit jeder anderen These des epistemischen Systems in kohärenter Beziehung steht.

Anhand dieser Überlegungen kann (8) durch die folgende Formel ersetzt werden:

(11) $pRq_1 \ldots q_n / \forall q_1 \ldots q_n \in K \rightarrow p \in K$

R erfüllt somit all die Funktionen, die in axiomatischen Systemen die metamathematische Forderung der Vollständigkeit zu erfüllen hat, und darüber hinaus wird sie auch dem oben erwähnten Desiderat gerecht; und nicht zuletzt ermöglicht sie die Aufnahme von TT13 in das epistemische System.

Es soll kurz auf ein weiteres Problem eingegangen werden. In axiomatischen Systemen, infolge der linearen Anordnung der Thesen, zieht eine einzige Veränderung die Veränderung des

ganzen Systems nach sich. Da aber das hier vorgeschlagene kohärentistische System mit Hilfe der Teilrelationen von R auf relativ selbständige Teilsysteme aufgeteilt werden kann, hat eine Veränderung oder sogar eine lokale Inkompatibilität keine solchen schwerwiegenden Konsequenzen hinsichtlich des ganzen Systems. Beim Auftreten dieser Erscheinungen braucht man nicht das ganze System zu verwerfen. Dieser Tatsache soll insofern Bedeutung zugeschrieben werden, als dadurch die Gefahr des *Holismus* von vornherein ausgeschlossen wird. In diesem System ist also Quines Behauptung nicht gültig, nach der er über die mathematischen und logischen Gesetzte spricht und folgendes aussagt: "Because these laws are so central, any revision of them is felt to be the adoption of a new conceptual scheme..."[38]

Das bisher Gesagte ermöglicht an dieser Stelle die Angabe einer Definition der kohärenten Systematisierung.

(DF) Die Struktur S wird eine kohärente epistemische Struktur genannt, wenn es K,H,F,R gibt, so daß folgendes gilt:

1. $S = \langle K,H,F,R\rangle$
2. K ist eine endliche, nichtleere Menge (die Menge der Thesen)
3. $H = Po(K)$, wobei für jedes $H_i \in H$: H_i ist eine maximal konsistente Teilmenge von K
4. $F: K \rightarrow H$
5. $R \subseteq K \times K$: R ist die offene Menge der $n+1$-stelligen Relationen auf K, wobei $R' \subseteq R$.

Diese zuletzt genannte Forderung spiegelt die Bedingung der kohärentistischen Systematisierung wider, daß die, in einem solchen System unter den einzelnen Thesen bestehenden Beziehungen nicht von vornherein angeführt werden können, sondern sich erst im Laufe der Kohärenzanalyse ergeben. Deshalb kann R nur durch eine ihrer Teilmengen bestimmt werden. Da es immer möglich ist, neue Beziehungen zu entdecken, nimmt die Zahl der Elemente von R ständig zu.

Ferner gelten die Ausführungen über die Folgerung aus inkonsistenten Prämissen die alethische Präferenz, die K-Angehörigkeit, die Wahrheit in K - diese werden hier nicht wiederholt.

Über die schon erwähnten Funktionen der kohärentistischen Systematisierung hinaus erfüllt diese Definition des kohärentistischen Systems zwei weitere Desiderata: (i) sie ist formal exakt, um die *minimalen* Forderungen an Interpretierbarkeit zu erfüllen, und (ii) sie ist hinreichend allgemein formuliert und *leer* genug, um keine unerwünschten Beschränkungen und Normen vorzuschreiben, die der Natur des untersuchten Gegenstandes nicht Rechnung tragen würden.

Die Struktur S erfüllt somit die grundlegenden Bedingungen der formalen Beschreibung von kohärentistischen Systemen, die A. Rapaport folgendermaßen bestimmt: "Classical mathematics is not able to handle complex structural features. Organisation is best depicted as a network, and the mathematical theory of netwroks derives largely from certain branches of

topology and abstract algebra rather than from classical analysis, which underlies classical mathematics. Thus the salient feature of a nervous system, of an institution, or of international systems may well reside in the vastly complex network of relations which constitute them: for example, neural pathways, lines of communication and authority, links of alliences or rivalries in international trade... The 'nature' of the system is indeed embodied in the quality of interrelation of these connections..."[39]

Zusammenfassend läßt sich feststellen, daß die durch die kohärente epistemische Struktur *S* systematisierte Menge von Thesen über die folgenden allgemeinen Eigenschaften verfügt:

1. über jede epistemisch progressive Eigenart der axiomatischen Systeme
2. über keine epistemisch regressive Eigenart der axiomatischen Systeme
3. über die progressiven Eigentümlichkeiten der axiomatischen Systeme hinaus weitere epistemisch progressive Eigenschaften.

Somit ergibt sich die wichtige Schlußfolgerung, daß das System der Thesen über den Witz *mathematisch beschreibbar* ist. Die Vagheit, die aus dieser Formulierung ersichtlich ist, kann jedoch auf dieser Stufe nicht behoben werden: denn wie diese mathematische Struktur dargestellt werden und in welcher Beziehung sie zu den Texten stehen soll, kann erst auf der Stufe der wissenschaftstheoretischen Beschreibung der Theorienstruktur beantwortet werden.

3. Die wissenschaftstheoretische Ebene: die logische Struktur der Theorie

3.1. Das Aussagenkonzept

Die traditionelle Wissenschaftstheorie (das Aussagenkonzept) identifiziert eine Theorie mit einer hinreichend (axiomatisch) systematisierten Menge von Thesen.[40] In Bezug auf die Theorie des Witzes würden die Hauptcharakteristika dieser Auffassung folgende Schwierigkeiten anbieten.

(1) Eine Theorie ist eine Menge von Aussagen.
Dagegen ist es aber klar, daß eine Theorie des Witzes viel mehr sein sollte, als eine Menge von mathematisch oder logisch zu beschreibenden Aussagen, indem sie auch das Stück der Wirklichkeit mit einbeziehen sollte, das den Gegenstand der Theorie bildet.

(2) Eine Theorie wird mit Hilfe von formalen Sprachen beschrieben. Dies ist jedoch menschlich unmöglich, wegen des äußerst komplizierten mathematischen Apparat, der hier erforderlich wäre. Selbst die bisherige Geschichte der Wissenschaftstheorie der Naturwissenschaften kennt nur eine einzige Arbeit, in der ein solcher Versuch erfolgreich ausgeführt war.[41] Deshalb kann diese Methode im Falle der unvollständigen Theorie des Witzes nicht in Frage kommen.

(3) Die Unterscheidung zwischen Beobachtungssprache und theoretischer Sprache. Da diese Unterscheidung nach Carnap lediglich anhand von Konventionen getroffen wird, erscheint es als fragwürdig, ob die Grenzlinie zwischen diesen auch bei der Theorie des Witzes adäquat gezogen werden kann.

(4) Das Problem eines empirischen Signifikanzkriteriums. Es gab zahlreiche Ansätze, ein empirisches Signifikanzkriterium aufzustellen, jedoch all diese scheiterten in irgendeiner Hinsicht. Demnach wäre die empirische Signifikanz der Theorie des Witzes nicht zu beweisen.

(5) Das Aussagenkonzept ist normativ, d.h. es schreibt die Gesetze der Theorienbildung vor. Da diese Gesetze dem Muster der Naturwissenschaften folgen, wäre es leicht zu beweisen, daß die Theorie des Witzes diesen nicht gerecht werden kann.

(6) Es wird von der Beschreibung von Mikrostrukturen ausgegangen. Dies würde einen so feinen Apparat voraussetzen, der die sprachliche Struktur des Witzes präzise beschreiben kann. Darüber verfügen wir jedoch nicht: selbst die Anwendung der intensionalen Semantik, bzw. der Typenlogik höherer Ordnung, wie es in der Montague-Grammatik vorgelegt ist, würde nicht ausreichen, die Mikrostruktur der Witztextes zu beschreiben. Deshalb kann unsere Theorie nur etwas von seiner globalen Makrostruktur aussagen.

(7) Die Theorienbeladenheit der Beobachtungen. Es ist einzusehen, daß die empirischen Daten, d.h. die Auswahl des Untersuchungsmaterials und ihre Bestimmung als Witze, sowie gewisse Voraussetzungen hinsichtlich ihrer Struktur von bereits existierenden Theorien des Witzes bestimmt wurden. Unsere empirischen Untersuchungen sind also nicht unabhängig von Theorien (vgl. die konstruierte Standardtheorie und die Arbeitshypothese).

(8) Die Notwendigkeit der Angabe eines allgemeingültigen und streng umgrenzten Anwendungsbereiches. Wir waren nicht imstande, einen solchen Anwendungsbereich unserer Theorie anzugeben, da wir die allgemeingültigen Gesetzmäßigkeiten des Witzes nicht ermitteln konnten. Wir stellten die Thesen lediglich aufgrund der Analyse von *paradigmatischen Beispielen* auf. Deshalb besteht kein Grund anzunehmen, daß die Theorie auf jeden Typ des Witzes zutrifft, obwohl dies ein wichtiges Desideratum wäre.

(9) Die Objektivität der Untersuchungen. Dagegen ist jedoch ersichtlich, daß die vom Verfasser der vorliegenden Arbeit vollzogenen Analysen sehr stark von seinen Werturteilen, der wissenschaftlichen Tradition, der er angehört, seinem Glauben an gewisse Methoden, von dem historischen Zeitintervall, in dem er arbeitet, abhängen. Die Theorie des Witzes sollte demnach *pragmatisch* relativiert werden.

Wie oberflächlich auch immer diese Bemerkungen sind, scheinen sie doch zu der Schlußfolgerung zu gelangen, daß die intendierte Theorie des Witzes in diesem Rahmen nicht adäquat beschrieben werden kann. Deshalb soll die Anwendbarkeit der anderen Alternative erwogen werden.

3.2. Das strukturalistische Theorienkonzept

Dieses neue Theorienkonzept, das in der Wissenschaftstheorie grundsätzlich Origenelles und Neuertiges schuf, wurde von J.D. Sneed im Jahre 1971 dargelegt, von W. Stegmüller, W. Balzer und C.U. Moulines aufgegriffen, weiterentwickelt

und propagiert.[42] Da die formale Darstellung der Theorie des Witzes die Anwendung des ausgedehnten und etwas komplizierten mengentheoretischen Apparats von Sneed erfordern würde, wird im folgenden relativ informell vorgegangen, wobei wir uns lediglich auf einige Kernprobleme konzentrieren, die im Hinblick auf die vorgelegte Theorie des Witzes entweder von großer Wichtigkeit, oder problematisch sind. Auf die Theoriendynamik, die einen ausschlaggebenden Bestandteil des strukturalistischen Konzeptes darstellt, wird nicht eingegangen, denn ihre Behandlung würde die Analyse der existierenden Witztheorien nötig machen, was in dem vorliegenden Umfang nicht möglich ist. Wir beschränken uns auf die folgenden Bemerkungen.

(1) Der strukturalistische Theorienbegriff

Den Ausgangspukt bildet ein Vorschlag von P. Suppes, wonach (physikalische) Theorien mit Hilfe eines mengentheoretischen Prädikats axiomatisiert werden sollten. Dies kann sich in zwei Schritten vollziehen. In einem ersten Schritt, wobei eine übliche Axiomatisierung der betreffenden Theorie vorausgesetzt wird, führt man ein Prädikat von der Form "ist ein *P*" ein, dessen Definiens die Axiome bilden. Handelt es sich z.B. um die klassische Partikelmechanik, so führt man das Prädikat "ist eine klassische Partikelmechanik" ein, das durch die von Newton bestimmten Axiome definiert wird. In einem zweiten Schritt wird ein Name, sagen wir "*a*" angegeben, um diejenige Erscheinung zu benennen, die Gegenstand der

Theorie ist. Im Beispielfall könnte das z.B. das Sonnensystem sein. Und nun kann man die empirische Hypothese formulieren: "*a* ist eine klassische Partikelmechanik".

In der Mathematik ist dieses Verfahren weit verbreitet und gilt als eine besonders elegante Methode zur Axiomatisierung einer Theorie; ihr grundliegender Vorteil, mit der üblichen Axiomatisierung verglichen, liegt daran, daß in diesem Fall die Gültigkeit der Axiome nicht Schritt für Schritt geprüft zu werden braucht, sondern einfach durch die mit Hilfe der Definition festgelegten Bedeutung des Prädikats entschieden werden kann. Im Prinzip ist diese Methode auf eine jede Theorie anwendbar, angenommen sie liegt in einer axiomatischen Formalisierung vor, wodurch der gewünschte Grad an Präzision gesichert wird. Die vorangehenden Erwägungen zur Systematisierbarkeit der Theorie des Witzes haben jedoch gezeigt, daß einerseits die von uns vorgeschlagene kohärentistische Systematisierung zu einem geringeren Maße mit Nachteilen beladen ist als die axiomatische Methode, und andererseits, was die formale Strenge betrifft, sie nicht hinter der Axiomatisierung zurückbleibt, wodurch sich die Anwendung der kohärentistischen Methode als adäquater erwies. Die wichtige Schlußfolgerung besteht also darin, daß die Theorie des Witzes erst dann durch ein mengentheoretisches Prädikat angegeben werden kann, *wenn das Prädikat "ist ein Witz" nicht mit Hilfe von Axiomen, sondern unter Verwendung der vorgeschlagenen kohärenten epistemischen Struktur S definiert wird.* Die Defi-

nition soll natürlich auch einen Gegenstandsbereich angeben, worüber die Theorie etwas aussagt, sowie diejenigen Begriffe, die in der Theorie vorkommen. Da diese Begriffe eine äußerst wichtige Rolle spielen, soll kurz auf ihre Beschaffenheit eingegangen werden.

Im allgemeinen gibt es grundsätzlich drei Arten von wissenschaftlichen Begriffen: die klassifikatorischen, die durch Mengen, die komparativen, die durch zweistellige Relationen, und die quantitativen, die durch Funktionen dargestellt werden. Die letzteren sind den anderen beiden Begriffsarten weit überlegen, indem sie einem jeden Objekt des Gegenstandsbereiches eine Zahl zuordnen, wodurch die Bestimmung dieser Objekte durch präzise Messungen ermöglicht wird: ein solcher Begriff in der Physik ist z.B. "Masse". Die nachteiligsten Begriffe sind die klassifikatorischen - unglücklicherweise werden gerade diese in der Literaturtheorie angewendet. Sie ordnen jedes Objekt einfach einer Klasse zu, die durch ein Prädikat intensional angegeben werden kann; ein Text ist z.B. genau dann "komisch", wenn dieses Prädikat auf ihn zutrifft. Der größte Nachteil klassifikatorischer Begriffe besteht darin, daß sie sehr arm an Information sind: sie ermöglichen keine Aufdeckung der Beziehungen zwischen den einzelnen Klassen oder Prädikaten - all diese müssen disjunkt definiert werden. Die komparativen Begriffe nehmen eine Zwischenstellung ein: sie liefern viel mehr Informationen, als die klassifikatorischen, indem sie durch eine Ordnungsrelation charakterisiert

werden, wie z.B. "ist größer als" "ist früher als"... Um aber auch die von den klassifikatorischen Begriffen gespeicherten Informationen zu enthalten, können sie als Quasiordnungen definiert werden, z.B. "ist größer als oder genau so groß wie". Auf der anderen Seite dienen sie als Ausgangspunkt zur Metrisierung, wodurch im Prinzip die Möglichkeit ihrer Überführung in einen quantitativen Begriff besteht.

Es wäre angebracht, die in der Theorie des Witzes vorkommenden Begriffe als komparative zu rekonstruieren. Da eine solche Rekonstruktion jedoch die Analyse gewisser Vergleichskriterien erforden würde, z.B. in welchem Sinne, sagen wir, ein Witz "logischer" ist oder über eine stärkere Metafunktion verfügt, als der andere usw., auf die hier nicht eingegangen werden kann, sollen sie zunächst als Mengen betrachtet werden. Es sei aber sowohl die Möglichkeit als auch die Notwendigkeit einer solchen Behandlung betont.

Schon J. Bar-Hillel hat darauf hingewiesen, daß die, in der traditionellen Wissenschaftstheorie geläufige Unterscheidung zwischen den theoretischen und den Beobachtungsbegriffen auf der Verknüpfung zweier, von einander unabhängiger Dichotomien beruhe: die eine ist die "beobachtbar - nicht-beobachtbare", die andere die "theoretisch - nicht theoretische" Dichotomie. Auch H. Putnam trug zur Klärung des Problems der theoretischen Begriffe entscheidend bei, indem er die Frage zugespitzt aufgeworfen hat, in welchem Sinne man sagen könne, daß ein theoretischer Begriff von der Theorie herkommt?[43]

Aufgrund von Bar-Hillels Analyse kann eine der beiden Dichotomien außer Acht gelassen werden - die "beobachtbar - nicht-beobachtbar" - und man kann ausschließlich das Problem der Theoretizität untersuchen. Gegenüber Carnaps Behauptung, wonach die Bestimmung der theoretischen Begriffe ein konventioneller Akt sei, wobei es sich einfach um einen Schnitt in einem Kontinuum handle, betont Sneed nachdrücklich, daß die Theoretizität eines Begriffs von keinerlei willkürlichen Konventionen abhänge, sondern durch ein solches *Kriterium* festgelegt werde, das sich auf die ganze Theorie ausbreitet. Eine sinngemäße Adaptation dieses intuitiven Kriteriums für die Theorie des Witzes läßt sich so formulieren: Ein Begriff ist genau dann *TT*-theoretisch, wenn sie in *TT*-abhängiger Weise bestimmt wird. (*TT*=die vorliegende Theorie des Witzes)

Als *TT*-theoretisch erweisen sich demnach die folgenden Begriffe, deren Ermittlung und Bestimmung eindeutig von der Theorie abhängt: t_1 = Normenkonflikt (denn was darunter verstanden wird, kann nur aufgrund des deontisch logischen Systems bestimmt werden)

t_2 = Logik (wobei dieser Begriff auch die deontische Logik enthält, die viel mehr und auch anders ist als die klassische Logik)

t_3 = Metafunktion (denn dieser Begriff ist z.B. nicht identisch mit dem in der Standardtheorie vorkommenden Begriff)

Für diese drei Begriffe ist es also charakteristisch, daß sie nicht zu der empirischen Beschreibung des Witzes gehören. All die anderen Begriffe, die in den Thesen TT1-TT13 vorkommen,

gelten als nichttheoretisch, da ihre Deutung nicht von der Theorie selbst abhängt. (so z.B. "inkongruent", "verständlich", "pragmatisch", "dynamisch", "neustrukturalisierend" usw.). Der Einfachheit halber werden sie nicht weiter spezifiziert, sondern als eine Menge $n = \{n_1, n_2, n_3, \ldots\}$ zusammengefaßt.

