Witold Marciszewski
ON METHODS OF ABSTRACTING AND TYPES OF ABSTRACTS

0. Introduction

0.1. Functions of abstracts

The phenomenon of "information explosion," consisting of a disproportion between the pace at which science generates new information and the pace of this information being found and assimilated by the addressees, breeds a double, urgent need: the need to improve the manner of searching for information, and the need to perfect the manner of processing thereof, so that the information is capable of being assimilated within an adequately short time. Some methods of coping with this problem consist of the use of the most state-of-the-art and potent technical means, such as computers, others consist of exploiting the traditional forms, which also should be perfected in order to meet the new and greater requirements.

One of the traditional forms of information processing is an abstract. Apart from the utility aspect of the abstract, its didactical aspect is also noteworthy; since preparing an abstract is a great exercise and a test for many of our mental capabilities at the same time: attention, the ability to abstract (from the less important details), the ability to see the construction of the text, and finally, the ability to paraphrase expressions and to concisely formulate thoughts. Moreover, a ready abstract, as well as the process of preparing it, sometimes happens to be a useful device for the better understanding of the abstracted text and by assessment of its substantial and

formal value. Therefore, in some educational systems a lot of emphasis is put on exercises in making abstracts. The present deliberations focus on those aspects of intellectual activity which consist in generation of thought "concentrates." We will be mainly interested in abstracts of scientific texts; abstracts of literary works are a separate issue which requires the means belonging to the workshop of a literature theoretician. This work does not discuss the issue of mechanical abstracts, which would require a separate elaboration.

0.2. Basic notions

The basic notions to which we will refer are the text and text transformation. These are considered to be the primitive and commonly understood notions. They cannot be attributed perfect sharpness; in particular the notion of the text may raise doubts; does the notion of the text comprise for example a monologue of a schizophrenic, the shouting of a coachman, the humming of a nanny, where part of the lyrics have been forgotten, etc.? It will be therefore convenient to make this notion more precise by imposing a condition on the text that needs to contain at least one sentence and needs to be constructed in accordance with the grammatical rules of a given language (let us add "generally," since single grammatical errors, which may occur in a text, do not result in gaps or interruptions in it). Such specifications, far from being perfect, will be sufficient for our purposes.

The notion of text transformation creates less doubts. It means any change consisting of the omission or addition of an element. It will, however, be convenient to make a terminological agreement that text transformation will signify any change, which by changing the shape or the tone of the text, sustains some desired (in a given case) quality of the text, e.g. its meaning, stylistics, emotional quality, or what is described by the most imprecise, yet important notion of "fundamental thought."

An abstract is exactly a type of transformation that sustains the "fundamental thought" by considerably shortening the length of the text. We do not need to worry here about the ambiguity of the term, since the difficulties with defining it may be evaded by listing the operations on the text resulting in the product called an abstract. It may be stated that a transformation sustains the "fundamental thought," if (but not only if) it was prepared with the use of one of the operations discussed below.

From now on a text will be called an abstract, if it was constructed as a result of the activity of abstracting; the text subject to the process of abstracting will be called the original text, and the rules specifying correct

operations resulting in creation of an abstract will be called the abstracting rules.

Each of the following three parts shall be devoted to a different type of operation aimed at the generation of a specific type of an abstract.

1. Image generation operation

1.1. Multi-stage text division

1.1.1. This operation, which can by compared to the construction of a map, is possible to be performed only on a text which can be divided; so that, for example, a certain novels' characters' monologues, constructed on the basis of an uninterrupted series of association, would not be capable of being abstracted this way. Provided that it is possible to distinguish certain segments in the original text, and these may be in turn divided into sub-segments, etc., then we have the image of text construction. This structure may be presented with the use of the well-known method of positional notation. The segments separated as a result of the first-degree division are ascribed one-positional numbers, e.g. 1, 2, 3. If these segments were to be divided further, they would be ascribed new two-positional numbers, subordinate to the numbers of the divided segments (particular positions are separated by a dot): 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, etc. The segments generated as a result of the next, third-stage division shall be ascribed with numbers composed of three positions, etc.

