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Approaches to the Pragmatics
of Scientific Discourse



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Europäischer Verlag der Wissenschaften

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The pragmatics of scientific titles formulated as questions

1. Introduction

To provide an academic text with a title is one of the most common acts in academic writing. It is an act so "natural", that even within the research on scientific communication not much attention has been directed to titles yet, apart from literature in the field of information retrieval (e.g. Feinberg 1973; Buxton & Meadows 1977; Buxton 1987).¹

In Dietz (1995) I aimed at describing the titles of scientific texts as a text sort of its own – with syntactic, semantic and pragmatic idiosyncrasies. I then analysed a corpus of about 3000 titles from a wide range of disciplines covering human, social and natural sciences.

Titles are a text sort that normally do not exist independently, but always come together with a text. There may be texts without titles but no titles without texts. But this is only true in a quasi "ontologic" sense. From the point of view of title reception, i.e. the reader's point of view, titles de facto appear with high frequency separated from their texts – in bibliographies, contents of books or journals, reference sections of papers, and in all kinds of data bases (cf. Dietz 1995: 145 ff.). Appearing separated from, but nevertheless referring to its text, is probably the standard status of titles, and this has to be taken into consideration when describing the functions of titles within scientific communication.

¹ Titles of non-academic texts have been the object of linguistic (e.g. Sandig 1971; Hoek 1981; Wulff 1979; Nord 1993) and literary analysis (e.g. Grivel 1973; Rothe 1986; Genette 1989).

In this paper I first would like to present a condensed overview on the functions of titles in scientific discourse (chapter 2) and then elaborate on some subgroup of titles, namely those which are formulated as questions (chapter 3). The reason for choosing question titles is that they are a phenomenon suitable for comparison with (a) titles that are not formulated as questions, and (b) questions in normal oral conversational settings.

2. Titles and their functions within scientific communication

2.1. Labelling

One basic function of titles in general is to label a certain text. Authors label their texts in order to make them identifiable among the huge amount of other texts. Titles in this respect function as proper names of their texts. Identification is especially relevant in all kinds of bibliographical data (references, bibliographies, review journals) used to find a certain text. But unlike normal proper names the relationship between title and text goes beyond pure identificatory labelling: Titles normally characterise their texts by referring to content or formal features of the text.

2.2. Referring

As I found out in my corpus analysis, there is only one domain that titles refer to obligatorily, namely the object in question or, in other words, the topic of the text. In addition to this there may be further domains of reference,² the most common of which are indication of formal features of the text (1), the methods/techniques/ approach used

² For a presentation and discussion of types of reference domains see Dietz (1995: 67-93; 1998: 618 f.).

(2), the field of research or discipline (3), and reference to other texts (4).³

- (1) **Demokratie – eine Einführung**
(Democracy – An **Introduction**) [Law]
- (2) **Dünnschichtchromatographie** von Carboenzoxyaminosäuren
(**Thin layer chromatography** of Carboenzoxyaminoacids)
[Chemistry]
- (3) The Sense of Justice and the Concept of Cultural Justice: Views
from **Law and Anthropology**. [Law]
- (4) **Hofers Pädagogische Psychologie**: Ein problematisches
Selbstverständnis.
(**Hofer's Pedagogical Psychology**: A problematic conception of
oneself) [Pedagogy]

As there is little text space available, the reference function can only be achieved by forms of textual condensation. Titles of academic texts can thus be considered as very condensed texts.

2.3. Condensing

When talking about text condensing, a variety of textual procedures that authors make use of in order to most economically utilize the little text space given (cf. Dietz 1995: 17 ff.) had to be named. Here I would just like to draw the main lines: Not surprisingly the overwhelming number of titles consist of more or less expanded nominal phrases. Of course not all of them are as complex as (5) and there are also differences between disciplines and between natural sciences and humanities (cf. Dietz 1998: 620).

³ I present title examples in the following way of information ordering: original title – (English translation, if the original is not English) – [discipline].

- (5) Untersuchungen über den Zusammenhang zwischen Schädigungsgrad und Meereshöhe im Rahmen des Schwerpunktprogramms zur Erforschung der Wechselwirkungen von Klima und Waldschäden.
(Studies on the correlation of degree of damage and altitude within the framework of the main programme of research on the interaction of climate and forest damage) [Forest research]

While the majority of titles in my corpus consist of a nominal phrase, there are also titles that reduce their text to a **statement**. These titles (e.g. (6)) thus use some form of predication.⁴ And again one subgroup of these are titles that are formulated as questions, e.g. (7).