Jetzt wird die folgende Definition verständlich:

D1 X ist eine $m + k$ -Matrix gdw

(1) $x \in M$;

(2) m und k sind positive ganze Zahlen: $0 < m$, $0 \leq k$;

(3) für alle $x \in X$: es gibt $n_1, \ldots, n_m$, $t_1, \ldots, t_k \in M$ so daß $x = \langle n_1, \ldots, n_m, t_1, \ldots, t_k \rangle$;

Nach (1) ist x eine nichtleere Menge. (3) besagt, daß x ein $m+k$-Tupel von Mengen, Relationen und Funktionen ist. Wichtig ist die schon erwähnte Unterscheidung zwischen den theoretischen und den nichtteoretischen Entitäten von x.

Nun sind wir in der Lage, das angekündigte mengentheoretische Prädikat, das die Grundstruktur der Theorie angeben soll, zu definieren:

D2 X ist ein Witz gdw

(1) es B, D, t_1, t_2, t_3, n gibt, so daß

(a) $B = \langle D, t_1, t_2, t_3, n \rangle$;

(b) D ist eine endliche, nichtleere Menge (Menge von Texten);

(c) t_1, t_2, t_3 sind Untermengen von D;

(d) n ist eine Menge von Untermengen von D;

(2) es K, H, F, R, S gibt, so daß

(a) $S = \langle K, H, F, R\rangle$;

(b) $K = \{TT1, TT2, \ldots, TT13\}$;

(c) $H = Po(K) = \{\{TT1,\ldots,TT12\},\{TT13\}\}$;

(d) $F = K \rightarrow H$;

(e) $R \subseteq K \times K$: R ist eine Menge von k-stelligen Relationen, $1 \leq k \leq 13$, wobei $R' \subseteq R$ und

$R' = \{R_1^{13}, R_2^2, R_3^2, R_4^2, R_5^2, R_6^2, R_7^2, R_8^2, 2_9^2, 2_{10}^2\}$

R_1^{13} $(TT1,\ldots,TT13)$ transitive, symmetrische, reflexive Konjunktiv-Relation;

R_2^2 $(TT2,TT4)$ irreflexive, transitive, antisymmetrische Implikativ-relation;

R_3^2 $(TT1,TT5)$ irreflexive, transitive, antisymmetrische Implikativ-Relation;

R_4^2 $(TT3,TT6)$ irreflexive, transitive, antisymmetrische Implikativ-Relation;

R_5^2 $(TT3,TT7)$ irreflexive, transitive, antisymmetrische Implikativ-Relation;

R_6^2 $(TT1,TT8)$ irreflexive, transitive, antisymmetrische Implikativ-Relation;

R_7^2 $(TT3,TT9)$ irreflexive, transitive, antisymmetrische Implikativ-Relation;

R_8^2 $(TT3,TT10)$ irreflexive, transitive, antisymmetrische Implikativ-Relation;

R_9^2 $(TT3,TT11)$ irreflexive, transitive, antisymmetrische Implikativ-Relation;

R_{10}^2 $(TT1,TT12)$ irreflexive, transitive, antisymmetrische Implikativ-Relation;

Die Elemente von R wurden durch die Anwendung der Kohärenzanalyse ermittelt. Die Vervollständigung dieser Analyse würde weitere Relationen ergeben.

Bei der Beschreibung der mathematischen Struktur einer Theorie hält Sneed eine rein extensionale Behandlung für hinreichend. Demgemäß kann in einer ersten Annäherung eine mathematische Struktur durch die Gesamtheit derjenigen Objekte angegeben werden, die sie erfüllen, d.h. durch die Menge der *Modelle M* der mit Hilfe des mengentheoretischen Prädikats axiomatisierten Theorie. M ist also die Extension des Prädikats. Wir erhalten somit: "die Witze und nur die Witze sind die Modelle der mathematischen Struktur der Theorie." Diese Definition ist überhaupt nicht zirkulär, sondern stellt eine einwandfreie, präzise Bestimmung der Modelle der Theorie des Witzes dar. Verzichten wir nun auf die eigentlichen Gesetze[44] oder Thesen, die die Theorie ausmachen, also auf D2(2), dann erhalten wir die Menge der *potentiellen Modelle* M_p. Die potentiellen Modelle sind solche Entitäten (Texte), die nicht unbedingt die Gesetze der Theorie erfüllen, aber diesen auch nicht widersprechen, die also die Potenzialität besitzen, sich zu Modellen der Theorie zu entwickeln, falls die Gültigkeit der Gesetze bewiesen werden könnte. Die Zahl der M_p ist natürlich viel größer als die der Modelle. Es bietet sich die folgende Definition an:[45]

D3 X ist ein M_p^w, gdw. es B, D, t_1, t_2, t_3, n gibt, so daß

(1) $B = \langle D, t_1, t_2, t_3, n\rangle$;

(2) D ist eine endliche, nichtleere Menge (Menge von Texten);

(3) t_1, t_2, t_3 sind Untermengen von D;

(4) n ist eine Menge von Untermengen von D;

Läßt man weiterhin auch alle theoretischen Begriffe, weg, so ergibt sich die Menge der *partiellen potentiellen Modelle* M_{pp}. Diese Menge besteht ausschließlich aus solchen Entitäten, die mit Hilfe rein nichttheoretischer, d.h. empirischer Begriffe beschrieben werden können und die von der Theorie erklärt werden sollen.

D4 X ist ein M_{pp}^{ω} der Theorie des Witzes gdw. es B, D, n gibt, so daß

(1) $B = \langle D, n \rangle$;

(2) D ist eine nichtleere, endliche Menge (Menge von Texten);

(3) n ist eine Menge von Untermengen von D;

Es ist nun leicht enzusehen, daß die im Kapitel 1. behandelten Witze (1),...,(4) als M_{pp} aufzufassen sind. Sie bilden nämlich solche Elemente des Objektbereiches D, die allein mit Hilfe von den nichttheoretischen Begriffen so wie z.B. "Inkongruenz", "Verständlichkeit", "Pointe" usw, zu beschreiben sind.

Der nächste Begriff, der der Erklärung bedarf, ist der Begriff der Nebenbedingung C. Nebenbedingungen müssen streng von Gesetzen unterschieden werden. Während die ersteren die Möglichkeit dessen ausschließen, daß gewisse potentielle Modelle zu Modellen werden, stellen die Nebenbedingungen

Querverbindungen zwischen den einzelnen Anwendungen der Theorie her, indem sie den potentiellen Modellen Beschränkungen auferlegen. Diese Beschränkungen können z.B. darin bestehen, daß die Werte eines theoretischen oder nicht-theoretischen Begriffs in einer Anwendung mit den Werten desselben Begriffs in einer anderen Anwendung übereinstimmen. Es lassen sich leicht Beispiele finden. Die Theorie des Witzes soll auf einen Witz angewendet werden, der sowohl schriftlich, als auch mündlich in der Erzählung mehrerer Personen vorliegt - unsere Gesetze sollen jedoch auf all diese Aktualisierungen zutreffen. Das ist erst dann der Fall, wenn diese Aktualisierungen im Hinblick auf die, zu ihrer Beschreibung verwendeten Begriffe dieselben Bedingungen erfüllen. Falls diese Werte in den einzelnen Aktualisationen nicht übereinstimmen, so handelt es sich um verschiedene Witze. Es läßt sich einsehen, daß für die Aktualisationen eines jeden Witzes Identitätsbedingungen dieser Art erfüllt werden müssen. Beispiele für Nebenbedingungen wären u.a., "der Schotte ist geizig", "der Normenkonflikt ist unauflösbar" usw.

D5 Wenn M_p^w ein potentielles Modell ist, dann ist C^w eine Nebenbedingung für M_p^w gdw.

(1) $C^w \subseteq Po(M_p^w)$;

(2) $Ex \in M_p^w(\{x\} \in C^w)$;.

Es soll die folgende Definition angeführt werden.

D6 X ist ein Kern gdw es gibt M_p^ω, M_{pp}^ω, M^ω, C^ω, m und k, so daß

(1) $X = \langle M_p^\omega, M_{pp}^\omega, M^\omega, C^\omega \rangle$;

(2) M_p^ω ist eine $m+k$-Matrix;

(3) $M_{pp}^\omega = \{\langle n_1, \ldots, n_m \rangle \mid Et_1, \ldots, t_k (\langle n_1, \ldots, n_m, t_1, \ldots, t_k \rangle \in M_p^\omega)\}$;

(4) $M^\omega \subseteq M_p^\omega$;

(5) C^ω ist eine Nebenbedingung für M_p^ω;

Der Kern soll die *mathematische Struktur* der Theorie darstellen. Die Theorie selbst ist aber mit dieser mathematischen Struktur nicht identisch: sie enthält daneben auch eine andere Komponente, nämlich die *Menge der intendierten Anwendungen* I. An dieser Stelle ist bereits einzusehen, daß die Theorie keine Menge von Aussagen mehr darstellt, sondern auch eine nichtmathematische oder nichtlogische Komponente enthält, also "ein Stück der Wirklichkeit". Um weitere Differenzierungen treffen zu können, werden wir nicht von der Theorie des Witzes reden, sondern von einem *Theorieelement* des Witzes. Die Definition lautet:

D7 X ist ein Theorielement gdw es gibt ein U^ω, und ein I^ω, so daß

(1) $X = \langle U^\omega, I^\omega \rangle$;

(2) $U^\omega = \langle M_p^\omega, M_{pp}^\omega, M^\omega, C^\omega \rangle$;

(3) $I^\omega \subseteq Po(M_{pp}^\omega)$;

Die Elemente von I werden also als Mengen von partiellen, potentiellen Modellen behandelt. Das spiegelt die Idee wider,

daß für ein jedes x ein jedes y desselben Typs auch eine intendierte Anwendung ist. So gehören nicht nur die im Laufe der vorliegenden Arbeit bisher beschriebenen Witze in den Bereich der intendierten Anwendungen unserer Theorie, sondern alle, die dieselben Eigenschaften besitzen.[46] Der gesamte Bereich kann jedoch nicht genau angegeben werden. Die Menge I läßt sich nur durch ihre Teilmenge I_o umreißen, die die Menge der *paradigmatischen Beispiele* angibt - hier besteht also keine Notwendigkeit mehr, wie im Aussagenkonzept, das gesamte Feld der Anwendungen anzugeben. In unserem Falle ist diese Menge identisch mit der Menge der Witze (1),...,(4), die im Kapitel 1. analysiert wurden. Bei der Ermittlung von I_o spielen offenbar pragmatische Faktoren eine bedeutende Rolle, genauer gesagt haben wir es hier eindeutig mit dem Wittgensteinschen Begriff der *Familienähnlichkeit* zu tun. Es läßt sich also nun unser Vorgehen rechtfertigen, daß wir keine allgemeingültige Strukturbeschreibung der Witze angaben, sondern, genau wie es Wittgenstein im Falle des "Spiels" tat, sie aufgrund gewisser, vage umrissener Eigenschaften identifizierten.

(2) Die empirische Behauptung der Theorie

An dieser Stelle greifen wir das einmal schon angedeutete Problem der theoretischen Begriffe wieder auf und wenden uns dem von Sneed dargelegten Lösungsversuch zu. Die Frage stellt sich folgendermaßen: Läßt sich der mathematische Apparat einer Theorie mit seinen theoretischen Begriffen zur

Formulierung empirischer Behauptungen verwenden? Die Antwort ist: Nein. Denn bezeichne "*P*" die Grundstruktur und "*a*" eine der Anwendungen der Theorie, dann erhält die empirische Behauptung die folgende Form:

(1) "*a* ist ein *P*"

Wenn die Theorie theoretische Begriffe enthält, dann kann der Wahrheitswert von (1) nur in dem Fall ermittelt werden, wenn man voraussetzt, daß die Wahrheit einer Aussage von der Form (1) bereits bewiesen worden sei. Somit führt der Versuch der Ermittlung des empirischen Wahrheitswertes von (1) zu einem Zirkel. Und das bedeutet zugleich, daß Theorien, die theoretische Begriffe enthalten, zur Formulierung von empirischen Hypothesen nicht geeignet sind.

Sneed gelang es jedoch zu zeigen, daß Formeln von der Form (1) nicht als die empirischen Hypothesen einer Theorie betrachtet werden können. Eine solche Behauptung erhält man aber, wenn man (1) in sein *Ramsey-Substitut* überführt. Das Wesen dieses Verfahrens besteht darin, daß man in einem ersten Schritt die in dem Satz vorkommenden theoretischen Terme durch Variable ersetzt, und in einem zweiten Schritt dann diese Variablen mit Existenzquantoren bindet. Es ist bewiesen, daß dieser Ramsey-Satz gleichwertig mit der Originaltheorie ist. Da der Ramsey-Satz keine theoretischen Terme enthält, brauchen wir nur *nichttheoretische* Objekte zu untersuchen. Dementsprechend besteht also keine Notwendigkeit mehr, anzunehmen, daß eine andere Behauptung von der Form (1) bereits wahr sei. Sneed

betont, daß der Ramsey-Satz die einzige bisher bekannte Lösung des Problems der theoretischen Terme darstellt.

Deshalb ist das Gegenargument, daß der Ramsey-Satz irgendwie philosophisch verdächtig sei, nicht stichhaltig: er bietet einen notwendigen Bestandteil der Beschreibung dessen, wie Theorien in den empirischen Wissenschaften behandelt werden.

Die Originalfassung des Ramsey-Satzes ergab eine äußerst komplizierte Formel. Der gegenwärtige Ansatz ermöglicht jedoch seine Reduktion auf einen atomaren Satz. Dies kann wie folgt angeführt werden.

Sei $n \in N$ und $J \in M$. Wir definieren dann $V^n(J)$ rekursiv wie folgt: $V^o(J) \equiv J$ und $V^{n+1}(J) \equiv Po(V^n(J))$. Es wird dann die folgende Definition angegeben:

D8 Wenn $U = \langle M_p, M_{pp}, M, C\rangle$ ein Kern ist, dann

(1) die Funktionen r^i: $V^i(M_p) \to V^i(M_{pp})$ sind induktiv definiert für $i \in N$ wie folgt: $r^o(\langle n_1,\ldots,n_m,t,\ldots,t_k\rangle) \equiv \equiv \langle n_1,\ldots,n_m\rangle$; $r^{i+1}(X) \equiv \{r^i(Y) \mid Y \in X\}$, für $X \in V^{n+1}(M_p)$;

(2) $A(U) \equiv r^2(V^1(M) \cap C)$;

Die r^n sind die Restriktionsfunktionen, die die $t_1,\ldots,t_n$ theoretischen Terme aussondern. $A(U)$ wird der *empirische Gehalt* von U genannt. Der empirische Gehalt enthält die Teilmengen von M_{pp}, die sich durch Hinzufügung theoretischer Terme zu Teilmengen von M ergänzen lassen und die die Nebenbedingungen erfüllen. Die *Anwendungsfunktion* A bildet demnach den Kern U

auf diese M_{pp} ab. Nun gilt das folgende Theorem:

Theorem: U^{ω} hat einen empirischen Gehalt.

Der Beweis ergibt sich unmittelbar, denn aufgrund von D3, D4, D5, D6 gibt es einen U^{ω}, so daß $U^{\omega} = \langle M_p^{\omega}, M_{pp}^{\omega}, M^{\omega}, C^{\omega} \rangle$. Damit ist die Bedingung von D8 erfüllt.

Man nehme weiterhin die folgende Definition in Betracht:

D9 Wenn $\langle U, I \rangle = T$ ein Theorieelement ist, dann ist die *empirische Behauptung* von T der Satz $I \subseteq A(U)$.

Der intuitive Gedanke hinter dieser Definition besteht darin, daß die empirische Behauptung einer Theorie (d.h., in der vorliegenden Terminologie, eines Theorieelementes) gleichzusetzten sei mit der Aussage, daß die Menge der intendierten Anwendungen eine Teilmenge der Anwendungen des Kernes bilde.

Theorem: Sei $T^{\omega} = \langle U^{\omega}, I^{\omega} \rangle$, wobei $I_o^{\omega} \subseteq I^{\omega}$ und $I_o = \{(1), (2), (3), (4)\}$ die Menge ist, deren Elemente die paradigmatischen Beispiele der Theorie des Witzes bilden. Dann ist die empirische Behauptung von T^{ω} der Satz $I_o^{\omega} \subseteq A(U^{\omega})$.

Der Beweis ergibt sich unmittelbar aus D9.

Die ausschlaggebende Bedeutung der beiden Theoreme besteht darin, daß mit ihrer Hilfe die *empirische Signifikanz* der Theorie des Witzes nachgewiesen werden konnte. Das ist aber nicht gleichzusetzten mit der Behauptung, daß der Satz "$I_o^{\omega} \subseteq A(U)$" tatsächlich wahr sei - dies soll extra geprüft werden.

Theorem: Der Satz $I_o^w \subseteq A(U^w)$ ist wahr.