1.1.2. If we make the next step, ascribing each number a title informing of the content of a given segment, then we will get a product called a table of contents. The role of the table of contents is to list the topics or the problems; therefore the titles contained therein have the form of names or questions.[1] It

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[1]In view of the ambiguity of the word "topic," it needs to be explained which of its many meanings we have in mind here. Using the analyses contained in the work of J. Pelc(1961), I suggest understanding the word "topic," for the purposes of the present deliberations, as a notion or a judgment pertaining to the subject of a given text. Not going into detailed deliberations as to how the phrase "subject of a text" should be understood, I will limit myself to exemplary explanations; and thus, for example, the subject of a handbook for a bee-keeper are the bees and the actions connected with keeping bees, the subject of Josephus' work is the war between Jews and Romans, and the subject of an arithmetic handbook are numbers, their properties and relations. Notions and judgments will here be understood as classes of abstraction from the relation of logical equivalence, dividing the set of names and the set of tasks of the

does not contain, however, an elaboration of these topics or answers to these problems. If, however, one provides such formulations, assigning each point to the table of contents, i.e. each name or question, a relevant sentence in indicative mood, one will as a result obtain an abstract. Such an assignment is easy to specify, if the title is a question. It then consists in formulating an answer to the question. If the topic of a given segment is a name, then in many cases it is possible to transform it into a question on the basis of certain current conventions concerning the formulation of titles. And so, for example, we understand that under the title ”*Fields of logic*” we will find the answer to the question ”What are the fields of logic?” The phrase ”*The classical notion of a quantifier*” may be read as the equivalent of the question ”What is a quantifier in the classical sense?” The title ”*Image generation operation*” promises an answer to the question ”What does the image generation operation consist in?” Sometimes it is difficult to select a relevant question. This seems to be the case in particular when the title is formulated in a very general manner or if it announces an activity or a task intended by the author. Both of these features are for example present in a title of a chapter of a certain logic handbook, which was formulated in the following manner: ”Logical analysis of the basis of mathematics.” Nonetheless, in this case we also have a certain trick available, transforming this statement into a question, without interference from the author's intention. In this case we may ask the following question: ”What are the segments of the logical analysis of the basis of mathematics?” Selection of a correct question should of course be dictated by the knowledge of the text, and its aptness will reveal itself in the fact, whether each of the whole answers to the questions constituting the titles of the sub-chapters will be a partial answer to the question constituting the title of the chapter.

1.1.3. Multi-stage division of the text, being the basis for this type of abstract, may be a good starting point, when one is presented with a task of abstracting a certain text with the use of a particular number of words, e.g. 1,000 words, 500 words, etc. A more concise abstract may be obtained by omitting the segments which have been distinguished at further stages of the division, whereby a more extensive abstract also includes such segments. The more numerical positions a number of a segment has, the faster it will be left out, if we increase the requirements of conciseness.

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language in which our text is written.

1.2. Set theory characterisation

A table of contents generated by means of classification is characterised by the fact that it constitutes approximately what in the set theory is described as a set (of sentences) being an image of another set (fragments of the original text distinguished as a result of the division), in accordance with a certain unambiguous relation. For the sake of a convenient expression we will extend the notion of text image so it also includes abstracts that are a result of the abovementioned transformations of the table of contents (although we are diverging this way from the definition of the set image according to the set theory).
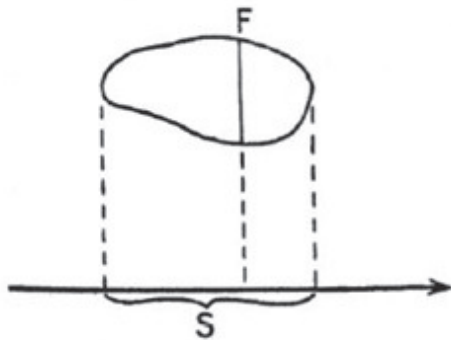
In the geometrical interpretation this might be depicted as a projection of a plane on an axis, where to each set of points of a plane (sentences of the original text) lying on a certain segment F (a fragment of the original text) there corresponds exactly one point (sentence) on the axis; set S of all such points on the axis corresponds to the set of sentences constituting the abstract.

If this unambiguous relation, i.e. the function transforming a set of the sentences of the original text into a set of sentences of the abstract, is here conventionally called by us titling (in the sense that each sentence of the abstract is immediately, or after a relevant transformation, ready to be a title of a given segment), then the definition of an equivalent type of abstract will be very short: such an abstract is the image of the original text in accordance with the titling relation.

