

Cartographic Communication in the Perspective of the Linguistic Pragmatics
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The pragmatic perspective

When writing about pragmatics, theoreticians of cartography usually refer to the classic "Foundations of the theory of signs" by Morris (1938). Let me remind that Morris has divided semiotics into three basic branches: semantics, syntactics and pragmatics. Originally semantics was defined as the study of the sign meanings (or of relationships between linguistic forms and entities in the world), syntactics as the study of relations between signs (linguistic forms) while pragmatics as the study of "relations of signs to their interpreters" (or relationship between linguistic forms and their users).

Although pragmatics received its name quite a long time ago, it remained a largely unexplored area until relatively recently. For long years the focus of semiotic research was directed towards semantics. Considerable attention was also directed towards syntax, but for long time very little has happened in the field of pragmatics. The same situation of concentration of most of all the research efforts on semantics and syntax was characteristic not only for the study of natural languages but also other communication systems including cartographic communication. Research in the field of cartographic semiotics is to our day dominated by the semantic and syntactic traditions. Recent overviews of the field (e.g. MacEachren 1995) seem to prove the persistence of this legacy¹.

One could add that not only the study of the pragmatic issues was long neglected but even the definition of the field was unclear for years. In fact it remains contested until our days. However, there is much more overall consensus today on what pragmatics should be about than let say about 20 years ago. Thus, for example Verschueren (1999) defines pragmatics as "the study of language use" or in a more detailed way as "the study of linguistic phenomena from the point of view of their usage, properties and process". Another definition which I particularly value is one proposed by Yule (1996), who defines pragmatics as "the study of contextual meaning". I will allude to this definition in one of the following sections of this papers. Other alternative definitions of pragmatics proposed by Yule include: "the study of speaker meaning" and "study of how more gets communicated than is said".

The main thesis of this paper is that the perspective of linguistic pragmatic can and should be adapted to the cartographic theory. As I will try to prove below, pragmatic theories and tools are not only attractive intellectually but allow to systematize and deepen our knowledge of the cartographic communication. Moreover, they can be very useful in designing modern systems of computerized mapping. Thus, the paper briefly presents selected major theories of the classical linguistic pragmatics. This should allow a reader not familiar with the field to gain basic orientation in its main tools. In the same time it will be suggested how particular theories could be adopted into or related to the cartographic theory.

Making things with words and maps

The first breakthrough in the field of linguistic pragmatics is usually linked with the publication of the seminal lecture of J.L.Austin (1962) entitled "How to do things with words?" One of the major achievements of Austin was to formally describe seemingly obvious fact: not all communicative messages can be considered as simple descriptions of the state of the

¹ I have tried to analyze MacEachren's neglect of pragmatics in my recent paper (Zarycki, 2000)

world. There is an entire class of sentences which in fact "create" facts. The most popular examples are sentences like "I pronounce you man and wife" or "I hereby adjourn the meeting". Thus, Austin showed that some sentences can not be adequately described in the semantic framework of description of the objectively existing reality. "Performative" sentences, as they were later called, can not be an object of the truth verification. They can not be considered to be true or false but they can be judged as fortunate (or adequate) or not. Their adequacy can be considered as dependent on the "context" (adequacy to the circumstances/situation). Not in every context performative sentences like "I declare you man and wife" will be considered as appropriate and valid. In other words, they may have different pragmatic effects in different contexts.

One can note that the perspective proposed by Austin who is considered one of the founders of the modern linguistic pragmatics can be adopted not only to the description of the special class of sentences, but also can be extended to all types of symbolic behavior including map making. Thus, language use as well as map making can be considered not only as an act of description of reality but also as a social action changing the social world. These two perspectives can be related respectively with the semantic and pragmatic approaches to language. On one hand, in the semantic approach, utterances are analyzed from the point of view of their relation to the reality. On the other hand, in pragmatic light, they are analyzed from the point of view of their adequacy to the social context (situation), their social effects and efficiency (in reaching goals related with the pronunciation of these sentences).