Der Beweis ergibt sich aufgrund des folgenden Gedankenganges. Die Elemente von $A(U^w)$ sind genau die M_{pp}^w, die sich durch Hinzufügung von theoretischen Begriffen zu Teilmengen von M^w ergänzen lassen und die Nebenbedingungen erfüllen. Da diese Menge aufgrund von D4 nicht leer ist, gibt es anhand von D6(3) eine Untermenge I^w der Potenzmenge dieser M_{pp}^w. Und I_o^w ist als diejenige Untermenge von I^w definiert, die die Witze, d.h. die M_{pp} (1),...,(4) enthält.

Damit ist bewiesen, daß die empirische Behauptung der Theorie des Witzes wahr ist, d.h. daß die Theorie erfolgreich angewendet werden kann.

Es soll weiterhin bemerkt werden, daß es nicht die Theorie (bzw. das Theorieelement T^w) selbst ist, deren Wahrheit nachgewiesen wurde, sondern die des atomaren Ramsey-Satzes, denn die Wahrheit oder Falschheit kann nur von Sätzen ausgesprochen werden - eine Theorie ist dagegen nicht als ein Satz definiert worden, sondern als ein geordnetes Paar, dessen erstes Element eine mathematische Struktur und dessen zweites Element eine Menge von Objekten (in unserem Fall Texten) bildet. Damit hängt die Tatsache zusammen, daß die Theorie selbst immun gegenüber der Erfahrung ist, d.h. weder verifiziert noch falsifiziert werden kann - dies läßt sich nur in Falle der empirischen Behauptung vornehmen.[47]

Die bisherigen Theoreme und Definitionen wurden verhältnismäßig ausführlich dargestellt, um die empirische Signifikanz der Theorie des Witzes nachweisen zu können, die unseres Erachtens die problematischste Aufgabe einer Texte untersuchenden Theorie ist. Das strukturalistische Theorienkonzept bietet jedoch die Lösung zahlreicher anderer Probleme an, die im folgenden kurz angedeutet werden, ohne den Anspruch auf Vollständigkeit oder exakte Formulierung zu erheben.

(3) Die Unterscheidung zwischen allgemeinen und speziellen Gesetzen. W. Balzer hat darauf hingewiesen, daß die Gesetze einer Theorie in derselben Form rekonstruiert werden können wie die Theorie selbst, d.h. als ein Theorieelement. Demnach kann der Begriff der Spezialisation erläutert werden. Die ursprüngliche Theorie stellt nun dasjenige *Basiselement* dar, das als Ausgangspunkt zu den Spezialisationen dient, die die speziellen Eigentümlichkeiten einiger spezieller Anwendungen erklären sollen. Demnach, parallel mit der Entdeckung neuer intendierter Anwendungen wird es möglich, ihre neu entdeckten speziellen Gesetze zu behandeln. In unserem Falle ergibt sich daraus die Möglichkeit, die Theorie auch auf solche Typen des Witzes auszudehnen, die von unseren Analysen und dem deontisch logischen Modell nicht erfaßt wurden.

(4) Die Theoriendynamik. Eine der wichtigsten Errungenschaften des strukturalistischen Theorienkonzeptes besteht darin, daß mit seiner Hilfe der diakronische Aspekt der Theoriendynamik exakt und präzise beschrieben werden kann. Es wäre demnach

möglich, unsere Theorie in die Geschichte der Witztheorien einzuordnen und solche Begriffe zu klären, wie *Paradigma, Normalwissenschaft, wissenschaftliche Revolution.*[48]

(5) Die pragmatische Erweiterung der Theorienelemente. Mit Anlehnung an einen Vorschlag von C.U. Moulines läßt sich die pragmatische Seite der wissenschaftlichen Tätigkeit mit einbeziehen.[49] Bezeichnet man mit *SC* eine wissenschaftliche Gemeinscheft, und mit *h* ein historisches Zeitintervall, so gelangt man zu *pragmatisch erweiterten Theorieelementen*. Dadurch können auch solche bestimmenden Faktoren der vorliegenden Theorie des Witzes geklärt werden, die außerhalb der immanenten Theorienstruktur liegen.

(6) Die Theorienbeladenheit der Beobachtungen. Das Problem lautet folgendermaßen: wie läßt sich unsere Theorie mit Hilfe von Daten überprüfen, die nur verständlich sind, wenn man wenigstens einen Teil der Theorie als wahr ansieht? Hier handelt es sich aber einfach um eine mögliche Formulierung des Problems der theoretischen Begriffe - und dieses Problem ist von Sneed gelöst worden.

(7) Die Deskriptivität der Wissenschaftstheorie. Im Gegensatz zu dem Aussagenkonzept geht das strukturalistische Theorienkonzept nicht normativ, sondern deskriptiv vor, indem es das tatsächliche Verhalten des Wissenschaftlers und den tatsächlichen Vorgang der Theorienbildung beschreiben will. Dadurch wird ermöglicht, die Theorie des Witzes wissenschaftstheoretisch zu fundieren, sie exakt und präzise zu beschrei-

ben, ohne jedoch dabei von den Idealen und Desiderata der Naturwissenschaften geleitet zu werden.

(8) Einfachheit des Apparats. Da anstelle von formalen Sprachen ein grundsätzlich informeller mengentheoretischer Apparat verwendet wird, kann die umrissene logische Analyse einer Theorie in die Praxis ziemlich leicht umgesetzt werden, wodurch eine sprach- oder literaturwissenschaftliche Theorie leicht auf ihre empirische Signifikanz überprüft werden kann.

4. Zusammenfassung

Aufgrund der durchgeführten Untersuchungen lassen sich die anfangs gestellten Fragen folgendermaßen kurz beantworten.

(1) Was die Eigentümlichkeiten und Funktionen des Witzes betrifft, so soll es genügen, auf die Thesen TT1-TT13 hinzuweisen, die über den Nachweis der Arbeitshypothese hinaus auch zur Klärung weiterer Grundeigenschaften des Witzes beitrugen.

(2) Das durch semantisch-pragmatische Analysen fundierte deontisch logische System verfügt über das angestrebte Merkmal: es ist fähig, sowohl die inkongruente, diskrepante Struktur des Witzes zu modellieren als auch seine Systemhaftigkeit und Kongruenz auf einer anderen Ebene. Es ergibt sich daraus, daß der Witz nur im Hinblick auf den Hintergrund der klassischen zweiwertigen Logik als inkongruent oder deviant hingenommen wird - wird der logische Bezugspunkt unter Berücksichtigung der tatsächlichen logischen Struktur der kommunikativen Regeln gemäß ermittelt, so erweist sich der Witz als ein integrantes und funktionsreiches Element dieses Sy-

stems.

(3) Die Aufgabe der epistemischen Systematisierung besteht darin, die mit Hilfe einer bestimmten Methode gewonnenen Thesen in Bezug auf allgemein epistemische Gesichtspunkte zu systematisieren, um damit die Grundlage zur Strukturierung der Theorie zu schaffen. Hier hat sich herausgestellt, daß sich zur Lösung der epistemischen Probleme, die die Untersuchung des Witzes aufwarf, am besten eine modifizierte kohärentistische Systematisierung eignet, wodurch es ermöglicht wird, die Ergebnisse der vielfältigen pragmatischen Untersuchungen aufgrund der logischen Struktur des Witzes in ein eiheitliches epistemisches System kohärent zu integrieren.

Auf dieser allgemein epistemischen Stufe, wobei die Aufgabe lediglich in der Systematisierung der Thesen, und nicht in ihrer Überprüfung auf ihren Wahrheitswert besteht, erwies sich ein kohärentistisches Wahrheitskriterium als hinreichend, um die Aufnahme gewisser Thesen in das epistemische System entscheiden zu können. Die Überprüfung auf den Wahrheitswert und den empirischen Gehalt wurde auf die Stufe der Theorienstruktur überwiesen. Demnach liegt die wichtige Schlußfolgerung nahe, daß diese beiden Faktoren einander gegenseitig voraussetzten und erst *zusammen* zur adäquaten Theorienbildung führen können.

(4) Das strukturalistische Theorienkonzept schien, im Gegensatz zu dem Aussagenkonzept, einen formal präzisen Rahmen zur wissenschaftstheoretischen Explikation der Theorie des Witzes zu liefern. Die einzige wichtige Modifikation, die da-

bei vollzogen werden mußte, bestand im Ersetzen der axiomatischen Systematisierung der Grundgesetze durch ihre kohärentistische. Dabei konnten einige wichtige Probleme gelöst werden, vor allem die Bestimmung des empirischen Gehaltes und der empirischen Behauptung der Theorie.

(5) Hinsichtlich der einzelnen Methoden ergibt sich die Schlußfolgerung, daß diese auf den verschiedenen Stufen der Theorienbildung unterschiedlicher Bewertungen bedürfen. Auf der Ebene der Untersuchungsmethode des Witzes erwies sich ein axiomatisches System als fruchtbar, denn seine Unzulänglichkeiten können auf den höheren Stufen kompensiert werden. So ist es z.B. Aufgabe der epistemischen Systematisierung und nicht der Untersuchung der Texte, einen methodologischen Pluralismus zu rechfertigen, indem sie die Integration verschiedenartiger, durch unterschiedliche Methoden gewonnenner Ergebnisse in eine einheitliche Theorie zu integrieren vermag - auf der Stufe der Textanalyse würden eklektische Methoden zu widersprüchlichen und von Anomalien beladenen Ergebnissen führen. Oder: es wird das, auf der unmittelbar methodologischen Ebene der Witzanalyse ungelöste Problem der Ausdehnung der aufgedeckten Gesetzmäßigkeiten auf solche Texttypen, die von dem ursprünglischen Modell nicht erfaßt wurden, auf der wissenschaftstheoretischen Stufe gelöst: falls bereits ein Strukturkern festliegt, besteht die Möglichkeit, immer neue Anwendungen dieses Kernes zu entdecken, die auf ihren empirischen Gehalt geprüft und mit Hilfe spezieller Gesetzte

beschrieben werden können.

Die Nachteile der Axiomatisierung führen jedoch bei der epistemischen Systematisierung zu ihrer Preisgabe, indem sie sich auf den anderen Stufen nicht beheben lassen. Deshalb bietet sich hier ein methodischer Ansatz zur Kohärenzanalyse an.

Auf der wissenschaftstheoretischen Stufe wurde schließlich die Grundstruktur der Theorie mit Hilfe eines mengentheoretischen Prädikats angegeben, deren Definition aus den kohärentistisch systematisierten Gesetzen bestand.

Aus all diesen Erwägungen ergibt sich die Schlußfolgerung, daß die Stufen der Theorienbildung im Hinblich auf den Witz einerseits einander gegenseitig voraussetzten und erst zusammen zu den erzielten Ergebnissen führen können, andererseits aber verschiedenartiger Problemstellungen, unterschiedlicher methodologischer und erkenntnistheoretischer Voraussetzungen und Präsuppositionen bedürfen, wodurch sie einen teilweise getrennten Zugang zu rechtfertigen scheinen.

Verzeichnis der Symbole

p, q, r, s	propositionale Variablen
$\&, v, \rightarrow, \equiv$	logische Konstanten
O, P, F	deontische Operatoren
$\vdash$	logische Konsequenz
$(,)$	Hilfszeichen (Klammern)
Op	monadischer O-Ausdruck
$O(p/q)$	dyadischer O-Ausdruck

T1,...,T4	Thesen der Standardtheorie
WT1,...,WT4	Thesen der Arbeitshypothese
TT1,...,TT13	Thesen der vorliegenden Theorie des Witzes
W, G, B	epistemische Operatoren
{...}	geschweifte Klammern zur Angabe einer Menge
<...>	spitze Klammern zur Angabe eines geordneten n-Tupels
$F: K \rightarrow H$	eine Abbildung der Menge K in die Menge H
$Po(K)$	Potenzmenge von K
E	Existenzquantor
$\forall$	Universalquantor
$<$	Ordnungsrelation
$\leq$	kleiner-gleich
$\in$	Element von
$\cup$	Vereinigung zweier Mengen
$\cap$	Durchschnitt zweier Mengen
$\times$	kartesisches Produkt
M	nichtleere Menge
N	Menge der natürlichen Zahlen
$\emptyset$	leere Menge

Anmerkungen

1. An Literatur wurde ansgewertet: Bausinger (1968), Brunwand (1972), Douglas (1968), Fischer (1871), Freud (1905), Grober-Glück (1959), Grothjan (1957), Hegele (1969), Höllerer (1976), Jonhson (1976), (1978), Jolles (1930), Langeweide (1956), Lüthi (1970), Marfurt (1977), Moser-Rath (1969), Pocheptsov (1974), Preisendanz (1970), Röhrich (1977),

Schmidt-Hidding (1963), Schweizer (1967), Ulrich (1978), Wellek (1949). Vgl. auch die Literaturangaben in Röhrich (1977).

2. Es sei genügend, ein einziges typisches Beispiel zur Illustration dieser Auffassung anzugeben: "Indem der Witz das Verständnis von der sprachlichen Aussage löst und es doch zugleich an diese Aussage gebunden erscheinen läßt, realisiert Verknüpfungsmöglichkeiten und Gesichtspunkte, die unter der Herrschaft des Ernstes, der Strenge, der Sachlichkeit versagt, verpönt, unverantwortlich sein müssen. Die Pointe ist der - im Grunde stets semantische - Trick, durch den ein für die seriöse Ausrichtung und Einstellung unstatthafter Sinn so in die Lebensbezüge hineinprojiziert wird, daß die vom Ernst bestimmte Ordnung der Dinge gerade das für sie Belanglose, Ausgefallene, Nichtige zur Geltung bringen muß. Der Witz führt zu einem 'collapse of the pattern of experience' (Max Eastman), zum Zusammenbruch eines Erfahrungsmusters; man muß hinzufügen, zum Kollaps der dem Ernst, der Naivität, dem Enthusiasmus, der sachlichen Strenge, dem Zwang entsprechenden Erfahrungsmuster... Indem der Witz diese Bedeutungungen und Bewandtnisse relativiert, indem er das scheinbar ausgefallene und Nichtige gegen das anerkannt Wichtige und Erhebliche, das Verpönte gegen das Geheiligte ausspielt, indem er die normalen, konventionellen Gesichtswinkel ignoriert und die selbstverständlich erscheinende Rangordnung der Werte und Akzente wenigstens für den Augenblick erschüttert - in all dem ist der Witz ein

unscheinbarer, aber klassischer Beweis für die Möglichkeit des Menschen, sich von Denk- und Realitätszwängen zu distanzieren, sich über die Reglementierung von Einstellungen und Gefühlen hinwegzusetzen, sich in exzentrischer Position zu den Gegebenheiten und Ordnungen zu halten, Abstand zur Welt und sich selbst zu gewinnen." Preisendanz (1970).

3. Dieses Vorgehen wird im Kapitel 4. gerechtfertigt.
4. Zur Explikation des Begriffs der Witzsituation vgl. Marfurt (1977).
5. Stalnaker (1973) S. 385.
6. Ebert (1973).
7. a.a.O. S. 425.
8. Ducrot (1973)
9. a.a.O. S. 251.
10. Frege (1892). Vgl. auch: "Der Voraussetzungscharakter der Präsuppositionen eröffnet, wie schon Frege betonte, ein weites Feld rhetorischer und manipulativer Verwendungsmöglichkeiten. Da sie als selbstverständlich, ohne weitere Begründung akzeptabel, gar nicht zur Debatte stehend unterstellt wird, richtet sich das Augenmerk des Hörers und damit auch seine Kritik weit weniger auf den Inhalt der Präsupposition als auf das betont Behauptete. Da der Hörer die Präsupposition dennoch akzeptieren muß, wenn er nicht grundsätzlich die gemeinsame Basis der Kommunikation zurückweisen will, kann er u.U. leichter zur Annahme einer präsupponierten als einer betonten Aussage gebracht werden." Franck (1973) S. 38.

11. Vgl. Stalnaker (1973).
12. An Literatur wurde ausgewertet: Conte - Hilpinen - von Wright (Hrsg.) (1977), Hilpinen (Hrsg.) (1971), (1981), Kutschera (1973), (1976), Lenk (Hrsg.) (1974), Mally (1924), von Wright (1951).
13. Zu einer Analyse von Regeln in Sprechakten, dem logischen Status nach, vgl. Kertész (1982).
14. Vgl. Searle (1969).
15. Vgl. Grice (1975).
16. Vgl. Wunderlich (1974).
17. a.a.O. S. 344.
18. von Wright (1971).
19. Vgl. ebenda.
20. Ebenda, wobei im Zitat die Symbole unserer Verwendung entsprechend ersetzt wurden.
21. Im folgenden wird von Wrights Beweis kurz zusammengefaßt.
22. Zur eingehenden Analyse von verschiedenen Typen der Normenkonflikte, die gewisse sprachliche Strukturen in kommunikativen Situationen charakterisieren, sowie zu ihrer temporalen Bestimmtheit und Auflösbarkeit vgl. Kertész (1982).
23. Vgl. dazu Kutschera (1982).
24. Zur erkenntnistheoretischen Bewertung dieser Ergebnisse vgl. Stegmüller (1959).
25. Vgl. Rescher (1973), (1979).
26. Vgl. Rescher (1973).
27. Diese Behauptung bezieht sich auf Rescher (1979). In Rescher (1973) ist eine formale Rekonstruktion des Kohärenzbegriffs von A.C. Ewing versucht worden. An

dieser Stelle kann auf die Diskussion dieses Ansatzes nicht eingegangen werden, es sei lediglich soviel bemerkt, daß er den Desiderata der vorliegenden Arbeit aus Gründen, die teilweise schon erwähnt wurden, teilweise im Späteren behandelt werden, nicht genügt.