This set theory description is of course a far-fetched simplification or an idealisation. In reality, we need to make compromises dictated i.a. by didactical or stylistic reasons, which obscure this non-ambiguity of the mapping

of the original text by the abstract. Nonetheless, this idealisation seems to belong to the family of useful fictions, setting a certain ideal type of abstract, which actual abstracts approach, when possible or needed (cf. Suszko 1965).[2]

2. Selection on the basis of relevance assessment

2.1. Comparison with the image generation operation

Each abstract is created as a result of omitting not only formulations, but also certain information. Generation of text image also requires omissions, but this is done in accordance with the criterion which could be called structural: one includes into the abstract formulations derived from particular points of the table of contents (which determine the structure of the text) and the remaining formulations are omitted. This criterion, imposed so to say by the text itself, might be called objective or internal, contrary to the criterion brought from the outside by the abstracting person, who by preparing the abstract uses certain assessments of relevance with respect to particular parts of the text. And thus for example an author of a review belonging to the borderland of several disciplines may undertake to report only certain traits, which lay within the field of his expertise. It is thereby possible to transcribe some fragments of the text, namely those, which are considered to be particularly important for the point of view assumed (e.g. definitions, key theses or formulations of the material points striking with their aptness).

It is difficult to list all possible relevance criteria, since there are as many of them as there are points of view on various texts. One needs to mention a few, which are connected more with the qualities of the text itself, although the external point of view is not completely neutral to them. Above all, we will list here the quantitative criteria, and then also other criteria, which could be described as qualitative.

The text of an abstract generated as a result of such operations will be called a selective excerpt from the original text.

2.2. Some relevance criteria

2.2.1. The method of selection of the topics which should be included in an abstract, based on the criterion of the frequency of word appearance, deserves particular attention. This is due to its usefulness in the process of

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[2]An example of such an abstract is the abstract published at the end of this article.

abstract mechanisation, which leaving a part of the work to the machines, makes it possible to speed up the entire process, which is greatly desired in the cycle of informing about the documents. The first step is to calculate the frequency of appearance in the text of terms belonging to a certain specific class (let us mark it with the letter C). In special cases this class may be a product (within the meaning of the set theory) of two or more classes; we may, for example, be interested in specialist terms from a given field, which are nouns. The point of view brought in by the abstracting person is expressed by the choice of class C, potentially by selection of a fragment of the text, which is to be subject to examination; as well as by selection of one more indicator, which may be called the distribution indicator. The latter is important since concentration of a certain expression (and in particular of cases that use such expressions) in a certain fragment (e.g. in a given chapter) indicates that this is a topic which enjoys particular attention in the original text. Further, distribution of a certain expression throughout a given text, e.g. in an entire book, may be a sign that the expression is less specific. And so for example in the book written by R. Carnap *Meaning and Necessity*, the expression *state description* appears 31 times, whereby 28 instances of its appearance have been noted on four subsequent pages of the book. The word *method* appears several dozens of times on 22 (in aggregate) non-subsequent pages. This suggests an assumption that a special fragment of the book has been dedicated to the notion of the *state of description* and therefore that this notion belongs to the set of topics discussed in the book, whereas the word *method* appears as a less specific term, taken from the most commonly used vocabulary. Indeed, the author of the present remarks, abstracting *Meaning and Necessity* three times (one time, from the point of view of the theory of meaning, the other time reporting the theory of necessary sentences, and finally reporting the issue of intentionality), and each time could do without the word *method*, but also each time was forced to use the phrase *state description*, which appears as an indispensable link in the line of definitions leading to the definition of the necessary truth, meaning and intentional structure.

If having calculated the frequency of appearance of various terms, we order them in a series, starting from those appearing most frequently, then the first segment of this series will provide us with a list of terms which will determine the subject matter of the abstract. This result may potentially be modified by means of the distribution factor, i.e. elimination from this list of the terms with too broad (i.e. exceeding certain specific threshold) distribution, and inclusion of the terms of high concentration, even if their

number is not equal to the number of the appearances of the terms at the beginning of the series.