- (6) Antibodies to Yeast Phenylalanine Transfer Ribonucleic Acid Are Specific for the Odd Nucleoside Y in the Anticodon Loop.
[Chemistry]
- (7) Gibt es eine Erosion der Werte? – Die Antwort der Soziologie.
(Is there an erosion of values? – The answer from sociology)
[Sociology]

2.4. Advertising

But before I focus on titles as questions, there has to be pointed out another main function of scientific titles, namely to render title readers into text readers, or in other words: to advertise their texts. While in many cases the advertising of texts can simply be achieved by naming the topic or problem dealt with in the text, I found evidence for strategies of advertising in titles that go beyond mere stating the facts. Interestingly, there seem to be two different approaches in advertising that are characteristic for the humanities and social sciences on the one hand, and the natural sciences on the other (Dietz 1995: 113-123; 1998: 621 f.). Authors that belong to the first group make use of a wide range of rhetorical techniques – e.g. repetition of

⁴ For forms of predication in titles see Dietz (1995: 94-102).

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letters, sounds or words, semantic underdetermination, polysemy, contradiction, vagueness, metaphor, e.g. (8-11).

- (8) **Selbstbewußtsein und Sittlichkeit.**
(Self-consciousness and Morality) [Philosophy]
- (9) **Comment contrôler la lecture?**
(How to control the reading?) [Romance Philology]
- (10) World War I in **Semi-Autobiographical Fiction** and in **Semi-Fictional Autobiography** – Robert Graves and Ludwig Renn.
[English Philology]
- (11) From **Scientific Computation** to **Computer Science.**
[Mathematics]

In contrast to these devices natural scientists use specific lexical items that point to the newness or the dramatic process of discovery, e.g. (12-15).

- (12) **A New Strategy for Dinucleotide Synthesis Via Phosphite Route Involving Phosphorochloridates as Intermediates.** [Chemistry]
- (13) Purification and some properties of a **hitherto-unknown** enzyme reducing the carboncarbon double bond of alpa,beta-unsaturated carboxylate anions. [Chemistry]
- (14) **Efficient** Solution of a Non-monotonic Inverse Problem.
[Mathematics]
- (15) Pattern of Endogenous Lectins of a Human Sarcoma (Ewing's Sarcoma) **Reveals** Differences to Human Normal Tissues and Tumors of Epithelial and Germ Cell Origin. [Chemistry]

3. Titles as questions

After this short survey on the functions of titles being separated from their texts, let me focus on titles as questions.

3.1. On the pragmatics of questions

Under the perspective of a functional-pragmatic approach questions serve as a special form of transfer of knowledge (Zifonun, Hoffmann & Strecker 1997: 103-117, 121 f.). General features of questions are the following:

When uttering a question S expresses, that

- (a) he/she does not know something (for sure)
- (b) wants to get to know this from H
- (c) assumes that H has the knowledge to answer the question.

Furthermore S must possess

- (a1) a certain amount of specific representative knowledge, in relation to which
- (a2) he/she can identify what he/she does not know.
(Zifonun, Hoffmann & Strecker 1997: 104, Transl. GD)

Taking this as a starting point, let us now have a look at specific subtypes of questions that can be found in my title corpus: Yes-no questions (cf. 3.2.1.), questions on alternatives (cf. 3.2.2.) and question-word questions ("wh-questions") (cf. 3.2.3.).

3.2. Types of questions in titles

3.2.1. Yes-no questions

This type of question is the most common in my corpus. I give a sample:

- (16) Gibt es eine 'neutrale Erzählsituation'?
(Is there a 'neutral narrative setting?') [English Philology]
- (17) Mari und Aramäer?
(Mari and Arameans?) [Assyriology]
- (18) Ursemitisch" *hu'a, *ši'a?
(Protosemitic" *hu'a, *ši'a?) [Assyriology]
- (19) Arbitr, ein punisches Lehnwort?
(Arbiter, a Punian Loanword?) [Assyriology]
- (20) Gibt es Textsorten?
(Are there such things as text sorts?) [Romance Philology]

Grammatically seen, only about half of the question titles contain a finite verb. In most cases it is the copula or the presentational verb *is/are there...* The non-appearance of the finite verb is one form of text condensation and poses no comprehension problem for the reader as long as there are enough cues to identify the grammatical roles (word order, punctuation, orthography, use of definite/indefinite article). There were only some cases where title information was so scarce, that everyday linguistic knowledge is not sufficient to identify the question respectively the questioned statement, e.g. in (17) or (18), where two nouns are coordinated and assigned a question mark. But as it turned out, for experts in the field of assyriology or theology such a title formulation is not at all cryptic. The paper and its title (17) address a hypothesis by old testament scholar Martin Noth who suggested that Mari people are precursors of the Aramean people. And the author of (17) opposes to this hypothesis.