28. Vgl. Rescher (1979).
29. Ebenda.
30. Ebenda.
31. Vgl. Rescher (1973) S. 72-97.
32. Vgl. Stegmüller (1979a).
33. Der Begriff der "Familie" wird wie folgt erläutert. Sei I eine beliebige Menge, $F:I \to N$ und $n_i \equiv F(i)$ für jedes $i \in I$. Man schreibt dann statt $F:I \to N$ gern $\langle n_i \rangle_{i \in I}$ und spricht von der Familie F aus Elementen von N mit der Indexmenge I.
34. Vgl. Rescher (1979) S. 59-62.
35. Ebenda S. 61.
36. Quine (1948) S. 13.
37. Vgl. Ruzsa (1981).
38. Quine (1952) S. 3.
39. Rapaport (1968) S. 452-458.
40. Zur Darstellung des Aussagenkonzeptes vgl. Stegmüller (1970) und Kutschera (1972).
41. Vgl. Montague (1962).
42. Vgl. Sneed (1971), Stegmüller (1973), (1979b), (1980).
43. "A theoretical term, properly so-called, is one which comes from a scientific *theory* (and the almost untouched problem in thirty years of writing about 'theoretical

terms' is what is really distinctive about such terms)." Putnam (1962) S. 243.

44. Die im Kapitel 1.7. formulierten Thesen sind als *Gesetzeshypothesen* der Theorie des Witzes zu betrachten, deshalb wird im Laufe der folgenden wissenschaftstheoretischen Diskussion das Wort "Gesetz" anstatt von "These" verwendet.

45. Der Index "ω" weist hier und im Weiteren darauf hin, daß das betreffende Symbol sich auf die vorliegende Theorie des Witzes bezieht. M^{ω} bezeichnet beispielsweise: "die Menge der Modelle der Grundstruktur der vorliegenden Theorie des Witzes".

46. Auf der Stufe der Theorienstruktur, wie auch bei der epistemischen Systematisierung spielen die Methoden, mit deren Hilfe die Gesetzte ermittelt wurden, keine Rolle mehr. Demnach lassen sich die Gesetze auch auf solche intendierten Anwendungen ausdehnen, die außerhalb der Tragweite der ursprünglichen Methode liegen. Diese Tatsache liefert die Berechtigung dafür, in dem vorliegenden Fall tatsächlich von einer Theorie *des* Witzes zu reden, und nicht nur von einer Theorie *eines Typs* der Witze.

47. Vgl. Stegmüllers Ausführungen zur Immunität einer Theorie gegenüber widerspenstiger Erfahrung in Stegmüller (1979b) S. 50-57.

48. Demnach handelt es sich bei der Theoriendynamik um eine exakte Explikation der Thesen von T.S. Kuhn, indem diese sowohl vom Relativismus als auch vom Irrationalismus

befreit werden.

49. Vgl. Stegmüller (1979b) S. 29-32.

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SECRET AND COMMUNICATION

A NEW APPROACH TO THE CONVERTIBILITY OF DE DICTO TO DE RE

LÁSZLÓ TARNAY

Attila József University, Szeged

1. The concept of secret

The ordinary use of "secret" is so diverse that it covers a vast field of meaning; to narrow it down we can turn to the dictionary and take its various definitions as a starting point. Naturally, we then neglect some particular occurences of the words as a lexical item, though at the same time we presume that they could be classified under the following two definitions.

The Oxford English Dictionary gives seven separate definitions of the word "secret" as a substantive; among them two are very specialized (2. a prayer in liturgical use, 7. a coat of mail), two others do no more than specify things that can serve as the object of secret (4. a method, 5. a place), one lists only several phrases with the word "secret", while the remaining two unfold the basic meanings of "secret" at once interrelated and contrasting:[1] "1. Something unknown or unrevealed or that is known only by initiation or revelation, a mystery chiefly pl., the hidden affairs or workings (of God, Nature, Science)" and "3. Some fact, affair, design, action, etc. the

knowledge of which is kept to oneself or shared only with those whom it concerns or to whom it has been confided, something that cannot be divulged without violation of command or breach of confidence."[2]

According to the first definition the secret should correspond to an object beyond the bounds of knowledge. Then it is viewed as something existing like a real object, while the word "secret" expresses a negative epistemological attitude. For in this sense we deal with the secret as an epistemological phenomenon the cause of which has yet to be discovered. Now the secret is not a linguistic but rather a scientific problem, though language cannot be wholly excluded for all our understanding is closely related to speaking: there is no problem until we consider secret a thing that is totally unknown, but as soon as we obtain the minimal information[3] on it and we name it although we known nothing of its cause except its being, i.e. it exists, the over-discussed problem of analyticity arises, and the epistemological problem becomes a linguistic one too. For, as Searls pointed out, "the argument of defining the criterion of 'analytic' is self-defeating";[4] in other words, how can we name a thing without knowing the very essence of its existence (that is the criterion of applying the term to new cases). Still the solution remains scientific: it is more relevant information from empirical sources that we have to have for naming. So we cannot know a thing unless we possess the necessary information as to its cause, for knowing that it exists generally

is not enough.

According to the third definition the secret should correspond to a way of communication; it describes a situation in which contact between potential addressers and addressees is prohibited. To this we may add some other cases when the break-down of contact is not intentional: the addresser and the addressee cannot get into touch because of reasons of time-and-space, or there is a physical contact but somehow they do not seem to speak the "same" language and so they cannot understand each other. In this sense we deal with the secret as a linguistic phenomenon but we will inevitably intrude into the field of pragmatics as well.[5]

To sum up so far, we have two clear-cut definitions of "secret":

a./ the first refers to an epistemological attitude, to a relation between things and human consciousness. Here we would like to put emphasis on the latter because we hold strongly the view that the secret can never be an attribute of things or a label attached to them by the human mind or a thing-in--itself; neither can it be a type of behaviour sanctioned by conventions. Briefly, it is not an entity but a system of relations.

b./ the second definition refers to a type of communication: in this approach, it is less tempting to think of secret in terms of an ontological entity than to consider it as a communicative situation. For it is not the knowledge but the divulgation of it that matters; not the information in itself

but the fact that it is kept from others. So this type of communication will be describable in terms of those who keep the information to themselves and of those from whom it is kept; i.e. in terms of potential addressers and addressees.

We aim at giving a general and unified description of secret based on the two definitions above. But then we encounter a very serious problem: What will the relation between the radically different definitions be: is it possible to formulate one without referring to the other? If yes, then they cannot be used as parts of a more general theory because we shall have to speak of two basically different concepts of "secret"; if no, then our argument will surely turn out, at one point or other, to be self-defeating, though we have seen that this failure is due rather to analyticity than to a more particular theory of secret. In other words, we have to consider the relation of epistemology and communication.

The situation is parallel with the problem of linguistic meaning and utterer's intention. In "Meaning and Truth" Strawson[6] argues for the interrelatedness of a semantic and a communicational theory of language; if the utterer produces his utterance with a complex audience-directed-intention, involving the audience's thinking that he has a certain belief, there is no detached element corresponding to this expressing a belief with no such intention. But this does not mean that an Audience-Directed-Belief-Expression (ADBE) is a kind of logical compound of two simpler concepts of AD and BE and hence that BE is conceptually independent of ADBE.

What we can do is produce a description of a belief expression and imagine a case for it, although this description will depend on the description of the case in which the utterer has an audiance-directed-intention. This argument closely parallels our own in the following way: we can avoid the problem of the interrelatedness of our two definitions in two ways; either we exclude the first one from our analysis on the basis of a very strong argument; it lacks a criterion used in ordinary life when somebody considers something secret, i.e. there should be an intention not to reveal the secret to others; or we use the word "communication" in a wider sense: we consider every activity of an individual in getting new information on a certain thing as a type of communication - permitting that in some cases the addresser remains unknown or is not a definite person but a thing, Nature, Fate, Social Institute, etc. Then we may preserve our first definition as the description of certain conditions to be fulfilled for a successful communication of the secret. We choose the latter solution. Now the relevance of Strawson's argument should be clear: the definition referring to an epistemological attitude will correspond to a Belief-Expression and will then give the semantic description of "secret", what its meaning is, the definition referring to a type of communication will correspond to an Audience--Directed-Intention and will then give account of the pragmatics of "secret", what its use is like. And the two definitions together will serve as a framework for a theory of "secret" determining a certain speech-act which - as we will argue

later - parallels the pragmatics of referring and needs the incorporation of some game-theoretical elements. In this approach we can avoid entering the field of ontology, and even the problem of the relation of epistemology and communication seems to evaporate: knowledge (and belief respectively) and communication (of this knowledge and belief) cannot be separated; knowledge cannot be conceptually independent of communication in general, i.e. our activity of knowing and our activity of communicating seem to run on parallel lines. However, they are not logically interrelated: there is no logical necessity between an epistemological attitude which turns on knowing (believing) a certain thing and the communicating of this thing as a secret. Rather we would say; the communication of a thing intended as a secret conversationally presupposes a certain epistemological attitude with respect to that thing. Or conversely, for every epistemological attitude with respect to a certain thing can be found a case in which it is associated with some intention to communicate that thing as a secret. Or more generally, the secret is a system of certain rules and conditions that orientates our activity to acquire knowledge.

In the forthcoming analysis we argue that there is a common term for many of the debated categories of modal logic: quantification, referentially transparent vs referentially opaque, "de re" vs "de dicto", possible worlds, etc. So in explicating what this term means we can account for all these problems and on the very same basis: if they can be reduced to some well-known thing in ordinary life and if this then can

be described as specifying certain relations logically, they all are given a unified and general explanation. It is for these aims that we recur to the word "secret". In conducting a conceptual analysis of it, instead of speaking of the interrelations of concepts, we make use of the interrelations of concrete individuals, i.e. when we define "secret" as "something kept unknown from someone by somebody", we say something like: there is a proposition p and there are at least two individuale x and y such that $x=a$ and $y=b$, and a knows that p while b does not know that p, and a intends that b does not know that p.[7] Though this scheme will be amended later, it seems clear that we are in favour of a quantified modal logic. But the validity of this option can only be made apparent from a pragmatic point of view.

A further comment should be made about the use of some terms of our analysis; we start with giving a framework for a general description of "secret" and we define two components of this conceptual framework, the semantics, which determine certain conditions and which can be specified within a simple modal logical system, and the pragmatics, which comprises certain rules for corresponding communicative acts when our defined semantic ideal becomes applied, and which even explains some reasonable cases of the logic of action. Throughout this analysis we use the terms *epistemology* and *communication* somewhat interchangeably; this does not mean that we hold them to be identical, but otherwise we cannot give a pragmatic account for some crucial semantic problems. Another minor justification

may be that we take over the instrumental idea of modal logic,[8] which, in turn, will have no sense unless its relation to a possible pragmatics is clarified; in accordance with this, we assume the point of view not of a single individual but of a whole community for we are concerned not with the ontology of notions but with their epistemic applicability, which, within a community, strongly involves communication. So it is very difficult to doubt the interdependence of these two concepts though surely there is no logical tie between them: the first can be specified within a possible semantic system of modal logic while the second can be delineated in virtue of certain governing rules conceived within a corresponding pragmatic system. But there is no necessity for the actual interplay of the two. So to explicate what the concept of "secret" stands for we have to state what the relation of epistemology and communication is like, i.e. the relation of certain conditions and rules. The rules should give us the intended type of communication while the conditions are pragmatically presupposed in the rules of communication and hence making possible certain conversational implicatures[9] and so not being conceptually independent of the total speech-act of secret. This may serve as a framework of a general description of the two different definitions.

2. Secret as a system of epistemological conditions

In this part we concern ourselves with epistemic logic in that we try to set down some semantic conditions of the function of secret. Though it has been thoroughly dealt with by many

logicians the basic ideas may still seem, if not at once paradoxial, at least questionable. All that we feel is that it is needed to explicate some concepts which are used in ordinary language. In trying to do this we will inevitably construct a system, a "normative ideal"[10] which being applied in certain cases will show some discrepancies; but these discrepancies will not invalidate our original system for it is not important whether everything in our theory corresponds to something in our empirical subject matter or vice versa (there is no empirical reality that could be fully and unquestionably conceptualized). It is enough for us that "in providing a formal analysis of a cluster of concepts by developing a semantics and truth conditions for sentences expressing propositions about those concepts, we are interested primarily in the kinds of relations which may obtain among the entities which comprise our subject matter. For it is in terms of these relations that we construct the truth and denotation definitions for our formal language and it is in virtue of these relations that the axioms of our theory will turn out to be logically true."[11] So we aim at clarifying some logical relations that obtain between certain potential relata of our theory, and it is how such we can comprise in our theory without violating certain laws of consistency, compactness, well-formedness, etc. that will decide whether epistemic logic is worth the having.

As we have seen that the modal conditions are strongly related to the operating rules of communication we have to make some general statements about the social relevance of the

problem. This also follows from the fact that modality should not be seen from the point of view of a single individual but of a whole community. We do not exclude cases when it is an individual who seeks to know a certain thing but we have to concede that anyone of the community to which the given individual belongs may join him in the search. In this case secret can only function in a community. This community need not correspond to society; we consider a community every association of people with a certain purpose and so with a definite system of norms that helps any member of the community in deciding the truth--value of a piece of information in the event that the corresponding verification of it might be hindered somehow. According to the specific system of norms involving e.g. initiation, structure of power, etc. different types of community can be established: religious, political, social, ethical, etc. The force of their normative systems may vary on a wide range; they can even cut off the members from any external sources completely debarring re-valuation. But this fact does not have any bearing on the analysis of secret; as the modal conditions relative to epistemological attitudes of certain members of the community are dependent on the rules of communication what will concern us is the fact of communicating certain beliefs to be specified later as different kinds of semantical strategies - and not a set of propositions either true or false; i.e. we let alone the problem of truth and falsity and consider some performative character of "secret". Then the clarification of the corresponding system of norms can only aim at stating what may be

reasonably expected to be believed to be true, i.e. at describing a set of conventions relative to the content of beliefs while leaving intact the logical structure of the communication of secret. Then the epistemological conditions - to be called from now on "modal contexts" - will take over the place of simple propositions to be either true or false - which have nothing to do with the concept of "secret", though the definition of the above conditions will be made with respect to the same proposition.

Now we turn to the construction of the modal contexts. First we introduce some logical terms: instead of information we speak about propositions, but we consider only such cases when they can be reformulated as $f(x)$ where x is a variable into which proper names can be substituted. To indicate the possibility of substitution we write d/x where d is an individual constant. Now, let the form $f(x)$ correspond to minimal information that states the existence of a certain object while $f(d)$ corresponds to the maximal information that states the cause of its existence. Then if p is an arbitrary proposition, $p(d/x)$ does not say more than $f(x)$, i.e. p contains a free variable; while $f(d)$ will be indentical with the stronger formula $p(d=x)$, which will certainly imply the former but not conversely. Then, on the basis of what has been said we can construct the modal contexts in the following way: in describing the propositional attitudes of the members of the community let us use the verb "to know"; there are many things that may prompt this use; first of all it entitles us to gene-

ralize existentially in the modal contexts in a certain unproblematic way, whereas with other epistemic verbs it might seem inappropriate; secondly, in communication what are pragmatically or conversationally presupposed on the part of the speaker are - according to the maxims of Grice - certain beliefs which are to be taken adequately grounded to be true by the audience; thirdly, it is the communication of certain beliefs, presumptions, knowledge, etc. that interests us and not what kind of beliefs, presumptions, knowledge, etc. can be communicated.[12] So, we indicate with the capital letter K the verb "to know" and with the small latin letters a, b, c - figuring in the indices of K - the persons whose propositional attitude are being described. Now, if $p = f(x)$ is an arbitrary proposition, it can function as secret within a certain community, if and only if there can be defined three different modal contexts all of which will have p in their scope and which can be described as follows:

(i) let a stand for those and only for those individuals who know about a certain thing as secret in a given community but they do not know the solution to it; then they know $f(x)$ but they do not know $f(d)$; e.g. they know that x robbed the bank but they do not know that x is none other than the Great Ben;

(ii) let b stand for those and only for those individuals who know about a thing as secret in a given community and who also know the solution to it; then they know $f(d)$, too; e.g. if

p = "x killed the president" and x is the Great Ben, then b is entitled to make the following statement: "I know who killed the president" - only if he happens to know that the Great Ben was the murderer;

(iii) finally let c stand for those and only for those individuals who do not know about a thing as secret in a given community; then they do not know even $f(x)$, e.g. they do not even know that somebody killed the president.