2.2.2. Other criteria of selection and omission may be called, contrary to the above criteria, qualitative. A common method, although applicable only to a part of the texts, is to construct the text in accordance with certain logical and methodological criteria, consisting therein, that one selects from the original text only the formally distinguished formulations, such as theorems, definitions and proofs. This is a specific case of a more general procedure of distinguishing the genres of statements, resembling the distinguishing of literary genres. Undoubtedly, definitions, proofs and theorems have their own specific stylistics, which qualifies them as a particular "literary genre." Other "genres" appearing in abstracted texts provide a basis for omission of certain fragments of the text, in such a manner that the contents of these fragments does not have the slightest reflection in the abstract. And thus for example in an abstract of a book one does not include quotations, which were included by the author in the book (although, for example, in historical works quotations may constitute a considerable part of the book). In abstracts of mathematical or formal-logical works, one provides the results, omitting the proof. In abstracts of empirical research one provides results, omitting the research protocols. Summing up, the rule is to report the results with the omission of the justifying material. One usually also omits all kinds of exemplifications, which include material from the didactical point of view, yet unnecessary for the reporting of the main thoughts of the texts. It is also advisable to omit subjective elements of the contents, such as polemical remarks, digressions, signalisation of the topic, etc. Fragments of the text which repeat the thought of some other fragment are also doomed to be omitted (this omission criterion is more formal, and does not refer to the "literary genre").

An abstract prepared in accordance with the qualitative omission criteria may sometimes result in the same results, in whole or in parts. The mode of conduct is each time different, however. By image generation we need to get to know the structure of the entire text, i.e. read it in full, and then characterise thematically each separated fragment. By application of the technique of omission in accordance with a criterion adopted in advance, we may abstract the text by rejecting the fragments that are to be omitted in the course of the first reading of the text, and then by rewriting the remaining fragments in whole or in an already abbreviated form obtained thanks to the use of yet another method. This may prove to be a more

economical procedure, requiring less time and mental effort than an attempt to grasp the text structure. Such attempts may be a potential next step, if we are already dealing with a more easily operable "preparation," generated as a result of deletion of fragments considered to be immaterial in view of the intended purpose of the abstract.

3. Metalanguage or reported speech description
3.1. Characteristic features of a metalanguage abstract

This is an abstracting method applied often in short abstracts of professional accomplishments and in documentary descriptions. Here are two examples.

Example 1. "This work is an attempt at systematising those constructions of formal logic, which are used in contemporary semantics to explain the traditional notions of the extension (denotation) and intension (meaning, connotation) of expressions. Subject to description are the general scheme and particular steps of the theoretical procedure, usually applied for this purpose. Examples under consideration are R. Carnap's constructions, introduced in his intension and extension theory, and the notions introduced by R. Suszko and E.W. Beth, partially patterned on Carnap's ideas. The work also indicates possible modifications of the notions within the theoretical procedure scheme commonly applied to them" (Stanosz 1964).

Example 2. After a general description (author, title, etc.) there appears (on the documentation sheet) the following sentences: "Research on reduction of noise generated by work of jet engines, carried out in the US. As a result of the research it has been ascertained that the noise level is a function of..." etc. (Osmólska 1965: 107).

Such modes of preparing abstracts is characterised by the fact that it uses metalinguistic expressions (e.g. "subject to description is the general scheme the theoretical procedure") or reported speech (e.g. "it has been ascertained that..."). Is this a feature of merely stylistic character, or is it also a feature of the manner of functioning of the abstract, expressed in its applications, qualities, disadvantages, etc.? It is not difficult to notice that it also affects the functioning of the abstract. Abstracts prepared in the same language as the language of the original text have to use this language's vocabulary, and cannot use information which is not contained in the original text, and it is impossible to express therein the point of view of the author of the abstract. These are the limitations not applicable to a metalinguistic or a reported speech abstract. Therefore an advantage of the latter is that it is possible to make moves, which sometimes resemble

the activity of commenting. Commenting, however, causes problems and difficulties, which constitute the darker side of this type of abstracts. Let us now look in more detail into the pros and cons of such abstracts.

3.2. Advantages of commenting abstracts

Data, inexpressible in the language of the original text, but expressible in the language of the person preparing the abstract or using knowledge from outside of a given text, may be very valuable for the user of an abstract. And so our example 2 provides the message that the work was performed in the US; this message does not need to be explicitly contained in the original text, but it may sometimes be inferred, either from the original text or even from some additional sources (e.g. from the correspondence of a library with the publishing house).