Thus, as it seems, the distinction between semantic and pragmatic perspectives can be defined in the similar terms both in the study of natural language as well as in the cartographic theory. Thus, while the semantic analysis of maps would concentrate on their relations with the objectively existing world, the pragmatic analysis of maps would concentrate on their acceptability and adequacy to the context of their use. The notion of context seems critical in the pragmatic approach to language as well as to maps. As it has been already suggested by Yule, the notion of the dependence on context can be considered as a specific feature of the pragmatic approach. In other words, while the semantic analysis would assume stable, absolute meaning of maps, the pragmatic approach would assume the relativity of the map meaning which is dependent on the context of its use. In the following parts of this paper the key notion of context will be discussed further.

One can notice that several aspects of pragmatic functions of maps have been already discussed in the cartographic literature. However, most of the studies did not refer to the classical works of the pragmatic theory, while drawing heavily classic authors of semantic theory.

Speech acts and their cartographic interpretation

Another key theory of linguistic pragmatics is the theory of the "speech acts". Speech act is a notion which usually replaces "sentence" in the pragmatic analysis. Its idea clearly emphasizes the perspective on the language as a form of social action rather than medium of description of reality. The notion of a speech act has been developed by J.Searle (1969) who proposed a typology of speech acts which become later one of the most popular fundamental units of the pragmatic analysis. Speech acts can be defined as an utterances expressing intention. By speaking we perform an act, which may have quite different functions. Searle has originally discerned the following types of speech acts:

- *representatives* (expressing our beliefs about the state of the world; statements of facts, assertions, conclusions and descriptions are typical examples of assertives)
- *directives* (by which we get someone else to do something, they express our wants)
- *commissives* (by which we commit ourselves to some future actions)
- *expressives* (by which we express our feelings, they express psychological states and can be statements of pleasure, pain, likes, dislikes, joy or sorrow)
- *declarations* (by which we create social facts by declaring certain state of affairs, these declarations change the world via their utterance)

One can notice that representatives (known also as "assertives") can be considered to be closest to the semantic model of communication. They are the only type of speech acts which can be eventually tested for their truth value and analyzed from the point of view of their truth conditions. However, even in this case some would question possibility of such verification of "representatives/assertives" since they can be viewed as expressing "subjective" perceptions and beliefs about the state of the world which by definition should not be an object of truth verification.

In any case, whether we accept a more relativist or objectivist stance on representatives, it seems clear that other types of speech acts can be hardly analyzed from the point of view of their truth conditions. Instead, they may be assessed from the point of view of their effectiveness. Searle has worked out a theoretical apparatus to assess the conditions under which particular speech acts may be successful (they are called "felicity conditions" and can be further divided into general and content conditions which have also sub-types on lower level depending on the type of the speech act). Searle has also divided a speech act into three basic components (utterance act, propositional act and illocutionary act). Later his theory was further developed by other authors, some of whom were also proposing alternative typologies of speech acts. However, as it seems, a detailed discussion of the theory and its later modifications will not be appropriate in this place. Instead I would like to point out to the possible reinterpretation of the theory in the framework of cartographic analysis. Maps, just as natural language utterances, can also be analyzed from the point of view of their effectiveness in view of the functions they perform and not only from the point of view of their objectivity. As we all know, maps can be used as tools of creation of social reality. Official administrative and political maps "create" states, regions and territories. Thus, they can be clearly classified as "cartographic declarations". Military maps can play role of "orders" ("cartographic directives"), while propaganda maps can express feelings and emotions ("cartographic expressives"). Of course, as in the case of speech acts in natural language, particular conditions must be fulfilled in order to make a map play its performative function. Thus for example, if a map is to have legal consequences, (e.g. in establishing a new administrative division of a country) the author should have a power delegated to him by certain institutions. In case of other types of "performative" maps other conditions besides the adequate institutional power should be fulfilled. The study on the conditions necessary to be fulfilled in order to make a map effective may be considered a separate sub-field of the pragmatics of map communication.

Implicit speech acts

One of the important elements of the linguistic pragmatics is the assumption that non-standard uses of any language should not be considered as errors but analyzed rather from the point of view of their "underlying", hidden functions. As it was shown by P. Grice (1975) violation of conventions of effective communication is quite often caused not by mistake but is an effect of intentional action.

