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Abstract: In his article, "Bakhtin, Genre Formation, and the Cognitive Turn: Chronotopes as Memory Schemata," Bart Keunen proposes a new reading of Bakhtin's notion of the chronotope. Bakhtin is widely taken to be a pioneer of genological thinking, but one of his key concepts -- the chronotope -- is still subject to highly divergent interpretations. Moreover, the epistemological implications of his genology have not yet been fully realized. In this article, a methodological grounding in schema theory is proposed. Bakhtin's concept can be used to study the way in which literary communication functions through what the psychologist Frederic Bartlett first called memory schemata. These schemata can be seen to operate on two levels: The level of textual motifs (the thematological dimension of texts) and that of fictional world models (the genological dimension). The development of Bakhtin's writings shows that genre distinctions are to be considered a fundamental instrument for literary communication and that this instrument is to be understood as working implicitly by means of mnemonic associations made by text producers and readers. The distinction between the thematological and genological aspects of the construction of fictional worlds can be clarified by linking them respectively to the concept of action schemata and to that of textual superstructures. Such an adaptation of the chronotope concept can be further linked to methodological tendencies within current interpretation theory, genology, and literary historiography.

Bart KEUNEN

Bakhtin, Genre Formation, and the Cognitive Turn: Chronotopes as Memory Schemata

Despite the recent boom of Bakhtin commentaries and Bakhtinian text interpretations we are still without a systematic theory of the concept of "chronotope." This is all the more deplorable since the concept is as essential to Bakhtin's work as are the notions of polyphony, carnival, and heteroglossia. The reason for this neglect probably resides in the fact that the concept cannot easily be reformulated in terms of the notions of semiotic and poststructuralist thinking -- the frame of reference preferred by American Bakhtin scholars (Morson 1071-72). In contrast with the frequently deployed concepts of heteroglossia and of speech genres, Bakhtin's thesis on "Forms of Time and of the Chronotope in the Novel" is developed in a context that foregrounds the cognitive functions of literature. Chronotopes are not only semantic elements of texts; they are also (and in the first place) cognitive strategies applied by specific readers and writers. At several points in his argumentation, it becomes clear that Bakhtin intends to conceive literature as a dialogue between (mutually interacting) texts, on the one hand, and the prior knowledge of readers and writers, on the other. This interaction between texts and mental procedures can be conceptualized in terms of invariant structures within literary communication -- chronotopes -- which are cognitive invariants used by writers and readers in order to structure historically and textually divergent semantic elements.

Some of Bakhtin's disciples might be surprised by a cognitive-psychological approach to the chronotope concept. Although it would seem that Bakhtin's theory of the novel is based on an analysis of discourse rather than on one of the represented world, the epistemology behind his thinking also offers a more realist perspective of literary communication (Shukman 223; Vlasov 45). Moreover, the historical evolution in the writings from the Bakhtin circle provides evidence for the reading I am proposing. Ten years before the chronotope essay was written, the members of that circle already tried to counter Russian Formalism by taking a pragmatist turn. Literature, according to the Bakhtinians, could only be understood by stressing the interaction between literary utterances, on the one hand, and the social and mental activities of writers and readers, on the other. Accordingly they emphasized the importance of genre patterns in literary communication (Medvedev 135). The arguments in Bakhtin's 1937-38 chronotope essay can be interpreted as an extension and refinement of those theses. For this reason I will propose to link Bakhtin with cognitive-theoretical frames of reference. A body of theories that would especially seem to elucidate Bakhtin's chronotopes is provided by the cognitivist theories commonly known as schema theories. The concept of "schema" as defined by information processing and discourse processing theories is able to clarify the function of chronotopicity in literary communication. It helps to understand why the concept of chronotope is a relevant one in the first place.