In terms of a, b and c all the members of the community can be defined. Then, what we have said informally can be formulized in the following way:

(1) $(\exists a)\ (\exists x)\ [K_a p(d/x)$ and $\sim K_a p(d=x)]$

(2) $(\exists b)\ (\exists x)\ [K_b p(d/x)$ and $K_b p(d=x)]$

(3) $(\exists c)\ (\exists x)\ \sim K_c p(d/x)$

This can be seen as the result of a first general approach of the meaning of "secret". It is based on some theses of "Knowledge and Belief" and some other works by Hintikka where he makes a restriction on quantification in modal contexts using the surplus condition "y knows what a is" formulated as "y knows that $x = a$". The validity of this restriction on quantification has been questioned by others.[13] To reject counter-arguments we can refer to McLane's paper emphasizing that this is to be considered as a "normative ideal", though a stronger reason for rejecting them is to be found - as we will see - in a pragmatic reconsideration of the same problem. What is important at this point in our analysis is whether the formulas of (1) and (2) are adequate to reflect the basic

semantical problem for which the concept of "secret" was introduced. This results clearly from Hintikka's argument on analyticity and on model sets. It says that as soon as we speak about model sets a free singular term to be substituted into a variable bound by a quantifier will not pick out a particular individual and so the corresponding picture to be constructed on the basis of the prescriptions the given model set contains is never a unique one: there is always a multiplicity of correlations, i.e. it represents reality in more than one way; and this is what our modal context (1) should mean. While the other context (2) should indicate an end-point in the corresponding picture construction with its stronger restriction ($d=x$), though this is a very limited process. Suffice now to say that the possibility of arriving at such an endpoint can never be defined semantically but only within a pragmatic framework.[15] So this should be the real difference between (1) and (2): in the first case we contemplate a clear semantical aspect of the problem, whereas in the second we arrive at an extralinguistic aspect of the same problem, i.e. we have come across a deictic element. And this is just what the capture of the real author of a crime can amount to. But this means that (1) does not contain any successful reference - at least not with respect to the individual that is existentially generalized in ($\exists x$) - for it lacks the final deictic element that should pick out unambiguously the individual to be substituted into x. This also explains the validity of

existential generalization: it is context (2) that contains reference to the right individual, then the use of the quantifier in (2) is adequately grounded; but as we strongly hold that the three contexts should never be separated (they will have no relevance to the meaning of "secret" if used separately) the x bound by the same quantifier in (1) as in (2) serves only to show that there are persons (indicated by a) who cannot refer successfully to the individual to which others (indicated by b) can refer unambiguously; i.e. x is introduced to show the different epistemological relations of different persons to the same object. We see again that we are interested in the relations that hold between subjects (individuals) and objects (other individuals) where the subjects differ and the objects remain identical. This identity is shown once and for all by the same letter x and it is the context (2) that makes valid quantification in all the three, provided they are always occur together. Then, (d/x) does not indicate a reference to the individual d if $(d=x)$ contains the sufficient condition of referring. What an analysis of secret should show is that this condition is often lacking, i.e. (1) is possible. But then we have to concede that the modal context of (1) might be referentially opaque; and not only this but that it might even allow the substitution of another individual than d, say d' because it is possible that $p(d'/x)$ is true, even if $p(d'=x)$ is false. But clearly $p(d'/x)$ has no sense unless it is indicated who thinks the substitution of d' possible. This is for what (1) has been introduced; it not only shows the identity

of objects with which the different epistemological relations of the subjects hold but - as being referentially opaque at the same time - it may contain a reference though not to the right individual d but to another one, to d'. This mistaken reference (with respect to x fully specified in (2)) is based on certain predicates that occur in the given proposition p and apply uniquely to the right individual d to be substituted into x. This is a clear case of misdescription: a predicate P uniquely applying to an individual d is made to describe an individual d' by a given subject a. In spite of misdescription a will be referring to d' and not to d (to whom the predicate applies). What a does then is a kind of "de dicto" specification of the referent in that he takes a predicate P and sees what individuals belong to its extension. But he may be wrong as he has been above choosing d' instead of d (with respect to the contexts). That means that (1) can be re-written as a "de dicto" reading:

(4) a knows that $(\exists x)p(x)$

while (2) will correspond to a relative "de re" reading:[16]

(5) $(\exists x)$ that a knows that $p(x)$.

But as reference depends on reading a context "de re", what a does when he misdescribes d' as x (fully specified in (2)) is to make a conversion of "de dicto" into "de re". But the result of this process is reference to d' and not to d. So we can either prohibit such a conversion and say that only a "de dicto" reading is possible - in which case it can be strongly

doubted whether a is referring - or accept it as a possible conversion without the sufficient condition $(d'=x)$ being fulfilled. But if so, then naturally the x figuring in (1) and in (2) or in (4) and (5) will not be identical any longer (with respect to the contexts); and d will become a variable just like x. Once again the solution is pragmatical: it foreshadows the introduction of semantic strategies.

3. The convertibility of "de dicto" in to "de re"

We have seen that the modal contexts of (1) and (2) reflect the difference between a "de dicto" and a "de re" reading. The condition of reference is the possibility of "de re" reading while in describing the individuals all what we have is a set of predicates applicable to them, i.e. it suggests a "de dicto" specification; but then we always convert a "de dicto" reading into a corresponding "de re" one when we refer. So we should analyze some theses of the convertibility of "de dicto" into "de re" (or vice versa) stated by eminent philosophers of our time. We have to deal with three different formulations of the same problem. As we will argue later on, these different approaches - in spite of the diversity of the applied terms - describe the same phenomenon and so they run on parallel lines. In dealing with them we try to emphasize their most important characteristics focusing on the solution they give to the problem of the relation between the modalities "de dicto" and "de re".

But before treating these variations in detail we should mention that a criterion that makes the convertibility analytic is useless for us since it once for all excludes any kind of difference between (1) and (2) and thus the analysis of secret becomes impossible. Such a criterion is provided by what is known as the Barcan formula:[17]

(6) $(x)L\phi x \supset L(x)\phi x$

the validity of which depends on the fact of whether there is a possible but unactual object in an arbitrary W_n world. Only when (6) ceases to be valid will it become relevant for us because it then allows the formulation of (1); however we are going to account for the possible but unactual object within a pragmatic framework.

The first formulation of the problem is naturally linked with the name of Quine. According to him there are two different modal contexts: (i) transparent and (ii) opaque. Quantification is only allowed in transparent contexts but then it will inevitably involve Aristotelean essentialism because to identify the variable x, which figures in the scope of a modal operator, with the x bound by, say an existential operator we need to select from all the possible features of a given individual to be substituted into x an essential feature that is known (believed, presumed etc.) by a, b, c figuring in the indices of the relative modal operator and this essential feature will serve as the basis of quantification into a modal context while quantification should be regardless of any kind of description of the individual. It is possible only if this

essential feature is among the features attributed in reality to the given individual. Then all the quantification is dependent on a certain privileged description of a given object. From this argument it turns out that a purely transparent context is impossible for it will be true only "under a certain description" i.e. "necessity does not properly apply to the fulfilment of conditions by objects (such as the ball of rock which is Venus, or the number which numbers the planets), apart from special ways of specifying them."[18] So necessary fulfilment of a given quantified proposition makes no sense as applied to physical objects x, but necessity attaches, at best, only to the connection between the given proposition and different means of specifying x. The conclusion is that modal contexts are a failure, at least transparently conceived, for they are opaque. But if this is just what opacity means then it is the same as modality "de dicto" applied to epistemic contexts. Still there are others who think that there is a crucial difference between the modality of necessity and propositional attitudes.[19] The basis of their argument is that an arbitrary person may not know a given identity statement although identities are considered as cases of necessity. So propositional contexts lead to an infinite process of the splitting up of individuals. Still there efforts are being made to solve it within possible world semantics; the main difference, according to us, lies in choosing a relative point of view, be it our actual world, or a representative name, or the person himself whose propositional attitude is being described with the help of certain

possible worlds compatible with his set of beliefs (presumptions, knowledge etc.) - from which accessibility relations, substituion examples, etc. would be definable because, while necessity in many cases causes no problem, being valid for a whole class of entities (names, worlds) even in an absolute sense, with epistemic modalities we have to indicate certain sub-classes which can be given with respect to certain relative points of view. This latter is responsible for all accusations of being committed to essentialism. This argument also shows why Kripke's semantics becomes exposed to such accusations only if being applied,[20] but it is not dependent on a possible worlds semantics. The crucial problem in giving a semantics of propositional attitudes is that of referring. Just because of this do we consider the two kinds of modality ("necessary" and epistemic) similar cases: they all turn on giving adequate criteria of reference. And this is what links the transparent-opaque distinction with that of "de dicto" - "de re". Though we doubt that this problem could be solved within a semantic framework, we re-view some important approaches to try to account for the above distinction semantically, while at the end we give our reasons why this kind of analysis is doomed to fail.

One of the most complete and thorough treatments of this problem is given by Alvin Plantinga.[21] His approach aims at giving the conditions of the convertibility of "de re" into "de dicto". He says: "Where x is an object and P is a property, the kernel proposition with respect to x and P $(K)x$, $P(\ )$ is

the proposition expressed by the result of replacing 'x' and 'p' in 'x has the complement of p' by the proper names of x and P." And later he adds: "x has P essentially if and only if x has P and $K(x,P)$ is necessarily false."[22] If essential properties are possessed necessarily, then the above requirement to explain modalities "de re" by modalities "de dicto" follows from the Quinean thesis that "necessity resides in the way we talk about things, not in the things we talk about."[23] Though this cannot be applied directly to propositional attitudes just because the modality of "necessary" involves "true in all possible worlds" and an epistemic one involves only "true in a possible world" (or worlds) compatible with the set of beliefs (presumptions, knowledge, etc.) of the person whose propositional attitude is being described". But as we have been interested in the relations that hold between subjects and objects (an epistemic analogue for modality of "necessary" could be an omnipotent subject) and in accordance with what we have said above on the privileged point of view in giving a semantics, these conditions of convertibility have to be applicable to epistemic cases, too. What matters here is that Plantinga's solution also fails in avoiding essentialism which is present in the requirement of certain favoured descriptions regardless of their being attributed to the object necessarily or of their being believed (presumed, known, etc.) to be attributed to it by a certain person. The convertibility of (7) in to (8) then turns on 'x is not a spy' which is being believed to be false by Ralph:

(7) $(\exists x)$ (Ralph believes that x is a spy)

(8) Ralph believes that $(\exists x)$ (x is a spy).

What seems to us a little disconcerting is what we may call an asymmetry of objects and properties; this means briefly that there can be certain properties in a given world which are not instantiated by objects existing in that world although they do exist in it, while there are certain objects which, although they do not exist in a given world, do enjoy certain properties in it. Though this would not mean asymmetry with respect to all possible worlds, in Plantinga's work there is an implicit assessment: the properties not instantiated by objects existing in a given world need not correspond to those properties instantiated by objects not existing in that same world. This treatment runs the risk of considering properties to be objects and of so allowing that two kinds of objects exist side by side. This asymmetry may be due to the introducing of negation into the criterion of convertibility. For, given the two kinds of negation, then the complement of "being-believed-by-Ralph-to-be-a-spy-in-*W*" - which is a world-indexed property and hence an essence - cannot be "being-believed-by-Ralph-not-to-be-a-spy-in-*W*" because "the complement of *P* does not require that the object which it enjoys should exist in *W*; it is enjoyed by any object that either does not exist in *W* or is non-*P* therein."[24]

The complement of a property *P* then is defined as a negation "de dicto" and this is exactly what the criterion of convertibility prescribes. But then we are committed either to

properties not instantiated by objects existing in *W* or to objects not existing in *W* but enjoying certain properties. The problem of epistemic and "necessary" modalities and of their "de re" - "de dicto" convertibility is merely transferred into the problem of negations "de re" and "de dicto". Hence a semantic account of this problem seems either to be self-defeating or to require some, by no means unambiguous, postulation of the "de re" - "de dicto" convertibility. If we cannot give a valid argument, then at least we can postulate either that each instance is "de dicto" and some are "de re" or that all instances are "de re" and some are "de dicto".[25] And even in Plantinga's works there is a very serious postulation; namely that he assumes the fact to be accepted that everything can be baptized[26] which is clearly a pragmatic assumption and taken as a semantic one. This has, for us, a rather unfortunate result in that every descriptive phrase is at once a referring one, too. But if so, then there is not the slightest need for a criterion of convertibility because, even if not overtly, it is already implied in one of the semantic postulations. But then within such a system the concept of "secret" will never be explicable. In order to see clearly that to make a relative semantic system consistent one has to postulate an absolute convertibility of "de-re" - "de dicto" or at least the possibility of it with respect to a favoured point of reference we may have other examples.

Rolf A. Eberle[27] aims at giving an account of all kinds of false beliefs and even ignorances; to explain the invalidity

of identities within epistemic contexts he introduces the notion of "representative name" which is "special in the objective sense"; but this is not enough because this class of names has to fall back on "subjectively representative ones" (which are representative for a given person). As the first kind of name implies that the object referred to exists and as the second kind involves knowing the object under some description or name, we have a clear criterion of convertibility of "de re" and "de dicto" within a semantic system, even if restricted to a class of "representative names": "If one knows τ under some name or description, then one knows that τ exists" (i.e. the corresponding term is a referring one); formally, $A\tau \rightarrow K(\tau=\tau)$, where A stands for "knowing under some description". This shows that the identity of "representative names" is informative in that it corresponds to stating the existence of the object referred to.

Semantically, then, the difference of "de re" and "de dicto" is annulled. If I know x by some description, then x should exist, i.e. it should have a representative name in the objective sense, and if I know that x exists, then I should know x under some dexcription, i.e. it should have a representative name in the subjective sense.

Thomas Baldwin[28] finds the modality of "necessary" unproblematic as interpreted transparently; he constructs a semantic system *TL* which has as an axiom: "*Nec p*" is true in *L* iff Nec("*p*" is true in *L*). But this introduces "Nec" into the meta-language

and imposes a too strong criterion on semantics ("these sentences have these meanings"[29]): all identities turn out to be necessary. Another approach could be to treat "Nec" as a property of propositions (and then we write NEC). This should mean: "Nec p" is true in L iff NEC(ref("that p",L)), where L is a given language and ref("that p",L) = that π; latin letters being variables of the object language and Greek ones variables of the meta-language. But even in this latter case identities again turn out to be necessary and we have the following formula as an axiom: Ref("that p",L) = that π NEC(that ref("that p",L) = = that π). The reason is that "Talk of propositions, therefore, is sheer nonsense unless it is taken for granted that, for the things of which propositions are functions, all identities are necessary". Formally:

(9) $\alpha = \beta$ (that $\phi\alpha$ = that $\phi\beta$)

(10) $\alpha = \beta$ (that NEC(that $\psi\alpha$) = NEC(that $\psi\beta$))

(11) $\alpha = \beta$ NEC(that $\alpha = \beta$).[30]

So both arguments render useless a difference between "de re" and "de dicto"; even a linguistic conception of the modality of "necessary" cannot do without the "de re" assumption: (x) $(x{=}a \rightarrow$ Nec$(x{=}a))$. So a "de dicto" statement is always dependent on a "de re" assumption with respect to those entities the "de dicto" statement is about. But this criterion is clearly inapplicable to epistemic contexts because "the semantic theory must be regarded as giving a priori analytic truths about part of the structure of language."[31] And then,

it will only account for epistemic contexts if the relevant speakers were expected to have a thorough knowledge of all the inferences of what they know. And this may be our conclusion, too; a semantic system should either psotulate a convertibility thesis or do without it completely and consider epistemic contexts opaque. But while we accept his conclusion about semantic systems, we cannot accept that every epistemic context is, therefore, a priori opaque. (Contexts of "necessary" have been thought of as opaque, too, but they relied on corresponding transparent explanations.)

The claim of considering epistemic contexts "de re" i.e. transparent was put forward by Tyler Burge in his paper "Belief DE RE".[32] His basic argument is that there are cases when a belief "de re" cannot be converted into a corresponding belief "de dicto". He is for a shift of perspective on "de re" attitudes. Though this shift is due to a philosophical assumption on his part that perceptual contact should be favoured against a conceptual description, though "perceptual contact is, of course, not present in every "de re" belief." But clearly, there are cases when "there will often be no term or individual concept in the believer's set of beliefs about the relevant object which denotes that object."[33] "De re" beliefs have, then, a contextual, non-conceptual aspect, and they are necessary to individuate the object. So to vindicate the priority of the modality "de re" we can conclude "that 'de re' belief sentences are not definable in terms of 'de dicto'

sentences" and it is "equally potent against the view that for every 'de re' belief there is an accompanying 'de dicto' belief that fully individuates the object the 'de re' belief is about."[34] Now, we arrived at a clear explication of the failure of the convertibility thesis and, moreover, it is put forward not within a semantics - which, as we have seen, would be paradoxical - but within, if not a pragmatics, at least an extra-linguistic framework. This means that not only the referential-attributive distinction but that of "de re" - "de dicto" is a pragmatic one. Otherwise we could not help thinking that all instances of "de re" would be convertible into "de dicto", which is clearly false.

To conclude our review of the semantic treatments of the convertibility thesis we would like to mention some interesting cases when the convertibility is by no means possible (at least not semantically);

a./ as it is known, one of the criteria of reading a context "de re" is substitution of identical terms; but there are some constructions that resist substitution and still they are to be read "de re": e.g. in "Alfred believes that the man in the corner is a spy" the description "the man in the corner" can be thought of as both specifying the referent (and so suggesting a "de re" reading) and characterizing the believer's conception of him (and so being a "de dicto" belief), while substitution fails with respect to the believer's set of beliefs about the denoted person.[35]

b./ proper names are said to induce "de re" modalities; but with some ordinary proper names and even with some vacuous ones we have purely "de dicto" belief attributions; more often, when used with a demonstrative that can even be implicit in the given name, it can be taken under some description suggesting a "de dicto" reading: e.g. in "*A* believes that Pegasus was a real horse", "Pegasus" is "that Pegasus" (whichever one we are talking about)";[36]

c./ a belief "de re" is said to pick out a unique individual; but from what we have said in connection with the first example (a.) it follows that a "de re" context may have different free variables as referents: i.e. "contextually difference uses of names (or demonstratives) which refer to a given entity may succeed ... in producing different belief contexts";[37]

d./ within a semantic framework, we have seen, it is generally required that for every "de re" there should be a corresponding "de dicto"; but there are cases when there is no such "de dicto": e.g. "the present moment", "the ball in the sky" and other examples of time-space coordinates can show the idea;[38]

e./ "de re" is needed to give an account for cases when there is no uniquely specific way of referring or when there is misdescription of the referent or shifts of perspective, and this is one reason why rigid designation is considered necessary; but this may not make manifest the difference between "de re" and "de dicto" for there can be misdescription with definite description i.e. with "de dicto" specification: e.g.

an Englishman may say that the next president of the House of Representatives of the United States Congress will be from a southern state; then if he said so before Sam Rayburn became the speaker of the House, the Englishman would not have been referring to Sam Rayburn, though he intended to refer to the speaker of the House even if there is no particular person to whom he was referring; so this should be a case of opaque reference (a "de dicto" specification) with misdescription, although there is not possible a corresponding "de re" reading: to refer opaquely the believer does not need to recognize that the description he uses uniquely denotes the x he intends to refer to;[39]

f./ finally the strongest reason against any analytic convertibility thesis may be the following: even if a description is uniquely specifying it may not allow existential generalization; but what if we have n uniquely defining descriptions specifying the same referent? - or how many uniquely defining descriptions do we need to justify a "de re" reading": e.g. the police know an almost infinite number of uniquely specifying predicates with respect to the Ripper of Hampshire and still a "de re" convertibility was not allowed.