If an abstract contains the following expression: "the most important result of the research is," then we are using an assessment made perhaps only by the author of the abstract, since the author of the original text did not have to introduce such valuation of his results or had a completely different point of view with respect thereto the abstracting person and the intended user of the abstract. Such an assessment, provided that it is apt, may be very valuable for the user, informing him, for example, of the upper limit of the achievements or drawing the user's attention to the most important things.

Another possibility, provided by this type of the abstract, is the possibility of informing the reader of the point of view assumed by the abstracting person, which was the basis for selection of the material for the abstract (e.g. the fact that the abstracting person has omitted the description of the basic research reported in a given work and discussed their practical application).

In other cases, thanks to this form, it is possible to achieve greater conciseness without any harm to the desired information. It is said for example that "the author explains his thesis with the use of numerous examples," however the examples are not provided, since such a remark itself achieves the intended purpose, i.e. informing the user of the degree of usefulness of the book. In an abstract which does not enjoy the privileges of a commentary, there is no room for such forms; it would be necessary to present or summarise such examples, or omit them altogether.

Example 1 illustrates one more interesting feature of this form, namely the fact that it makes it possible to refer to the assumed knowledge of the recipient with the use of expressions such as "traditional notions," "generally

acceptable scheme." If such things are commonly known, then it is sufficient to remind the reader of them, instead of describing them, in a way in which this is perhaps done in the original text for order's sake.

Taking this opportunity it is worth mentioning a certain problem, material for the theory of abstracts, although loosely connected with the division of abstracts discussed herein. It is possible to have an abstract be more informative (by the same capacity), if one relies on the assumed knowledge of the user, which is possible to be referred to with the use of the metalinguistic form of the abstract. The relation between the information carried by the abstract and the relevant user's knowledge may be presented in several different ways. This might be facilitated by the application of the semantic information theory, which contemplates various ways of information relativisation, whereby information carried by a sentence is defined as a certain decreasing function of the logical probability of the sentence. This may either be the so-called conditional information, being a function of conditional probability, or the so-called additional information (increase of the information in relation to the previous knowledge), or even other types of information, which we are dealing with when a given sentence makes it possible to infer some other sentence (analogically to the situation when a signal or a sign informs of something that it signifies). Each of these three cases may take place through consideration of the relation between the abstract and the knowledge of the user.[3]

We have presented above just a few from among many useful formulations obtained by means of enrichment of the original text language by the language of the author of the abstract. On the other hand, in order to see the difficulties, one needs to draw one's attention to certain characteristic features of those statements concerning the original text, resulting in the fact that the abstract has certain features of a commentary.

3.3. Problems with commenting

It is impossible to analyse herein the notion of a commentary in any greater detail. This would be a topic of a separate study, which should take into account the experiences of the middle ages — an era when commenting on authoritative texts was one of the main forms of theoretical work and didactical activity.

The principal problem for the assessment of a given commentary is the

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[3]As far as the author is aware, the fullest division of the types of information has been presented in the work by J. Hintikka (1968).

question, does the commentary actually renders the thought of the original text? This question bears a series of further issues: what is this "thought of the original text," to what extent it is possible for us (if we know it already) to render it in a language other than the language of the original text, to what extent is it admissible to use the notional apparatus and the knowledge of the commentator? It is impossible to answer these types of questions in this work, yet it is material to signal that they exist, in order to demonstrate the risk of errors carried by a commentary, i.e. also by an abstract of a commenting character.[4] And thus certain interpretational problems appear, when one reads an abstract of a book by D. Defoe *The Complete English Gentleman*, written by Maria Ossowska. The abstract i.a. contains the following fragment: "Although Defoe praised the life of the middle class, he aspired higher and it is possible to find, written between the lines, a desire for social promotion, which however has not been explicitly expressed" (Ossowska 1956: 137). A striking feature of this formulation is the mention of reading between the lines. Do the results of such reading have the right to be included into an abstract? We are not deciding here, whether the quoted text, according to its author's intention is an abstract or something else. It appears to be one, provided that an abstract is to express the most important ideas of the text, and the most important ideas in this case might be exactly "between the lines." Nonetheless, the process of arriving at such a commenting hypotheses is complicated, and in many cases exposed to the risk of errors. Interpretational disputes, often referring to the texts of abstracts, provide countless examples of not only what is between the lines, but also what is in the lines and is subject to various, contradicting interpretations. This is particularly sharply visible in the case of abstracts presented by polemists, where each of them reports the thought of his adversary.