The function of titles formulated as yes-no questions seems to be exactly what I just pointed out with the Mari example: to take issue with a thesis or term used in the literature of the field. If this is true, then what can be said about the pragmatic features of this type of question in titles? To answer this question, let's first have a look at the features of yes-no question in everyday communication.

In everyday communication questions of the yes-no type are used by speakers to get epistemic information by the listener (Zifonun,

Hoffmann & Strecker 1997: 109 f.), i.e. to receive confirmation whether something (a "fact") is the case or not. The state of knowledge on the speaker's side is of that kind, that he/she knows less than the listener, otherwise he/she would not address his/her question to the listener whom he/she regards as capable to answer the question.

It can be easily seen that with academic titles things are different. The title "producer", the author of the text, does not pose the question in the title, because he/she suffers from a lack of knowledge concerning the problem in question. And he/she does not address this question to the reader, because he/she expects the reader to answer the question. He therefore also does not esteem the reader to be capable of answering the question. On the contrary, it is the author himself/herself who thinks of himself/herself that he/she is capable of answering the question, that he/she knows more than the reader within the field of specialisation, and the text provided can be regarded as the answer to the question posed in the title.

If this is the case, then what is the specific pragmatic thrust of yes-no questions in titles? I would like to suggest that yes-no questions in titles must be regarded as a specific rhetoric procedure, by which authors try to advertise their texts in order to attract possible readers: Such title questions normally refer to a specific academic discussion, they presuppose the readers' knowledge of the state-of-the-art. By putting into question a thesis or term used in the field, authors can be sure to direct attention to their contribution, especially when he/she can expect readers to share his/her doubts on a certain claim. Thus the title reader is called upon to make the question posed by the writer to his/her own question, that is to accept the necessity of answering this question. There is some element of **academic suspense** to such questions: The informed reader will look forward to read the paper because he/she is interested in the arguments the author uses to criticise what may have been shared knowledge of the community.

Furthermore there is some bias effect in yes-no titles insofar as the answer to the question is not entirely open, but preshaped by the question. The preferred answer to a affirmative question is *no*, while the preferred answer to a negated question is *yes*.⁵

⁵ "Die Richtung der Antwort wird durch die sprachliche Formulierung des Sachverhaltsentwurfs schon vorgeprägt, mit anderen Worten, es gibt eine primär

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If this is true, then the preferred answer to the questions examples above is *no*, because they're all put affirmatively (cf. Dietz 1995: 105; Nord 1993: 140). The effect of such questions can be seen in the reaction of a reader to title (20) *Gibt es Textsorten?* (*Are there such things as text sorts?*). In a panel discussion on text sorts a participant comments on title (20) as follows:

Herr Stempel scheint, **wie sich aus dem Titel seiner Vorlage ergibt**, die Frage, ob es Textsorten gibt, zu verneinen.

(Mr. Stempel seems to deny the existence of text sorts, **as can be concluded from the title of his paper.**) (Gülich & Raible 1972: 181; bold type by G.D.).

The bias effect in yes-no questions in titles is due to the knowledge conditions of scientific communication: If author A makes a claim, or puts up a hypothesis that is of some relevance for the field, then any questioning of this claim or hypothesis by author B can only be understood in the sense that B criticises the claim or hypothesis made by A. Why? Putting up the question and answering to it positively, i.e. in accordance with A, is normally not worth being mentioned at all.

But the bias of the answer finally depends on the context of scientific discourse and therefore may also be the other way round. An instance for this is (16) *Gibt es eine 'neutrale Erzählsituation'?* (*Is there such a thing as a 'neutral narrative setting'?*). Here the author Broich refers to the term 'neutral narrative setting' introduced by literary theorist Stanzel in 1955. Stanzel himself disassociated himself from this term in 1979 (Stanzel 1982[1979]: 193, Fn. 7). By giving his 1983 paper the title *Gibt es eine 'neutrale Erzählsituation'?* Broich did not question the usefulness of the term, but Stanzel's dissociation of 1979. By using this title he signals to the informed reader that his answer to the question is still *yes* (Broich 1983: 142).

erwartete, insofern präferierte Antwort, die dem mit der Frage gegebenen Wissensstand entspricht." (Zifonun, Hoffmann & Strecker 1997: 112)

3.2.2. Questions on alternatives

Questions on alternatives have in common with yes-no questions, that they put into question the validity of certain facts. Questions on alternatives differ from yes-no questions insofar as they do not put into question a complete fact, but ask the listener to make a decision between two (or more) alternative facts.