So much for counter-examples; we think they clearly explain why only a pragmatic account of convertibility seems possible. But then the "de re" - "de dicto" distinction amounts to the same as the referential-attributive one.[40] So if we are going to explain the "de re" - "de dicto" distinction - which has

long been considered as a semantic problem - pragmatically it may seem that we should exclude the "de dicto" reading from the cases of reference. But already at this point of our analysis we have to emphasize that it is the possibility of the conversion that is the source of reference. Even an attributive use may be referring but it then presupposes the possibility of "de re" reading and its success will be context-dependent. That means that a modal context such as (1) may be referring, but not necessarily, to the x fully specified by the context of (2); (1) presupposes a multiplicity of possible conversions, which, in turn, depend on the intention of the speaker.

It is David S. Schwarz who gives a pragmatic account of the convertibility. In "Naming and Necessity"[41] he argues for a shift of perspective with respect to some over-discussed semantic problems. In his analysis semantics becomes reduced to being conversationally implicated by a total communicative act. All semantic problems become at once pragmatic: "What the pragmatic treatment does do, however, is to remove these concerns from the proper domain of the semantics for language - instead treating them as problems in explicating the propositions speakers express."[42] He uses two terms (also Quinean): notional and relational specification. But they reflect the same difference as transparent vs opaque, or "de re" vs "de dicto";

(12) There is someone John thinks is a spy

(13) $(\exists x)$ (John believes x is a spy)

(14) John thinks that George is a spy

(15) John thinks $(\exists x)$ (x is a spy).

What Schwarz does later in his book is similar to Plantinga's treatment: his intention is to define relational belief (belief "de re") (12) and (13) in terms of notional (belief "de dicto") (14) and (15). But as he is going to give a pragmatic account of convertibility he can avoid introducing possible worlds and other semantic entities. A first attempt to explain relational in terms of notional can have the following result when formulated:

(16) $[(\exists P)\ (Tr(P,b)$ and John $B\ \ulcorner$the P is $F\urcorner)] + C$[43]

where P is a property that is true (Tr) of an object b, i.e. it is uniquely specifying and John has the notional belief ($\ulcorner\ldots\urcorner$), while C stands for a non-notional link between John and the object b (e.g. a direct perceptual contact). So formulated as a weak theory of reference, Schwarz can do without the thesis that there is a causal relation between the object b and a given person, John (unless it is C that specifies). Though this does not exclude rigid reference but the conditions of rigidity will be pragmatically presupposed: rigid reference is needed just because there is no way always to specify the referent relationally. So, notional specification (and notional belief respectively) is in need of a relational one, and this is just what Burge claimed. Then, the pragmatic theory of reference can be explicated within a Gricean framework:

(17) $(\exists A)$ $(\exists P_1)$ $(Tr(P_1,r)$ and S uttered X M-intending $(\exists P_2)$ $(Tr(P_2,$ the $P_1)$ and A to think $\ulcorner(\exists F)(\exists P_3)$ $(Tr(P_3,$ the $P_2)$ and (i) Corr $(S, X,$ the $P_3)$ and (ii) S thinks $\ulcorner$the P_3 has $F\urcorner))$ or $C_3\urcorner$ or $C_2\urcorner)$ or C_1[44]

where A is an audience, $P_1 \ldots P_n$ and F are predicates, r is the referent of which the given predicates are true (Tr), Corr$(S, X,$ the $P_i)$ expresses a correlation between the speaker (S) and the utterance (X) and a given predicate (P_i), and M-intention is short for: (i) S intends by X to produce a response r in A, (ii) S intends A to recognize (i), (iii) S intends A's fulfilment of (ii) to be part of A's reason for fulfilling (i). This account is valid even for cases when the terms (uniquely applying predicates) in which the speaker and the audience think of a given object do not overlap and though there is a successful reference. The descriptions with respect to the speaker and to the audience need not be the same because referring is reduced to the speaker's intention and to its recognition by the audience. What is important relative to our argument is that - in most cases - the speaker is expected to specify his object relationally during the conversation, but generally he (and the audience, too) thinks of it in a notional way. This shows the difference in a logical analysis of epistemological attitudes and communication. As our prior aim is to account for a communicative act, i.e. a pragmatic definition of "secret", we are - with Schwarz - in favour of a relational

treatment of belief, and because of not having special detectors to examine the speaker's or the audience's mind we account for notional specification as a kind of conversational implicature.

4. Secret and the convertibility thesis

What are the consequences of such a pragmatic approach to the usual semantic problems? How are they related to our argument? In the following way: the convertibility of relational into a corresponding notional specification is by no means always possible. We as speakers cannot make manifest every time all our notional terms and so we cannot but fall back on specifying the referent relationally.

This is also a valid counter-argument to the thesis of proper names as disguised descriptions. Though naturally we cannot do completely without them, in spite of escaping their abundance in ordinary conversation with specifying relationally. In the case of secret it is these uniquely applying predicates that are highly relevant. What is then the criterion of convertibility? - simply a Richness Condition of many uniquely defining descriptions pragmatically presupposed. If this condition is not fulfilled, then the utterance containing a corresponding relational specification will be - according to Schwarz - unhappy. This unhappiness should be due to the speaker's uncooperativeness, or irony, or not being sincere, etc. One possible way to define convertibility more precisely is to say that there should be at least two loci in a given dossier D of uniquely applying predicates relative to a given

object, and these two loci are believed (presumed, known, etc.) by the speaker and the audience respectively. Furthermore, they should not be trivially instantiated, i.e. they should neither logically nor epistemologically imply one another; e.g. to go on to specify relationally the murderer of the president you have to have at least two clear pieces of evidence (i) his having been seen by someone at the time of the murder and (ii) the recognition that the gun, which killed the president, is his. Then, if you know that he is the person d (i.e. the two predicates are uniquely true of him), you can make a valid conversion of $p(d/x)$ into $p(d=x)$. From this it results clearly that in the case of secret it is just the prohibition of this conversion which is relevant. The prohibition of converting a notional belief into a corresponding relational one, i.e. (18) into (19) and (20) into (21):

(18) John thinks that the tallest man in Dallas is a murderer

(19) John thinks Oswald is a murderer (which is the some as "John thinks of Oswald that is a murderer)

(20) John thinks $(\exists x)$ (x is a murderer)

(21) $(\exists x)$ John thinks (x is a murderer).

If in an ordinary conversation it is the speaker's cooperativeness that makes a relative utterance happy, in the case of secret we mean just that the speaker is intentionally uncooperative. This realizes a conversation in which certain pragmatic presuppositions are unfulfilled. This uneasiness,

which is felt when the speaker and the audience specify their object relationally in spite of thinking of it notionally, is conveyed by a condition that Schwarz and others impose on ordinary conversation and we think that it is residual of a semantic claim about these pairs of notions we have been examining for so long - a condition saying that every notional specification is at once relational, too. Though it certainly need not be rigid.[44] We hold that this condition is very reasonable as far as ordinary conversation is concerned; it was just the basic criterion why a semantic account could have been given. But there is a relative difference between a semantic and a pragmatic formulation of the same problem: while in semantics such an assumption appears to be a normative ideal and obscures the point why, on what criteria, a conversion is possible, not considering that these criteria might change from case to case, in pragmatics such a condition reflects an intention of the audience (or the speaker) to go on to specify relationally in spite of not having adequate evidence, in spite of not knowing whether the corresponding descriptions are uniquely defining and even if some of Quine's theses are then violated. To see clearly the interdependence of notional and relational specification we allude to Castañeda's similar wording of the same idea: "the only uniquely defining descriptions believed by the speaker to be had by the subject of the proposition is not made known" and so "shared beliefs may not correspond with respect to (an object) O".[45] But this time

the conclusion is different: the lack of notional specification makes a proposition opaque for we do not know in what terms *A* thinks of *B* even if the proposition is referentially transparent. This new sense of "opaque" i.e. "propositionally opaque" comes to mean just the lack of any "de dicto" reading; while Burge, Schwarz and others prefer a relational specification, a "de re" reading to a corresponding notional "de dicto" one, Castañeda is in favour of the latter so that it makes possible a relative clarification of the terms we think of concerning the same individuals. For this reason he is concerned with indirect speech, i.e. with reported propositional attitudes, the iteration of epistemic contexts. But this does not make any difference with respect to the speaker and the audience because the logical relations, the lack of overlapping predicates, the need for relational specification, etc. - that hold between them are the sames as those that hold between the reporter and the person whose propositional attitude is being reported. So what we have here is that again convertibility appears to be imposed on ordinary communication and reflects the interrelatedness of a conceptual and a non-conceptual approach to the universe. And we may choose which to prefer between the two ways with the philosophical background that motivates our choice. We do not want to judge once and for all the age-old battle of nominalists and realists; according to us the real problem is that we cannot describe what a relational ("de re") specification is for as soon as we are doing this we inevitably

fall back on a notional ("de dicto") definition of the object; just for this reason a relational specification can never be made manifest but only presupposed. It is the possibility of a conversion that matters: the possibility that we are speaking of the right individuals. In this framework "secret" refers to the interrelatedness of these two ways of specification, to the finding of the right individuals figuring in our universe of discourse in our actual world[46] but at the same time it alludes to the in-adequetaness of the search.

In connection with the idea that every notional specification is also relational, we have to deal with another argument which seems to contradict our original thesis about the three modal contexts to be defined as the conditions of "secret" and which seems to be even counter-intuitive to the convertibility thesis, too. It runs as follows: though a conceptual framing of the universe is very important and has a crucial role in conversation, every such notional specification can be embedded in a non-notional one (in other words it can be indexical). This is the idea of a symmetrical universe. But it says no more than there is in Burge's paper about the priority of a "de re" attitude which is strongly based on perceptual contact. Then if non-notional specification is irreducible to a notional one, it might seem that the difference between our contexts of (1) and (2) evaporates, for in cases of certain objects, ways of doing something, moments of time or place such as a hidden sword, a method of making gold,

the time of meeting in a cave, etc. considered as secret, a notional and a corresponding relational specification cannot be distinguished (i.e. a direct perceptual contact is strongly needed). This is reflected in the relative grammatical construction: to express such an idea in many languages a different verb is used, while in English it is the construction "know + direct Object" that shows the difference in meaning.[47] This is the case that Russell preferred for his logically proper names. But "we need not know the individuals when judging them: it need not be about a particular person" and "even if judging them we may do it on basis of (descriptive) 'knowing who/what' not only of 'knowing him' (demonstrative)"[48]; i.e. we may know what the hidden sword is like, or we may know (guess) many things about making gold even without knowing that the prescriptions we know allude to a possible way of making it, or we may know that the meeting is on Saturday but we may not know at what hour precisely, or we may know that the cave is in that forest but not know which path leads to it, etc. So there can always be certain parts of the given object, which are thought of as "not known", i.e. as "secret", that can be adequately or not, conceptualized, i.e. associated with uniquely applying predicates (even if they may contain a deictic element). So our original difference between the epistemic contexts of (1) and (2) can be preserved. This concludes our argument about the validity of conditions of convertibility.

5. Secret as a system of rules of communication

When defining the epistemological conditions we have seen that the secret can never be equated with a given state of affairs or with propositions referring to them (i.e. with $(\exists x)$ (x killed the president)) but only with their embedding in a modal context (i.e. $(\exists x) \sim K_a(x$ killed the president)); this means that the secret cannot be considered as an entity but rather as a system of conditions and rules that govern the human activity of knowing and communicating. This governing mechanism will now be analyzed.

The interrelatedness of conditions and rules means that every definable set of conditions determines certain applicable rules and conversely, every set of rules pragmatically presupposes certain conditions. With our three modal contexts we have given a semantic framework theory as a normative ideal. But as we have argued, it is strongly dependent on the total communicative act which turns on the possibility of a pragmatic definition of convertibility. So it is this pragmatic possibility, and sometimes constraint, that makes our semantic system, valid and especially the existential generalization in the contexts (naturally the use of "to know" adds to this possibility). If now, we substitute our variables a, b and c with their corresponding class-terms A, B and C, two different schemes of communicaton can be described:

(22) ADDRESSER = A or B; MESSAGE = $(\exists x)p(d/x)$; ADDRESSEE = C

(23) ADDRESSER = B; MESSAGE = $(\exists x)p(d=x)$; ADDRESSEE = A or C.

The first scheme gives a rule which strengthens the function of secret within a community because it increases the number of those who know about the secret but who do not know the solution to it. This rule converts the elements of *C* into *B*. The second scheme gives a rule which annihilates the function of secret because it increases the number of those who also know the solution to it. So this rule converts the elements of *A* or *C* into *B*. More specific rules can be obtained by restricting in diverse ways the numbers of the classes, *A*, *B* and *C*. If $A = o$, $B = 1$, $C = n$, we have a borderline case: secrets of diaries, private affairs, which are known only by those whom it concerns. Many say that we can speak about secret if and only if $B = 2$, while according to others it is just the rule that prescribes that *B* should contain two elements what destroys any possible concept of "secret" because it violates the basic requirement of "secret": i.e. "Do not tell it to anyone!" But this approach neglects class *A* which, in fact, turns out to be the most important with respect to the function of secret; so the minimal necessary rule (or set of rules) should be the following: $A = 1$, $B = 1$, $C = n$, or perhaps the weaker: $A = 1$, $B = o$, $C = n$. What for us is the most important is that $A = o$ and $C = o$ cannot be conceded at the same time. Naturally the relative position of *A*, *B* and *C* may change from moment to moment: with the starting of communication individuals may shift from one class into another. This process may strengthen with the going-on of time, thus making it possible to define different sequences of triads of

contexts. This means that the contexts are time-related but only with respect to the individuals they contain in their scope, i.e. with respect to diverse types of instantiation, while their logical structure remains the same.

Now we can try to incorporate the pragmatic feature of convertibility into our system of rules; then the first scheme would need some reformulation on the basis of the weak theory of referring explicated by Schwarz; we can say something like this:

(24) $(\exists A)$ $(\exists P_1)(Tr(P_1,d)$ and S uttered X M-intending $\ulcorner(\exists P_2)(Tr(P_2,$ the $P_1)$ and A to think $\ulcorner(\exists F)(\exists P_3)(Tr(P_3,$ the $P_2)$ and (i) Corr $(S, X,$ the $P_3)$ and (ii) S does not think $\ulcorner$the P_3 has $F\urcorner))$ or $C_3\urcorner$ or $C_2\urcorner)$ or C_1.

This means that the relevant information (P_3) is withheld but not because it is conversationally implicated - as it is the case with the Richness Condition - for it is the speaker's intention to make A believe that he (the speaker) does not himself possess the relevent information; e.g. if "d is the P_i and N $\ulcorner$the P_i is a murderer$\urcorner$" then it should entail "Nec d is x [x is a murderer]", where "N vs Nec" is a transcript for "notional vs relational necessity", but the speaker withholds P_i that should be needed for specifying d relationally (and generalizing it existentially).[49] The presence of "necessary" naturally does not influence the validity of our argument: it just indicates that there is a possible way of explaining necessity pragmatically as the inevitability of conversion.

The consequence of all this is that during a type of communication described in (22) and (24) two intentions collide: while the speaker, in contrast to the ordinary communicative situation, does not intend *A* to specify the referent relationally due to lack of the necessary information, the audience, wanting to fulfill the requirement imposed on ordinary communication with respect to *A* himself, intends to go on to specify the referent relationally and expects *S* to intend *A* himself to do so and expect *S* further to communicate the necessary information needed for a valid conversion. The collision of the two intentions is then due to the uncooperativeness of the speaker. While the speaker has changed his attitude with respect to the ordinary communicative situation, the audience does not recognize this; but then the opposite is also possible: the speaker remains faithful to the ordinary requirements of communication, but the audience does not do accordingly; he changes his attitude, now, and presupposes that *S* has violated another maxim of Grice, namely the maxim of Quality: A thinks that the necessary information, the uniquely applying predicate P_i has been in fact communicated by *S* but it/he does not define uniquely the referend *d*. Again two intentions collide but just in the opposite way as they do in the previous case. Then, there is the natural situation, when the two intentions correspond; this is called ordinary communication; and there is the unnatural situation when the two intentions cannot collide because both the speaker and the audience have changed

their attitudes; this is the case of communication without mutual understanding so that it can hardly be called communication anymore, at least with respect to the referents of what the communication should be about. The pragmatics of "secret" then describe a situation that is mid-way between a normal communication and an abnormal one. The other scheme (23) then corresponds to a normal communicative situation and can be reformulated as the weak theory of reference.

Concluding our whole argument, we can sum it up in that secret turns always on some kind of identity being known or not. Identity statements have long been considered necessary, the fact of which, in turn, destroyed all attempts to formulate an epistemic logic just because there could easily be found cases when the speakers failed to have such ideal knowledge. We have seen that this failure is due to there being some pragmatic prohibition of convertibility of "de dicto" into "de re" or notional into relational. This is what the explication of the concept of "secret" can amount to. But then there may not be any logical failure in many semantic systems because the problem just lies elsewhere. It is in the interrelatedness of our conceptual and referential universe.[50] And from this secret can also gain its force.