A second reason why so little attention has been paid to the chronotope concept can be found in the minimalistic and rather fuzzy way in which it is defined in Bakhtin's essay. Bakhtin introduces the concept by venturing that "in the literary artistic chronotope, spatial and temporal indicators are fused into one carefully thought-out, concrete whole. Time, as it were, thickens, takes on flesh, becomes artistically visible; likewise, space becomes charged and responsive to the movements of time, plot and history" (84). In the argumentation that follows this "definition" he only illustrates the interwovenness of time and space. No matter how suggestive and instructive those illustrations may be, the precise narratological form of spatial and temporal indicators is not clearly delineated. To the contrary, Bakhtin tends to apply his concept to heterogeneous textual strategies (see Mitterand 180-89; Vlasov 42-43; Holquist 109-10). In most cases he refers to a generic convention, but upon occasion he will also identify chronotopes at the level of semantic units which coincide with motifs. Thus, he mentions the motif of "the meeting on the road" where "time, as it were, fuses together with space" (243). To this motivic connotation of the concept we could add cultural-historical connotations, since for Bakhtin some of the genre conventions are an expression of the world view of particular social groups. This semantic proliferation of the term has led most commentators of Bakhtin to use the term very loosely by identifying it with highly

different literary "images" and through these with "visual associations" (see Stam; Vice). To counter the indeterminacy and the inflation of the concept, I would propose to take the concept back to its pragmatic and cognitive-psychological basis. It may be argued, in particular, that in all of its connotations the term "chronotope" refers to the stereotypical semantic information that is used during the encoding or decoding of literary texts. Crucial to such prior information is the fact that it has an invariant structure. Important are not the visual associations of a chronotope, but the precise way in which a temporal logic is combined with a spatial one. It is at this particular point that schema theory can be of use in making the chronotope concept more workable for literary studies. Schema theory provides two related definitions of "schema" that seem to correspond with two basic functions of Bakhtin's chronotopes: First, the definition of superstructural schemata can be associated with the genological function of chronotopes and second, the definition of "action schemata" can be linked to the chronotopes which Bakhtin calls "motifs." This corresponds with Freundlieb's distinction between schemata "which represent discourse structures and those which represent typical events, actions, processes, etc..." (29) and with the difference between "language-knowledge" and "world-knowledge" approaches (Habel 122; Habel is associating the former with Rumelhart, Mandler, Johnson, and Van Dijk, and the latter with Minsky, Abelson, Schank, Wilensky, and Winograd).

Comparing Chronotopic Structures and Memory Schemata

There is no evidence to show that Bakhtin, at the time of writing his essay on chronotopes in literary history in 1937-38, had read the seminal study on memory schemata by the psychologist Frederic Bartlett (1932). Nevertheless, there is a remarkable parallel between the two concepts, for Bartlett defines a schema as a knowledge structure that belongs to the prior knowledge of an actor. Human consciousness, he says, processes information by means of "template-matching": new "incoming" information is compared and accommodated to a template that is permanently stored in memory. These schematic templates are seen as a "combined standard, against which all subsequent changes of posture are measured before they enter consciousness" (Bartlett 199). Bartlett adapted his insights to the reproduction of texts and came to the conclusion that meanings cannot be considered as "absolute" intrinsic properties of a text but are in fact constructions emanating from the interaction between a text and a reader's prior knowledge. The latter is responsible for a stereotyped interpretation or attitude towards the semantic properties of the text. In later research the activation of narrative schemata was elaborated by Walter Kintsch, who defined it as the mental transformation of incoming information in a schematic template consisting of semantic propositions: "when subjects read a text, they store in memory a propositional representation of that text which is not necessarily a precise copy of the text base from which the text had been generated in the first place" (Kintsch 153).