Analyzing the functioning of a conversation, Grice formulated rules which he called "conversational maxims". In fact they can be thought of not only as applicable to a conversation but also as rules governing any form of human communication. The rules were summarized in the general "cooperative principle" which reads "make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged". The cooperative principle (or the *maxim of cooperation*) can be further divided into four more specific maxims:

- *maxim of quantity* (make your contribution as informative as is required, do not make your contribution more informative than is required)
- *maxim of quality* (try to make your contribution one that is true)
- *maxim of relation* (be relevant)
- *maxim of manner* (be perspicuous: avoid obscurity of expression, avoid ambiguity, be brief, be orderly)

As I have already mentioned, Grice suggested that the violation of his maxims may imply that the speaker is trying to convey an indirect message. Grice proposed the notion of "conversational implicatures" in order to describe the situation when an indirect message is conveyed by the way of breaking a maxim. Thus, the notion of the "implicit meaning" has been introduced into pragmatics. One could suggest that the notions of direct and implicit meaning could be related to semantic and pragmatic analysis respectively. This view would be in line with the definition of pragmatics as "study of contextual meaning" since, in order to understand the intention of a purposeful violation of a given maxim the knowledge of the communication context is necessary.

A typical example of a conversational implicature is giving more information than necessary on positive traits of an object while reducing the amount information about negative traits. This is a popular way of conveying implicit information which may appear to be too critical if presented in the direct form. As it seems, the same perspective of the conversational maxims and implicit meaning could be adopted in the study of map communication. Violations of rules of effective communications, for example on propaganda maps, are common means of indirect information transmission.

Relevance theory

A relatively recent attempt of generalization of Gricean maxims was proposed by Sperber and Wilson (1986) in the framework of the so called "relevance theory". According to Sperber and Wilson all Gricean maxims could be substituted by a single maxim of relevance - "be relevant". In other words, all violations of the rules of the effective communication can be interpreted as different forms of violations of the maxim of relevance. Moreover, Sperber and Wilson introduced the notion of the presumption of relevance. According to it, the interpreter assumes the relevance of any utterance directed towards him/her. The task of interpretation in such perspective is thus not to assess the relevance of the message but to understand the reasons of its hidden, implicit relevance. In other words, just as in the Gricean approach, any violation of the rules of relevance is seen not as a mistake but a way of conveying of implicit meanings. Both the perspective of Gricean maxims as well as that of the relevance theory seems to be easily adaptable to the map analysis. The requirements of quantity quality, appropriate manner and relevance of any message are absolutely valid in the realm of cartographic communication.

As I have suggested in my earlier paper (Zarycki, 1998), a distinction between single purpose maps and multi-purpose maps seems useful in distinguishing between different ways of operation of the assumption of relevance. In short, while on the single purpose maps the assumption of relevance concerns the individual objects, on general-purpose maps the assumption concerns entire class of objects. For an adequate interpretation of what seems to be a violation of the rule of relevance one must again concentrate on the notion of context. In fact, as some suggest, the key element of pragmatic interpretation of a message lies in reconstructing the context which it was intended for. Thus, the crucial pragmatic notion of context requires a more detailed elaboration.

The role of the context

As have been already suggested that it may be argued that in the pragmatic view there is no meaning without context. In other words, the difference between pragmatics and semantics could be defined in terms of the role of the context. Austin's and Searle's speech act theories and Gricean indirect speech act theory as well as the relevance theory could be seen as describing phenomena that involve relations between the message and the context of its interpretation. Thus, we could say that it is possible to "make things with words (or maps)" only in particular context (circumstances). The same is true about the indirect speech acts. They can be only correctly interpreted and effective in particular contexts.

Two fundamental approaches to the notion of context could be identified. The first one is the perspective of the actor (in our case the author of a map). The second one is the perspective of an interpreter (map reader in our case). For the purpose of this paper I would like to concentrate on the second perspective. Thus, context may be understood as information (knowledge) that is necessary for an interpreter for understanding (interpretation) of a given behavior (in particular a text or a map). This knowledge could be also understood as knowledge of the broadly understood history. Depending on the kind of analysis, it can be defined as "history" on different levels of social interaction, from individual and private to global and public. But always it is history which is a common point of reference for social actions. In other world context, defined as history, could be viewed as shared representation (cognition) of the past interaction which will serve as a point of reference for interpretation and coordination of future social actions.