Such problems are not as sharp in small abstracts and in documentary descriptions, yet they appear there as well, although in a relevantly mitigated form, among others, due to the fact that descriptive words are seldom free from a certain emotional or valuating charge. When we say that "the author

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[4]A typical grammatical form used for commenting is the reported speech. Reporting the content of a given text with the use of reported speech bears logical problems connected with so-called language intentionality, which are discussed in many semiotic theories. This type of review is contained in the article titled *Intencjonalność w Małej Encyklopedii Logiki* (Wrocław 1969). Another proposal, stemming from the analysis of specific functions of reported speech, has been presented in the work by W. Marciszewski *Funkcje semantyczne mowy zależnej*, which is to be published in the selection of Polish semiotic works, ed. J. Pelc, which is to follow.

has proven," we are not only describing the author's activity, but also the results of such activity, and on top of that we assess such results as positive. It is possible in such instances to use more neutral, less judgemental words, yet it is possible to allow such valuating on purpose. This depends on the purpose of the abstract, and as a practical rule for proceeding one should recommend the abstracting person to always ask themselves the question what is the purpose of the abstract and what means will realize it the best.

4. Comparative remarks on the types of abstracts

4.1. Classification of abstracts

The list of the types of abstracts presented above does not constitute a (correct) logical division, since it has been prepared on the basis of two different rules: rule no. 1 based on the selection of the structure of the original text (expressing the assessment of the relevance of the topics made by the author of the text) or based on some other relevance criteria adopted by the author of the abstract; rule no. 2: adopting only the language of the original for the abstract or extension of the language of the original by metalinguistic expressions, reported speech and potentially other elements of the language of the author of the abstract. The first division provides the text images and selective excerpts from the text, the second one provides non-commenting and commenting abstracts. Crossing two divisions independent from each other resulting in four types of abstracts: non-commenting excerpts, commenting excerpts, non-commenting images, commenting images. One may have objections to the latter type of the abstract, since it constitutes a far-fetched departure from the idea of the text image. It is pointless to argue about words at this point, since having extended the notion of the image (cf. 1.2.), we have not drawn the limits of this extension precisely enough. It is only material to note that the text image in the strict sense of the term, i.e. the table of contents, may also be the basis, as a result of relevant linguistic transformations, of a commenting abstract.

It is also possible to obtain other kinds of abstracts as a result of mixing up the types of abstracts resulting from the first division. It is namely possible to make an abstract of an abstract in such a manner, that from an image of a certain text one makes a selective excerpt and for such an excerpt one creates an image in accordance with the titling or some analogous relation. These actions may be repeated or mixed several times. Such mixing procedures can possibly prove to be the most useful and the most commonly

applied in practice, e.g. by preparation of author-generated abstracts.

By image generating operations (within the strictest sense, i.e. as a table of contents), there also take place familiar set theory relations: an image of a sum of two sets is equal to the sum of images of these sets, e.g. an abstract of a two-chapter text (we treat each chapter as a certain set of sentences) is equal to the sum of abstracts of the first and the second chapter (again treated as sets of sentences). Further — if one set is contained within the other, then the image of the first set is contained in the image of the other set, e.g. an abstract of a chapter of a book is contained in the abstract of the book itself. These simple and obvious dependencies do not occur in the case of abstracts being excerpts. A selective excerpt from a book may, as a result of the adopted selection rule, omit entire chapters, or, for example, report in one sentence the content of two chapters, and therefore it will not be a sum of the excerpts of particular chapters.

4.2. Abstracts on documentary sheets

It is worth confronting these descriptions of abstract types, resulting from rather theoretical deliberations with a certain important division of abstracting practice, which is a part of the documentalist's activity. Certain rules of this activity are formulated in the *Code of Good Practice for Scientific Publications*, issued by a special UNESCO committee.[5] This publication contains a *Guide for preparation of author's abstracts*, which in point 7 reads: "It is valuable to indicate the treatment of various aspects of the subject by qualifiers such as brief, exhaustive, theoretical, etc." Therefore, this point, similarly to the other points of the *Guide*, recommends the metalinguistic form for abstracts even with an assessing commentary. Including valuating remarks results in the fact that the abstract as a whole will no longer be an image of the text (although its fragments may be the images of relevant fragments of the original text).