6. Secret and literature

In this section we would like to use these ideas in an analysis of narrative texts. The starting point could be the time relatedness of modal contexts (1), (2) and (3). Then one can define on every narrative text a sequence of triads of contexts with respect to the characters that figure in the text. These triads should correspond to states of affairs and each triad could be described with the relative configuration of *A*, *B* and *C*. One basic difficulty would be the selection of a crucial proposition to be embedded in the modal contexts. It seems that any selection would be ambiguous because it would involve a kind of interpretation as the chosen proposition is to be superimposed on the whole semantic structure of the text. At present this is really inevitable. Surely there could be defined other indicators to make valid our selection. But at this present time we do not wish to go into this problem. Let it suffice that now the definition of the triads of contexts is in principle possible. Then there is another aspect that may turn out more relevant; the abstract semantic description of the contexts - as we have stated - depends on some convertibility thesis but that can be given only within a pragmatic framework. This amounts to the description of the total communicative act. But soon we will see that it is not enough; the convertibility thesis is not important only for an abstract semantics but is perhaps more important for a corresponding logic of actions that defines certain states in the same given

text. What the convertibility thesis can do is to relate to each other the two kinds of sequence of states, that of modal contexts and that of actions. This correlation is based on strategies; to describe it we have to introduce game-theoretical elements into our analysis, though they have long been implied by our approach, which is similar to Hintikka's model set constructions. Now, the only thing we have to do is to give a game-theoretical definition of quantifiers: it is Hintikka's rule (G.E) which runs as follows: "If G is of the form $(\exists x)G_o$, I choose a member of D, give it a name, say 'n' (if it did not have one before). The game is continued with respect to $G_o(n/x)$."[51]

Where D is a domain of individuals, G is a substitution-instance of a subformula of F. This is called "instantiation". Naturally nothing guarantees that our choice was correct. We may not have chosen the proper individual and then we may lose. So this rule can be correlated with our contexts (1), namely the situation when different persons, say a, guess who the murderer could have been without having adequate evidence. If our instantiation is correct and we win, then we can be correlated with the context of (2). This can be the game-theoretical interpretation of $(\exists x)p(d/x)$ and $(\exists x)p(d=x)$ on an abstract semantic level. At the beginning of the game our chosen individual n need not be d, i.e. we may be wrong, just because the relevant information is withheld; we have to take a risk; but though we might violate the convertibility thesis - and

this is what often happens in the cases of secrets - our strategy, by which we have chosen the individual n, will determine our strategy, by which we perform an action; i.e. if we are reasonable beings - and this is really a restriction on our analysis - our logic of action depends on how we instantiate into given variables of propositons. Then it means that the strategy of action will be a function of the strategy of instantiation. Naturally the chosen individual need not be a particular individual. Still if it is one, it need not be the right one with respect to the given contexts; but then there seems to be no need for possible worlds to explain reference to non-actual individuals, for it is the multiplicity of strategies that can explain away the cases of referring to individuals which do not exist, presupposing that the convertibility thesis has been violated. This completes our tentative account of cases when possible but non-actual objects are being referred to within a pragmatic framework; the failure of the Barcan formula is not due to a semantic paradox (that there exists a possible but non-actual object) but rather to having chosen a wrong strategy of instantiation though it is the end-point of the search, the actual finding of the individual that decides whether we are wrong. But let us look at an example. It is taken from a well-known criminal story but we think that this does not imply any restriction on the applicability of the theory. So, we are in the last but one scene of "Ten Little Niggers"; there are only two still living, a man

and a woman.

The logic of action prescribes that the man should shoot the woman and then commit suicide. And he does so accordingly. But in the film based on the book he does not shoot. What are the differences and how can we account for his actions? The problem can be formulated as follows: in the above described part of the sequence of triads of contexts we have to consider two individuals; the selection of the corresponding proposition seems to be manifest: it is $(\exists x)$ (x killed eight persons), i.e. $(\exists x)p(x)$. If the relative section of the sequence is i, then in the i-1-th section both individuals (let them be a_1 and a_2 respectively) belonged to class A. In the i-th section the man (a_1) has moved into class B because he thinks of her as a murderer (a_2). Therefore, he shoots. Then if his strategy, with which he makes the instantiation of x as a_2, is ξ, then his strategy, with which he acts is a function of ξ, i.e. $\phi(\xi)$. Then at the end of the book, in the i+1-th section of the sequence, a_1 changes his strategy ξ, and makes another instantiation of x as a_1, i.e. he thinks himself to be the murderer (here we can see how "illogical" someone's conversion into relational specification can be). Then, if his new strategy is η, his other strategy, according to which he should commit suicide, will be a function of it: $\phi(\eta)$. However in the film another thing happens: he does not shoot the woman; but just because his strategy of instantiation of x as a_2 will be substituted by another one, say a strategy ξ, according to

which x should be instantiated as a_n whoever particular person a_n be: then, his strategy not to shoot the woman will be $\phi(\zeta)$. This means that they both remain in class A in the i-th section of the sequence. There is neither a correct nor an incorrect identity of individuals to be presumed. The corresponding game is not played to the end. This short example conveys our idea about the role of secret in narrative texts. As a conclusion we try to give the complete modal contextual analysis of a text, which this time will be a play, namely Racine's Phèdre. Our approach is the same as that described above, though naturally the situation is more complicated with more individuals involved and even with different kinds of secret to be defined. We consider the play well-known and are not going to re-tell its story. We restrict ourselves only to indicating the relevent modal triads and the strategies. A single triad will be called the i-th section of the sequence. If Theseus = = a, Phaedra = b, Hippolytus = c, Aricia = d, Oinone = e, Theramenes = f, Ismene = g, the secret can be defined as the following sentence: Phaedra loves Hippolytus and Hippolytus loves Aricia and Aricia loves Hippolytus; the last conjunct could be ommited because it will not change the course of analysis which, though, would in turn be too complicated (we do not want to deny that it may be as important as the others in the whole structure of the play). Another reason for this can be that within the play the relation of c and d as instantiated in "y loves z" is symmetrical. The formulation

of the above sentence can be something like this: $(\exists x)(\exists y)(\exists z)$ (x loves y and y loves z and z loves y), i.e. $(\exists x)(\exists y)(\exists z)p(x, y, z)$, while its embedding in a modal context would result in: $(\exists n)(\exists x)(\exists y)(\exists z)(K_n p(b/x, c/y, d/z)$, though there are other ways to construct it depending on the person's (n) propositional attitude. Then we postulate that to belong to class b the given individual n should make all instantiations correctly, otherwise he will belong to class A or C. Then the three modal context are the following:

(25) $(\exists i)(\exists x)(\exists y)(\exists z)[K_i p(b/x, c/y, d/z)$ and $\sim K_i p(b=x, c=y, d=z)]$

(26) $(\exists j)(\exists x)(\exists y)(\exists z)[K_j p(b/x, c/y, d/z)$ and $K_j p(b=x, c=y, d=z)]$

(27) $(\exists h)(\exists x)(\exists y)(\exists z) \sim K_h p(b/x, c/y, d/z)$.

An arbitrary section will be S_i, while the whole sequence is SE. It the first section is S_1, then our analysis will begin always with S_1-1 section. The relative configuration of each section will be indicated first, and then the differenc strategies which are chosen by the individuals i, j and h. Then a rough scheme of SE of Racine's play can be given as follows:

S_1-1 $A = b, c$

$B = o$

$C = a, d, e, f, n$

Then, b and c COMMUNICATE their instantiation-proposition to their confidantes, and so there results

S_1 $A = b, c, e, f$

$B = c$

$C = a, d, g$

Then, b COMMUNICATES to c and then, c COMMUNICATES to d their instantiation-propositions, and so there results

S_2 $A = b, e, f, (g)$

$B = c, d$

$C = a$

Then, b COMMUNICATES to a the instantiation-proposition suggested to her by e, so there results

S_3 $A = a, b, e, f,$

$B = c, d$

$C = o$

Then, if a's strategy to instantiate is ξ, $\phi(\xi)$ is to send his son away (who dies); if c's strategy to instantiate is ξ, $\phi(\xi)$ is to obey his father; if d's strategy to instantiate is ξ (the same as c's, they know the same), $\phi(\xi)$ is also the same: to go into exile; plus: e COMMUNICATES to b her instantiation-proposition (suggested by c through a, i.e. there is a chain of communication), and so there results

S_4 $A = a, f, (g)$

$B = b, c, d, e$

$C = o$

Then, if the strategy of b to instantiate is ξ, the $\psi(\xi)$ is to commit suicide; but first she COMMUNICATES to a her

instantiation-proposition and so there results

S_5 $A = (f), (g)$

$B = a, (b), (c), (e)$

$C = o.$

Naturally this is not the complete analysis of the strategies; we indicated those which are in close connection with the semantic strategies of instantiation. There are certain simplifications in the scheme for we have not defined all modal contexts with respect to all the possible different configurations of the elements of A, B and C; it could have been done on the basis of atomic propositions, i.e. if we had treated every single communicative act of every individual as a rule for new triad-construction; but this might have caused useless complications. The individuals in brackets are either dead in the section they figure or it is difficult to define their epistemic contexts at that point of the sequence for there is no reference about them in the text. Though there are strategies that are the same as they are dependent on the same ways of instantiation, there is no reason a priori that the same strategy of instantiation determines the same strategy of action for there may be other determinents to be considered. Now, we only wanted to show one-to-one correlations of strategies. From the above scheme it is clear that there is no essential difference between a strategy (and an act, respectively) of communicating a proposition and a strategy (and an act) in the strict sense of the word. In the play, though, there is a turning point when the communicative acts switch

over into a series of "real" acts. But their logic remains the same, and this much can be the final conclusion: that the logic of communication and the logic of action are too interwoven to be treated distinctly in that they both are functions of semantic strategies of instantiation.

Notes

1 Their interrelatedness and contrast will be the object of our forthcoming analysis; the previous is conceptual, while the latter is pragmatic.

2 James A. H. Murray, Henry Bradley et alii (eds.): The Oxford English Dictionary, vol. IX., Clarendon Press, Oxford (1961) pp. 357-358.

3 An item of information is minimal if it informs us about the existence of an object, and it is maximal (or adequate) if it also accounts for the reasons of its existence.

4 Cf. Searle (1969) pp. 4-12.

5 To make a distinction between semantics and pragmatics, nowadays, seems to be very problematic; we do not want to delineate exactly their proper domain but to indicate some relations of semantic terms and their pragmatic applicability.

6 In Strawson (1971).

[7] Hintikka (1973) p. 137.

[8] Cf. Merrill (1978).

[9] Cf. Walker (1975).

[10] Cf. McLane (1979).

[11] Merrill (1978) p. 321.

[12] Although we do not want to deny one of the fundamental theorems of epistemic logic, namely that from "knowing that p" it follows that "p is true".

[13] Cf. Baldwin (1975).

[14] Hintikka (1973) p. 49.

[15] The concept of end-points of search parallels Rusell's concept of logically proper names. i.e. it presupposes the possibility of getting acquainted with the objects as the referents of the terms.

[16] A "de re" reading corresponds to an existential generalization: cf. Hintikka-Carlson (1979).

[17] Cf. Hughes-Cresswell (1968) pp. 170-188.

[18] Linsky (1971) p. 27.

[19] Cf. Baldwin (1975).

[20] Cf. Plantinga (1974) pp. 248-251.

[21] Cf. Plantinga (1969) and (1974).

[22] Plantinga (1974). p. 30.

[23] Plantinga (1974) p. 26.

[24] Plantinga (1974) p. 63.

[25] These are the views of Hintikka and Smullyan; cf. Plantinga (1974) pp. 231-233.

[26] Plantinga (1969) p. 253.

[27] Cf. Eberle (1974).

[28] Cf. Baldwin (1975) pp. 84-87.

[29] Baldwin (1975) p. 84.

[30] Baldwin (1975) pp. 86-87.

[31] Baldwin (1975) p. 104.

[32] Cf. Burge (1977).

[33] Burge (1977) p. 352.

[34] Burge (1977) p. 353.

[35] Cf. Burge (1977) p. 342.

[36] Cf. Burge (1977) p. 343.

[37] Cf. Burge (1977) p. 344. note 7.

[38] Cf. Burge (1977) p. 352.

[39] Cf. Ray (1980) pp. 441-443.

[40] Cf. Ray (1980) p. 435.

[41] Cf. Schwarz (1979).

[42] Schwarz (1979) p. 185.

[43] Schwarz (1979) p. 6.

[44] Schwarz (1979) p. 48.

[45] Castañeda (1977) p. 173.

[46] Cf. note 15.

[47] Some examples could be: French "savoir" vs "connaître", Italian "sapere" vs "conoscere", Hungarian "tud" vs "ismer".

[48] Cf. Hintikka (1974) Chapter XI.

[49] Cf. Schwarz (1979) p. 184.

[50] In other words, how far the end-point of the search can be foretold semantically.

[51] Cf. Hintikka (1973) p. 100.

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COMPUTER ANALYSIS OF FOLK-BELIEFS

ILDIKÓ FEHÉR

József Attila University Szeged

Computers are widely used today in different fields of the humanities, including folkloristics as well. The material one has at hand is immense. Such masses of data are, as one can guess, impossible to file manually. Computers, however, are ready to help, not merely with the files but also to discover new relationships. Although one should not expect wonders from applications such as these, we may have the promise of significant achievements, if we can formulate a problem in accordance with the characteristics of the machine. In the present paper I am going to describe two approaches which I have already put to the test, and which I have used in an attempt to ground a computer analysis of folkbeliefs. I ran the necessary programs as an experiment in PASCAL, on the R40 computer of the József Attila University Kalmár László Cybernetics Laboratory.

I. Quantitative (statistical) applications

Ethnographers describe their collected data together with several additional data such as the place of collection, the age, sex, religion, etc. of the informants (additional data will henceforth be referred to as *properties*). Quantitative

summarizing of these properties can yield important results, for instance on the range of certain kinds of data in a given area (or in age groups, sexes or religious groups); we can further examine the existence of data occuring together, or occuring only in certain areas, and whether the occurence of the data is subject to subordination. Ethnographers have always done this sort of summarizing but hardly ever without manual labour. Machines, on the other hand, provide exact results within seconds after the data-input, and can even display them in a graphic way with the help of mathematical-statistical methods (like frequency and correlation analysis). The utility of this kind of work is hardly debatable, as computers process only those properties of the data that are independent of feelings and can be described objectively.

The most difficult and most highly responsible part of the work is coding, i.e. formulating the data in a way fit for computer processing. It is the ethnographer who decides what pieces of information he considers relevant describing data, and where to draw the line separating the different properties (i.e. what it is that he still includes in a property-group, and what it is that he does not). In the most frequently used method of coding each property type corresponds with a column, and the possible property occurences (within a column) with a sign (numbers, or number-letter combinations)

Eg: 1st column: Place of collection

(within this) 01: Bátya

02: Kalocsa

03: Dusnok

.
.
.

2nd column: age of informant

I (old) above 60

K (middle aged) 30-60

F (young) below 30

3rd column: sex of informant

F: male

N: female

If this cannot be done (because for example a piece of data has several properties of one property type), we can list the possible properties and put 0 against those not belonging to and 1 against those belonging to by the given piece of data. (This way of coding is not very space-economical, but is sometimes unavoidable.)

The coding done, the collector transfers - if possible - his data to some data-carrier (punched cards, magnetic tapes), so that he can have the machine sort out for him the data with given properties. Besides statistical processing the significance of this method in terms of speed should also be appreciated, as a lot of time can thus be saved in comparison with reading the files one by one.

II. Non-statistical applications

The significance of non-statistical treatment may be more controversial than that of the former. Results - if any - can only be achieved by teamwork among experts.

We have attempted such a novel application with a collection available to us, containing beliefs in connection with death. We examined omens of death from three areas far from each other. We drafted the data in a special form inspired by Minsky's frame-theory (2). Minsky regards as frames data-structures that describe stereotype situations. A frame consists of several parts and among other things, contains information as to the relationship of the frame with other frames. Below, we depart from Minsky's theory and will use *frame* in the following sense:
(1) There are two types of frames: action type to describe actions, and state change type to describe changes of states.
(2) A frame consists of the following five fields defined by the type: in the case of action type: 1 frame type
2 action
3 actor
4 object
5 possible result

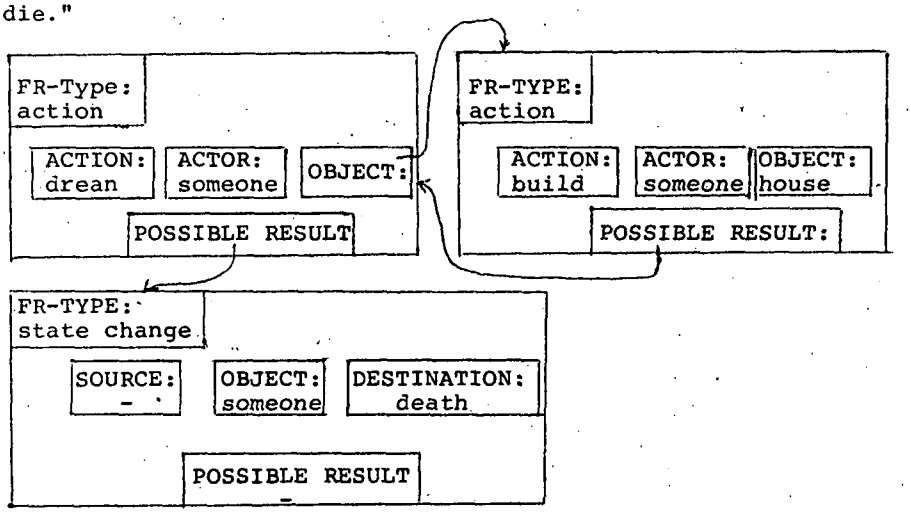
in the case of state change type:
1 frame type
2 source
3 object
4 destination
5 possible result

(3) Within either type fields 2, 3, and 4 can be further frames, and any of the fields can stay blank.

The belief-collection we used contains the beliefs in the same natural language code as they had been recorded on tapes. As we had to intention of examining the grammatical regularities, the frames thus defined were suitable for describing our data.

Here is an example to illustrate the meaning of the individual fields:

"If someone dreamed that he was building a house, he was to die."



(The first frame here is action type and its object field is another frame.)

The coding looked like the following:

The beginning of the frame is marked with a left parenthesis.

Then the type follows, then the fields separated by commas. If a field is blank, the comma is there, nevertheless. If a field is a further frame, it is parenthesized. End of frame is marked with right parenthesis.