Titles formulated as alternative questions are the following in my corpus:

- (21) Soziale Reformen' im Zweistromland bis ca. 1600 v. Chr.: Realität oder literarischer Topos?
(‘Social Reforms’ in Mesopotamia upto 1600 B. C.: Reality of literary topos?) [Assyriology]
- (22) Durchrationalisieren oder Provozieren? Brechts *Antigone*, Hölderlin und Sophokles.
(Rationalize or Provoke? Brecht's *Antigone*, Hölderlin and Sophocle) [Classical Philology]
- (23) Challenger or Competitor? On Rorty's Account of Transcendental Strategies. [Philosophy]

With questions on alternatives the author already presents solutions to a controversial problem in his/her title. Like with yes-no questions the author does not expect the reader to answer the question. But what he/she might expect is that the reader is aware of the problem and may even be aware of the solutions proposed in the scientific community. Thus the presentation of alternatives on the one hand serves as a reminder of a specific problem and the hitherto proposed solutions to it, on the other hand the reader is made curious, because he/she wants to know which of the alternative solutions the author argues for.

3.2.3 Question word questions

By uttering a wh-question a speaker wants to get a dimensionally specified information by the listener. Not an entire proposition is put at issue, but only a certain aspect (time, place, agent, quality, etc.) of it. In wh-question titles the most common wh-element is "what":

- (24) Was heißt und was ist Informatik?
(What means and what is information science?) [Mathematics]
- (25) Was müssen Manager wissen?
(What do managers have to know?) [Sociology]
- (26) Was bedeutet "self-executing"? Überlegungen zur Rechtsnatur des GATT im Blick auf einen GATT-Immateriälgüterschutz.
(What does "self-executing" mean? ...) [Law]
- (27) Was heißt "analytische Philosophie"?
(What does "analytic philosophy" mean?) [Philosophy]
- (28) Was sind Finanzierungsregeln wert?
(What are rules of financing worth?) [Economics]

This kind of question offers readers a comprehensive clarification of a matter or a term. Most of the titles beginning with "what" have been published not in pure academic journals, but in publications addressed to a broader readership (Dietz 1995: 107). Other wh-determinatives have appeared with relatively low frequency in my corpus. For instance there were only three why-questions in my corpus, although questions for the cause of phenomena lie at the heart of science and therefore are a strong impulse to read the text.

4. Are title questions rhetorical questions?

Before coming to a summary, I would like to answer the question whether title questions are rhetorical questions. According to Zifonun,

Hoffmann & Strecker (1997: 121) rhetorical questions have the following characteristics:

- (a) they are not uttered to be answered, (neither by the person who utters the question nor by the listener)
- (b) due to situational or contextual knowledge the answer is obvious
- (c) the aim of rhetorical questions is that the listener himself/herself infers the propositional content of the answer and transfers it to his/her knowledge
- (d) it is not intended that the truth value of the answer is made interactively plausible.

Furthermore, rhetorical questions have a stimulating effect on the listener (Weinrich 1993: 892; Zifonun, Hoffmann & Strecker 1997: 122).

Taking this into consideration, one has to state that some types of title questions do have some elements of rhetorical questions, but none of them can be regarded as rhetorical.

- (a') Title questions have in common with rhetorical questions that the writer does not expect the reader to answer them. But what can be expected by the reader is that the writer answers the question he/she put himself/herself.
- (b') The answer to questions in titles is not as obvious as it is with rhetorical questions. Although in most instances of yes/no questions there is a strong bias towards either "no" or "yes", the answers to the other types of questions in titles are not at all obvious.
- (c') The inference of the propositional content of the answer by the reader again is only possible partly with yes-no questions.
- (d') That the truth value of the answer has to be made plausible by the writer – maybe not really interactively, but only by the virtual interactivity that is possible in (academic) writing – is self-obvious.

Thus the main functions of title questions can be seen in the effect that readers make the questions put up to their own questions, that they admit their lack of knowledge and therefore read the text. Apart

from this, the three types of questions in titles have different implications: Yes-no questions do arouse the curiosity of colleagues by questioning a hitherto accepted thesis. When reading a yes-no question title a little shaking of one's knowledge is achieved, a disturbance that can only be resolved by reading the text and the arguments of the author. The exciting thing with questions on alternatives is, for which of the two alternatives, if not for a third, the author votes. While wh-questions seem to be used for discussions of issues of broader interdisciplinary interest.

Title questions are a specific means to "sell" one's text and my whole paper therefore confirms the view of those scholars (e.g. Gusfield 1976; Bazerman 1988; Myers 1990) who pointed out the great importance of rhetorics in scientific discourse.

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