A similar form of the abstract is also stipulated in another publication, issued under the auspices of UNESCO by the International Federation for Information and Documentation (FID), namely a handbook by O. Frank, *Modern Documentation and Information Practices,* The Hague 1961. The handbook distinguishes two types of abstracts, one of them, the so-called *informative abstract*, belongs to the type of abstracts herein referred to as excerpts; they may, although they do not need to, contain a *critical*

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[5]A new Polish version was published in the series of Wydawnictwo Czasopism Technicznych NOT, Warszawa 1965.

appreciation. The fact that an abstract prepared for documentary purposes does not need to be an image of a text, is supported i.a. by the following guideline: "In composing an abstract there is no need to always follow the same sequence as the original publication." And further: "The question of how far one should go into detail must depend on the object which the evaluation of the literature is intended to serve." The objective is to dedicate the abstract for this or that group of readers, which is illustrated by the example that different data are required by a head of an enterprise, compared to that of a design engineer and that of the engineer supervising production (cf. Frank 1961: 44-45).

The other type of abstracts, called *indicative abstracts*, does not fall within any of the types of abstracts described herein. This is rather a considerably abbreviated description of contents, informing the reader of the main topics of the text, using the form of lose terms not joined into sentences. It is of course a matter of agreement as to what extent we wish to extend the notion of the abstract and whether as a result of such an extension the notion will include *indicative abstracts.*[6] Since outside of the field of documentation one distinguishes between an abstract and a table of contents, there is a sufficient reason to adopt a slightly narrower notion of the abstract, omitting such lose strings of words. There is, however, a practical material relation between these lists of topics and the abstracts understood in the manner adopted herein; it is namely possible to use those lists as a preparatory material for an abstract, or the other way round; if one disposes of an abstract, one may use it to prepare this kind of list, which is more economical than preparing such lists on the basis of the original text.

As it follows from a comparison with yet other instructions, the documentary practice is quite uniform in various countries. The German (DDR) instructions list three methods of preparing abstracts and the application of

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[6]There are also other kinds of statements which to a smaller or greater extent resemble abstracts. The title of the work may be considered sometimes to be the shortest abstract possible, and if we slightly develop this title, then the resemblance becomes even more visible. A set of a well selected and ordered extracts (quotations) from the text, arranged to constitute a certain intellectual whole, also has certain features of an abstract, resembling a selective excerpt. It is difficult to distinguish between an abstract and a report; the difference seems to be the length and a varying degree of interpretation, i.e. gradable features. Finally a translation of a text made with the use of either abbreviations, conventional abbreviations or synonymous expressions, which are shorter, shares with an abstract the feature that it renders the thought of the original text in a shorter form (it is different from a proper abstract in that in this case that the smaller capacity does not result in loss of information). By the way, use of abbreviations is a recommendable auxiliary operation used by each type of abstract.

one of them (the so-called *referierende Methode*) results in what in English is called the *informative abstract*, application of the second one (*descriptive Methode*) results in the *indicative abstract* and the application of the third one (*analytische Methode*) results in a product being a synthesis of the previous two (Koblitz 1964). These two basic forms of abstract are also stipulated in the Polish norm for documentary sheets, issued by the Polish Normalisation Committee under no. Pn-67/N-01176.

4.3. Types of abstracts and the character of the original text

As it follows from the present review, documentalists prefer one of the abovementioned four (distinguished as a result of the crossing) types of abstracts, namely the selective excerpt of commenting character. As the second possible form the documentalists recommend something which within the meaning adopted herein is no longer an abstract, i.e. a list of terms characterising the subject matter of the original text. It is understandable that documentalists prefer excerpts with the elements of a commentary or appreciation, if one takes into account the economical character of this form (cf. 2.2.2 and 2.2), and if one addresses the abstract to a specific reader, knowing his interests and need for this and no other type of appreciations. The negative features of these types of abstracts, such as the risk of subjectivity of the appreciations, are virtually eliminated, if the abstracts are prepared by competent persons, and if the vast majority thereof are abstracts from the field of science and technology.

In cases where the risk of subjectivism is greater, where the aptness of appreciations is a less verifiable feature, and where the recipient is in no need for appreciation, it is better to use a non-commenting maximally objective form of abstract. An example of such a situation may be a discussion from the field of social sciences (where valuations and assessments are inevitable), wherein it is necessary to carefully separate the presentation of the views of the interlocutor from one's own assessment of these views. A form maximally conductive for objectivism, wherein even the selection of topics is determined by the original text structure, and not by the point of view of the person preparing the abstract, is of course, what we have called here a text image.