Our example coded:

(action, dream, someone, (action, build, someone, house,), (state change,,someone,death,))

This formulation is apparently simple enough for coding belief statements quickly, and also contains sufficient information necessary for certain examinations. From the data so coded we can look up a belief e.g. on the basis of one of its words, or its frame-type; but also, the function of a word within the given belief can also be determined (e.g.: we know that in action type the word after the second comma after the initial parenthesis denotes the actor(subject)).

The study we have done does not utilize all these possibilities. We could have done well with simpler coding but our purpose was not to aim at results but only to illustrate possibilities. The way I formulated the data for storing in suitable for later (and possibly better) treatment.

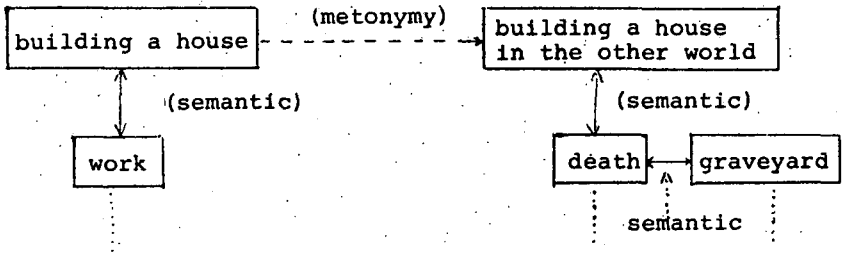
Scrutinizing the data of the collection it stood out that some belief-statements contained "explanations" too, like building a house in one's dream meant death because it is but building a house in the other world; or if one weaves in a dream, she/he will die because the loom means a coffin. It

is obvious that the members of the "house - otherwordly-house" and "loom - coffin" pairs are in some way related. This relation is called *metonymy*. Apart from this we have found two more sorts of relations among the words used for filling in the frames. One is a *consequence*-relation, with word-pairs, in which the second is the result of the first word, e.g. (tree) falls → dies.

Semantic relation exists between words which are related by their meaning, e.g.: all the words {coffin, tombstone, priest, candle, grave, graveyard, other-world} belong to the same semantic field, and any two of them are semantically related.

Following from this we put down all the word-pairs whose members were in some way related and fed them into the machine. A program made especially for this purpose constructed a graph of these connections, where angular points were the words used for the coding, and two vertices had edges between them if the two words represented by the vertices were in some way related. In such cases we labeled the edge with the relation type.

e.g.: (part of the graph)



From the point of view of application those words were considered *relevant* which did not belong to any of the following: action, state change, see, hear, dream, something, someone. A process, which fed in a belief description and picked two relevant words out of it, found a way between these two words in the graph previously constructed. First it found the first word, then setting out from it, started going around the graph in all possible ways, and displayed all routes which somehow led to the angular point symbolizing the other word. Thus, the essence of the application: with the help of the connections within the data we tried to find relations between the omens and their consequences. The result depends to a great extent on the quantity and the quality of the material fed into the computer for the construction of the graph. Obviously, the addition of a few new connections to the graph may increase considerably the number of possible connections. In the case of a mass of data, the machine might give us clues to discover new relations which might have been difficult to trace by the human mind alone (not only because they are so complicated, but also because one has to consider to several things at the same time, to keep hundreds of relations in one's head and to apply them in the right place). The computer remembers all the relations and uses them at the appropriate places, too.

The connections printed on paper should not be considered to be full explanations, the less so as there are several different routes between two words. The ethnographer still

must do the lion's share of the work, examining the results he has obtained. These may just give him ideas how to go on. He can try out his own hypotheses too, seeing to what extent the number, length, etc, of the exploratory routes change after adding a new connection to or taking an old one out of the graph.

A great number of possibilities exist besides those described above.

Experts in different fields should work together so that these possibilities may be realized.

Notes

1. For a detailed account of the programs and the results see my diploma-work. I. Fehér, 1982.
2. Minsky, M. 1975. quoted by P.H. Winston: Artificial Intelligence Addison-Wesley Publishing Co., Reading-Menlo Park-London-Amsterdam-Don Hills-Ontario-Sydney

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EVALUATION THEORY AND LITERARY THEORY

JÓZSEF DOMBI
Research Group on the Theory of the Automata, Szeged

Introduction*

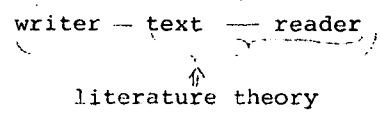
One of the important areas of study in literary theory research is the characterization of literary texts. Such research allows the attainment of a scientific quality with the elimination of subjectivity: the text is replaced by a formalized text, the investigation of which becomes free of subjectivity:

text
↓
formalized text ⟸ (formal)
literature theory

Thus, there is no direct relation between the literary work and the reader. In contrast, the connection between the text and the formalized text finally contains the element of subjective selection, by formalizing an aspect which represents a value.

The logical study of the possible fields assumes implicitly the consistency of the text as a value.

In the present work, investigations are made with the aid and utilization of values. The level of science is attained not by regarding the values of the examiner as determining, but by disclosing the text - reader relation, taking into account both the values of the text and the values of the reader; instead of the above scheme, we have



Naturally, here too there is a need for the formalized text, but also for the formalized "reception". The formalization is value-centred, i.e. the formalization is determined by the values.

In the operations on the values, it is seen that the rules of logic do not hold for them.

First, it is advantageous to exchange the dual-valued system for a many-valued one, and secondly to make use of the theory of many-valued decisions. With the introduced aggregative operator, it is shown that a derivation is not possible from classical logic. Thus, the transition of classical theories to the field of literature theory is only partially possible. Setting out from the tasks of literature theory, it is purposeful to construct the means.

(Formal) literature theory renounces an essential category, "experience", since this can not be grasped only in the text,

whereas it is contained in the reader - text relation.

Since the reception is not static, but proceeds in time, altered value relations arise in the reader in the course of the processing of the value relations of the work; these changes (or their recognition) may be interpreted as the basis of the experience.

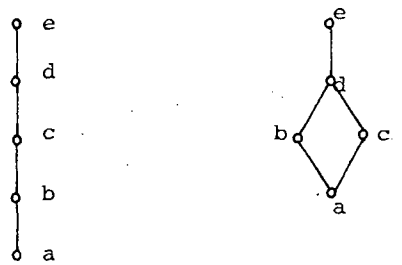
As a result of the strictness of its concepts, (formal) literature theory is completely divorced from the descriptive classical methods. Accordingly, literary works largely represent transitions between the various categories, and a characterization must be introduced for the transitions, or the strictness and rigidity of the categories must be solved. Use is made of the connection of logic and set theory, and it is shown in this paper that this contradiction can be resolved with the "many--valued" set theory.

The question arises as to how it is possible to determine and interpret values. All events may be taken into consideration from several aspects. Thus, there are legal, moral, religious, scientific, etc. aspects. These will be referred to below as fields (the field of morals, for instance). These values are in a conflicting situation, the outcome of which is the result of the decision. Our aim is to discover the correlations of the decisions and the values, without any application to the concrete value structures existing.

The fuzzy sets

In the following an attempt is made to characterize decisions based on values.

Even in the course of everyday decisions (e.g. relating to shopping) values are ascribed to objects. The most elementary form of evaluation is to carry out the characterization on the basis of the existence or non-existence of various properties. In reality, however, not only the existence of a property, but also the extent of its existence is determined. The true and false values are succeeded by a structure of values. It is natural to assume that the values constitute an ordered set. Let us assume further that any two values (relating to the same property) can be compared (chain ordering). In fact, however, structures may occur in which not every value can be compared (lattice ordering).



Chain and lattice ordering

The qualifications of the properties may be regarded as if we were dealing with a spectrum of logical values instead

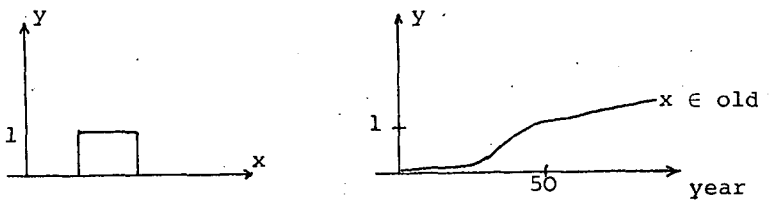
of logically true and false ones (many-valued logic). This generalization has another advantage. A set of objects belonging to the designation of a given property is not a subset in the classical sense; the objects naturally feature with an evaluation with respect to the property, and there is not boundary to the set, just as the set of "elderly people" is not an exact concept in everyday life. Thus, the classical mathematical concept of the set also becomes generalized.

Classical sets may be typified via their characteristic functions. From the isomorphism of the operations performed on the set and its characteristic function:

$$\chi_A(x) = \begin{cases} 1 & \text{if} \quad x \in A \\ 0 & \text{if} \quad x \notin A \end{cases}$$

The isomorphism of the operations may be utilized to characterize inanimate sets by means of the generalized characteristic function (membership function):

$$\mu_A(x): X \to [0,1]$$



Classical and generalized characteristic functions

We shall now carry out examinations from the aspect of many-valued logic. This conceptual structure model is certainly appropriate for literature theory.

Connectives of many-valued logic

Many-valued logic is regarded as a generalization of dual logic. The principle of permanence holds for all generalized operations, that is if only values of 0 and 1 are used, the result should be the same as that obtained with dual logic, and should be continuous.

It is customary to assume that a negation decreases strictly monotonously, and thus is order-reversing. To all such negations we may ascribe a neutral value ν, for which

$$\overline{\nu} = \nu$$

The negation transforms values below ν to values above ν, and conversely; by definition, ν is left unchanged. The ν value may be considered as an expectation level.

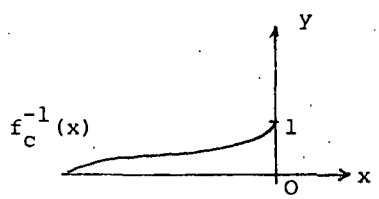
Another two types of connectives are the "and" ($\wedge$) and the "or" ($\vee$) (conjunctive and disjunctive operators). The operators are naturally monotonous according to the variables of their arguments. In the present work, for the sake of simplicity, only the strictly monotonous case is dealt with, and it is assumed that the arbitrary classification of the arguments participating in the logical operation (without a change in the sequence) does not alter the result, i.e. $\wedge$ and $\vee$ are

associative:

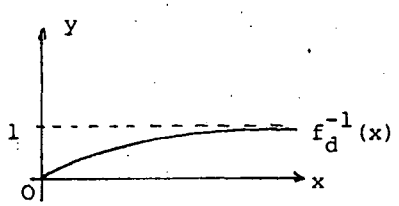
$$x \wedge (y \wedge z) = (x \wedge y) \wedge z$$

(It is customary to use the notation $x \wedge y = c(x,y)$.) All such operators can be constructed with the aid of a generator function:

$$x \wedge y = f_c^{-1}(f_c(x) + f_c(y))$$
$$x \vee y = f_d^{-1}(f_d(x) + f_d(y))$$



The aggregative operator



The generator function of the conjunctive and disjunctive operators

It holds for all such operators that

$$x \wedge y \leq \min(x,y) \qquad x \vee y \geq \max(x,y)$$

It may be seen that in the practical case when the connection of two values may lead to a result between the two values, a dicision of a compromise nature is not satisfied by any operator.

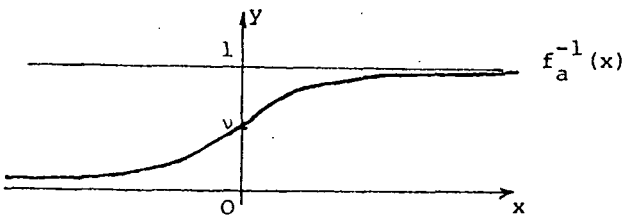
Since the monotonousness, associativity and continuity are natural restrictions, it appeared appropriate to vary the permanence principle with dual logic. It may be assumed that the same result is given by the two different types of decision

relating to the properties of the object: that based on the goodness of the properties, and that based on the avoidance of the goodness of the properties.

$$x \Diamond y = \overline{\bar{x} \Diamond \bar{y}}$$

Such operators are termed aggregative operators, which can be constructed by means of a generator function:

$$x \Diamond y = f_a^{-1}(f_a(x) + f_a(y))$$



Generator function of the aggregative operator

The aggregative operator is not compatible with dual logic, for the aggregation of 0 and 1 is not defined.

Some properties of the aggregative operator:

$$x \Diamond \nu = x$$

$$x \Diamond \bar{x} = \nu$$

i.e. the neutral value has a special role. The most interesting property of the aggregative operator is that if the two values

to be aggregated are smaller than ν, then the aggregation functions as a conjunctive operator in the interval $[0,\nu]$. The aggregation of values above ν is a disjunction in the interval $[\nu,1]$. The result is aggregative or a compromise in nature if the two values flank ν.

The generality of the aggregative operator

If $\nu = 1$, then the aggregative operator is a conjunctive operator, and if $\nu = 0$ it is a disjunctive operator; this is confirmed by the shapes of the generator functions. At the same time, a new characterization of the logical operators may be given. The conjunctive operator may be applied in the event of a maximum expectation level. As an example, it may be mentioned that such a decision is involved when technical equipment is bought. If ideal values of all parameters are known, then every concrete object may possess only a poorer characteristic than this, i.e. the goodness of the properties is their less bad nature. The conjunctive operator is used in such cases and, in accordance with its property, the values are negative and hence weaken each other. (Scientific examinations strive to maximize the expectation level.) For the disjunctive operator the expectation level does not exist. It is very difficult to find an example for this. However, analysis of a work of literature may be considered as such. The proposition of an expectation level is simultaneously the rejection of novelty and individuality, just as impressionism

can not be evaluated on the basis of the expectations of classical painting. Here only positive values exist, which strengthen each other. The laudatory attributes employed in textbooks on literature are consequences of this principle. It is another question that no guidance is given as to how to orientate in the plethora of modern works, and the students become sceptical.

The most frequent decisional procedure is aggregation, where a lower or higher expectation level exists, but this is not the ideal (not conjunctive) and there is expectation (not disjunctive).

The connectives can thus be derived from the aggregation, from a single operator (not derivable from classical logic), through the change of the expectation level or the transformation of the values. The logical function of the decision is therefore the successive application of various operators with neutral values. Decisions that are not "logical" become interpretable.

We next turn to the examination of another logical operation, implication. Similarly to aggregation, this can be given generally.

Dual determination of the evaluation

Works determine the values of different fields, i.e. at a given moment the relation to the values of the fields can be characterized. From the aspect of the reception, however,

these fields are of different importance as concerns the relevance of their own existence. For just this reason, the evaluations of the work are transformed during the reception, and the receiver performs operations on these transformed values.

It may readily be demonstrated that the transformation is not independent of the operator applied in the decision. Even the simple law that the value should vary in a monotonously increasing manner with the importance can not be accepted generally.

The possibility arises of the determination of these values of (secondary) importance. The answer is positive: the values can be determined (or more exactly, circumscribed) in the knowledge of global preferences.

A similar problem has been raised by the mathematical establishment of shape recognition and medical diagnosis. In this latter context we propose a general model which may also be of use for literature theory.

The problem of medical diagnosis (literature evaluation) relates to a group of given patients (literary works). These may be characterized via their symptoms (values of the fields), which can be described with a currently not more closely defined grammar). The diagnosis class must be sought to which the symptoms belong (it must be established how acceptable the work is to a reader). The importance of the symptoms may be ascribed to each diagnosis class from the aspect of the extent to each diagnosis class from the aspect of the extent to

which the given group of symptoms belongs to it. Further, the various intrinsic logical structures of the diagnosis classes are used to check the extent to which the described disease belongs to the diagnosis class. (The value structures of the readers are different from those of the works, and the degree of acceptance is determined by a different logical structure for every reader.) This structure can be described well by means of automata. The question, therefore, is the extent to which the given automata accept the grammatics.

The degree of determination of automata is ensured by convention (and culture).

The previously outlined conception requires further modification when literary works are examined. The process of acceptance and the automata themselves vary during the processing of the grammatics. Primarily the importances change, and consequently the subsequent processing is performed in a different manner, but the internal structure of the automata too may alter. Through the recognition of these changes and the description of the variations in state of the automata themselves, the experience permits a description of a concept that is difficult to grasp.

Two points of interest may be mentioned. It has been seen that both the concepts and the values have moved away from the values of dual logic, and have given rise to indefiniteness and blurring. A measure may be introduced which determines the distance from classical logic (decisional measure). In the

event of the application of an aggregative operator, its property means that the stability of the decision decreases in response to the use of the sharper data (the outcome of the decision varies following small changes in the values). Thus, the sharpness and the stability are complementary in character. The acceptance of this lack of precision is therefore virtually obligatory.

The concept of classical mathematics connected with classification also requires modification (the principle of a uniform basis). The giving of a diagnosis is the giving of a classification, but all diagnoses consider a given fact in different ways.

A system similar to this was selected for study: for the solution of shape-recognition problems; this operated with surprising effectiveness.

The conception described here needs many more additional examinations. The research can be no means be said to be completed and finite. It is only to be hoped that a partial answer is provided to the questions raised by literature theory, and that further incentives are given as concerns the direction of subsequent development.

The basic aim is to make an attempt to determine the framework of an appropriate system, setting out from literature theory, on the basis of the solution possibilities revealed by research into artificial intelligence.

808 - 67-n kód

Note

* Thanks are due to Zoltán Kanyó, who requested the exposition and examination of this conception.

Publisher: Lajos Serfőző, the Dean of the
Arts Faculty, A. József University
Szeged

Editor's address: Zoltán Kanyó, Szeged,
Ságvári u. 14-16/B, Hungary, H-6722

STUDIA POETICA is distributed in the western countries by Herrn Harry Münchberg, Hahnenkleerstraße 14, D-3394 Langelsheim, West-Germany in the socialist countries by KULTURA Hungarian Trading Company for Books and Newspapers (H-1389 Budapest 62 P.O.B. 149)

Fotocopied in JATE Sokszorosító, Szeged

License number: 50 893 Size: B/5

Size of edition: 500