The notion of context can be by viewed as dividing the reality into three spheres (see table 1): *focal event*² (for example a selected fragment of text or a map), *context* and the remaining world (or the irrelevant context). In the case of normal text the context can be further divided into co-text and non-textual context. In case of maps we could talk about co-map and non-cartographic context. Co-map would be defined as the remaining part of a given map a fragment of which was the focus of analysis. Non-cartographic general context could be divided into two fundamental categories of situational context and cultural context. Situational context in cartographic communication may be defined as relevant aspects of situation in which a given map is used (or was designed to be used). Cultural context may be defined as the general knowledge about the conventions and traditions functioning in a culture in which a given map was produced. Cultural context may be further divided into national cultural context and group culture context. This division will be of course dependent on the size of the social community the culture of which will be analyzed as the context of use of a given map. Thus, the general cultural context may be the knowledge of the Chinese culture (e.g. language) which may be necessary for understanding of a Chinese map of Beijing. In the same time the group culture context may be for example represented by conventions used by a particular Chinese school of map making (e.g. traditions of a given cartographic institution). We could note that each of these understanding of context could be seen as "historical". Any culture as such may be defined as part of history. The definition of a situation could be also seen as the history of a particular interaction (e.g. history of the conversation). Co-texts (or co-maps) can also be considered as the "history", since they have been already written or drawn.

Table 1. Classification of sub-types of context.

Text, map (or sequence of behavior)		Non-textual, non cartographic context (or not belonging to the analyzed sequence of behavior)		Irrelevant context (the remaining world)
FOCAL EVENT	CONTEXT and its levels			
	co-text or co-map LEVEL 1	Situational context LEVEL 2	Cultural context LEVEL 3	
			group culture context LEVEL 3a	national culture context LEVEL 3b

One could note that the division between the text and co-text as well as between map and co-map is often arbitrary. A fragment of a greater whole (sequence of behavior, text, map) is selected and becomes the focus of our attention. The remaining part becomes co-text or co-map.

² The distinction between the *focal event* and *context* was introduced in the classic work on context by Goodwin and Duranti (1992)

Having said this, I would like to remind the notion which I introduced earlier (Zarycki, 1998) namely that of dependence of a map on context. Thus, on one hand we have single purpose maps which are located on one side of the continuum, being considerably dependent on the context of their intended use (especially situational context). Outside that particular context they lose their pragmatic value. Thus, it may be said that in case of the single purpose maps, the first task of the reader is to establish the context for which a given map was intended for. In other words, the user has to check whether the map he uses is adapted to the actual context, and if not, to which context it has been intended for?

The analysis of the mechanism of the dependence of maps on different levels of context may be considered one of the central topics of the pragmatic analysis of maps. Typical question of such an analysis, and thus further topics of the study for cartographic pragmatics may include:

- To what context a given map was intended? (In this place the notion of the "set of possible contexts" could be useful, especially in case of multiple-purpose maps³)
- Is there a gap between the intended context and the actual context of map use?
- What are crucial map elements which make it dependent on a particular context?
- What elements of a map suggest the context for which it is intended for? (Here the notion of the "contextual cues" introduced by Gumperz (1982) may be particularly useful.)

Contested interdisciplinary borders: discourse analysis and text linguistics

Linguistic pragmatics which I am discussing in this paper is closely linked to two other important branches of linguistic theory, namely: discourse analysis and text linguistics. The relations between pragmatics, discourse analysis and text linguistics are complex and unequivocal. The three fields clearly overlap and often define the others as parts of themselves. However, the issue of clear differentiation between the disciplines will not be discussed in the present paper for obvious reasons. I will arbitrarily assume in this place that both discourse analysis and text linguistics could be considered to be parts of the broadly defined linguistic pragmatics or at least that they belong to the pragmatic perspective on meaningful behavior (as opposed to the semantic perspective). In any case, both disciplines have clearly integrated most of the classic pragmatic theories.