As a means of an example of this form, recommendable in theoretical rather than practical activity and in humanities and in social sciences rather than in natural and technical sciences, the author presents below an abstract of this work, which is simultaneously of both technical and humanistic character, being a text image based on the table of contents preceding it.

TABLE OF CONTENTS

ABSTRACT

0.1. The issue of types of abstracts appears in the activity connected with provision and transformation of information contained in texts, for example in documentary, didactical and interpretational activity.

0.2. An abstract is a transformation of the original text resulting in considerable reduction of the length thereof, but retaining the "principle ideas" of the original text. Abbreviation of the text by retention of the "principles ideas" thereof may be effected in one of the following ways.

1.1. The operation of text image generation starts with the division of the contents thereof, whereby it is convenient to apply positional numeration (e.g. segment 1 is divided into 1.1. and 1.2., further 1.1. may be divided into

1.1.1. and 1.1.2., etc.). This provides, either immediately, or after certain additional transformations, a detailed and hierarchized list of questions, and answers to these questions, formulated in full indicative mood sentences, constituting the desired abstract. Omitting the further stages of such qualification, one obtains a more concise abstract, which may successively be made even more concise, by omitting further (from the end) levels of classification.

1.2. The above procedure contains the actions which may be described as an (set theory) operation of generating an image of a set in accordance with a certain relation. The projected set is a set of sentences of the original text, and the image thereof is a set of the elements of the table of contents (and in a broader sense, also the abstract itself), and the relation transforming one set into the other is the titling relationship, existing between each element of the table of contents and a certain segment (a sub-set of the set of sentences) of the original text. A geometrical interpretation may also be applied to these relations.

2.1. An abstract as a text image is generated by taking from the original text of the elements determined by the table of contents and by omitting the rest. If one makes the omissions on the basis of relevance appreciations (in accordance with the adopted point of view), there will be created another form of an abstract, called a subjective excerpt from the original text. The criteria here may either be quantitative or qualitative.

2.2. A quantitative criterion of relevance of a given topic is the frequency of appearance of certain terms in the text, potentially the density of their distribution (greater condensation indicates greater specificity of a term); a list of terms found with the use of this method determines the subject matter of the abstract. Application of the qualitative criterion consists i.a. in distinguishing the genres of the statements to be omitted, e.g. proofs of theorems, protocols, experiments, digressions, polemical fragments, etc.

3.1. Certain abstracts are characterised by the fact that they contain expressions not belonging to the language of the original, but to the metalanguage or the reported speech of the person preparing the abstract. An abstract constructed in this manner resembles a commentary to a certain extent, and therefore it has been called a commenting abstract.

3.2. Its advantage consists therein that it may provide information on the

original texts taken from outside the text itself, it is also possible to present therein a point of view determining the contents selection criterion and to present certain appreciations, as well as to refer to the recipient's knowledge. The semantic information theory may be helpful through closer determination of the relation between the supposed knowledge of the recipient and the information provided by the abstract.

3.3. In such cases there appear, however, problems characteristic for commentating, boiling down to the issue of objectivism. Commenting hypotheses are sometimes debatable, the language of the original language may be sometimes impossible to translate into the language of the commentator, moreover there is a risk of errors in the appreciations formulated (e.g. correctness of a certain proof).

4.1. The above description of the types of abstracts has been done on the basis of two division rules: contents selection criterion (structural or evaluative, "external") and the division into the intra-language (within the language of the original) and metalanguage character of the abstract. The crossing of these divisions provides us with four types of abstracts. There are also mixed-procedure abstracts, e.g. images of excerpts or excerpts from images, etc.

4.2. In documentary practice metalinguistically formulated selective excerpts are the most commonly used type of abstracts. These are the so-called informative abstracts. Apart from the latter, there also are abstracts constituting lists of topics, these do not belong however to abstracts within the meaning adopted herein.

4.3. Documentalists' preference of selective and commenting excerpts is explained by their economical form and the reduction of their defects, which are less threatening in case of very concise excerpts from the fields of natural and technical sciences. In cases, however, when the subject matter or the purpose of the abstract (being for example a polemic) bears the danger of subjectivism, text images, reflecting the structure of the text without a valuating selection, are more desirable.

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