Text linguistics (see for example de Bougarde, Dresser, 1990) could be defined as the study of language above the traditional sentence level, which is the basis of the traditional semantic and syntactic approaches. Text linguistics studies texts as integrated wholes and sees sentences from the point of view of their functions in the texts they are immersed in. Thus, text linguistics could be seen as concentrated on the study of co-text as part of the context. In the same way we could envisage the study of maps in which cartographic signs would be analyzed in the larger context of the whole map in which they are located. I have suggested such an approach in my earlier paper (Zarycki, 1998), where I proposed to introduce the notion of "map objects" which would replace the map signs in the pragmatic analysis. Map objects, in contrast to map signs which have stable meanings, can be interpreted adequately only in context of the whole map. As I proposed, map objects were to be units of map analysis on "deep/concept" level, in other words on the level of pragmatic analysis.

Discourse analysis (see for example van Dijk, 1997) could be defined as the study of texts as social actions. Thus, the discourse analysis could be viewed as part of the sociology concerned with the linguistic form of social action. To some extent discourse analysis could be also seen as part of the political science, since it is interested in the political aspects of communication. Relations of power and ideology are typical issues involved in the discourse analysis of texts. Of course the same perspective could be easily adopted in cartographic analysis and in fact is already quite popular. Both discourse analysts as well as representatives of the cartographic school have already contributed important studies on

³ I have introduced the notion already in my earlier article (Zarycki, 1998)

maps as tools in social and political processes. Examples of studies in the framework of cartographic tradition include works of Woods (e.g. Wood and Fels, 1986 Wood, 1992) or Harley (e.g. 1989). While these and several other studies considerably deepened our insight into map making and map interpretation seen as parts of social and political processes, as it seems they were largely ignoring the achievements, especially formal tools of the fields of discourse studies and text linguistics. Thus I would like to mention briefly in this place some of the theories and notions used in both disciplines which seem to be useful for future analysis of map communication.

- *Theory of macrostructures*. As I have already suggested earlier (Zarycki, 1998) the theory of macrostructures in the form as it was for example developed by T. van Dijk (1980) could be employed to the analysis of maps in the deep/concept level. As it seems it allows to compare text and map structures and creates ground for further exchange of theoretical tools between the two fields.
- *Notions of coherence and cohesion* (e.g. de Bougarde, Dresser, 1990). Cohesion could be considered as a surface level notion since it relates to the syntactic structures of sentences. Coherence would be the deep/concept level term which would relate to functional relations between elements of text/map. Thus, coherence could be seen as typically pragmatic notion based on the relation to context. Lack of coherence could be defined from such point of view as lack of a common context (point of reference) for all element of the text or map or all of its users.
- *Notion of intertextuality*. (e.g. de Bougarde, Dresser, 1990) refers to the dependence of the text on other (earlier texts). Thus, text linguistic points out that correct interpretation of some of the text is not possible without previous knowledge of some other text. The same dependence is obvious in cartography, where understanding of maps is often impossible without previous knowledge of other maps.

Conclusion: Pragmatic perspective and the development of GIS

The paper presented only selected elements of pragmatic theory, which as it seems could be helpful in the development of the theoretical cartography (cartographic semiotics in particular) and its further integration with theoretical linguistics.

As it seems, some of the above presented theories and ideas may have also quite practical value especially in view of the development of geographic information systems (GIS). User interfaces (e.g. Lindholm, M. and Sarjakoski, T., 1994) which are becoming standard element of GIS may be viewed as modules incorporating the context awareness in to the map-making systems. User interface idea is in fact a pragmatic concept since its basic function is optimization of a map content and from the point of its effectiveness for map user. As has been already noticed (e.g. Kelnhofer, 2000), the advent of GIS and user interfaces forces us in particular to expand the traditional view on map communication as one way process. Direct influence of GIS on the process of map making makes the interactive nature of cartographic communication obvious. Widespread recognition of this fact makes pragmatic approach particularly need in the field of cartographic theory.

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