Looking at Bakhtin's definitions, we immediately recognize a strong congruence. From his early writings onwards, he stated that literary images are modeled by the structures of prior knowledge in the minds of readers and writers. In *The Formal Method* Bakhtin and Medvedev stressed that the intrinsic meaning of a text (the theme) is determined by the genological choice of the author. Because a generic pattern is seen as the expression of a mental structure (a world view), genre conventions also wield power over thematic choices. In his essay from 1938, owing to the influence of both the neuro-biologist A.A Ukhtomsky's and Einstein's theories on time-space relations (see Holquist 115-18, 153-62), Bakhtin labeled such mental structures "chronotopes." Literary communication -- or at least the communication found in "realistic" novels -- is taken to be determined by historical stereotypes like the "adventure chronotope," the "idyllic chronotope," the "folkloric chronotope," or the "chronotope of the *Bildungsroman*." The specific features of these structures are evidently those of time and space. A chronotopic schema can be determined by analyzing the ways in which the plots and time markers of texts are interwoven with a series of settings and spatial markers. Time and space, however, are not only textual features; they also function as a mental unit that constitutes the backbone of the writing and reading processes. The interwovenness of time and space must be conceived as a supratextual device that gives unity to the disparate spatial and temporal elements of a text. On this point, Bakhtin's conception differs from Bartlett's. The latter concentrates on the component of action (i.e., temporal features) in

stories, while the former tries to conceptualize the structures of the intrinsic world model of a literary text. Nevertheless, they both look for concepts that are able to explain how prior knowledge is structured and how those structures influence the organization of new -- "incoming" or "outgoing" -- information. Bartlett understands the mental structures which the literary subject first acquires (by learning processes), then stores (in the so-called "long term memory") and subsequently adapts to new situations. Bakhtin concentrates on the "memory schemata" proper to literary agents and shows how they influence the production of stereotyped constructions in the history of the novel ("the adventure novel of ordeal" or the *roman d'apprentissage*," "the adventure novel of everyday life," the "idyllic provincial novel," "the *Bildungsroman*," etc.). He summarizes his argument in the concluding remarks of his essay: "The chronotopes ... provide the basis for distinguishing generic types; they lie at the heart of specific varieties of the novel genre, formed and developed over the course of many centuries" (250; see also 84-85). Gary Saul Morson comments this rather general argument by pointing to the relationship between memory and genre: "As 'a congealed old world view,' a genre remembers past experience. That is, genres contain a vast storehouse of experiential wisdom of which we are often unaware, but which can be partially reconstructed under the pressure of new experiences" (1087). Although Morson is more concerned with the potential dialogue between text and genre memory and with the phenomenological problem of "literary creativity," we could reformulate Bakhtin's and Morson's argument as an epistemological statement. Bakhtin suggests that it is possible to "prove" the relevance of prior knowledge by referring to the field of genological research. Genologists indeed affirm that "literary" knowledge is organized by means of typical features of certain prototypes in literary history (see Bennett, *Outside Literature*; Culler; Fowler; Prince; Schmidt, "Towards"). By specifying generic prototypes as memory schemata, Bakhtin implies that literary communication functions by means of a template matching activity, undertaken by readers and writers. Or, to put it in the terms coined by Morson and Emerson, Bakhtin suggests that the agents in literary communication make use of an implicit "genre memory" (Morson and Emerson 295-97).

   By accentuating the role of stereotyped devices and memory templates, Bakhtin and Bartlett opt for a procedural conception of knowledge. The term was coined by the cognitivist scientist Marc De Mey in the early years of schema theory: "Procedures are actions of the knower, not qualities of the known object. So, any system is equipped to know its 'micro-world' in terms of the feasibility and the effects of the basic set of actions it can perform. ... In the procedural approach the knowledge acquisition and information processing is built in an action scheme. Knowledge is subordinate to action!" (De Mey 15; see also De Mey, *The Cognitive Paradigm* 215-18). This conception forms the basis of the parallelism I suggested above. Procedural knowledge is defined as a type of cognition relative to the whole of the actions that are necessary to deal with a given problem or situation. From this perspective, information data are not considered neutral assertions (concerning a so-called external world), but components of procedures: They must be seen as functions. Bartlett's memory schemata and Bakhtin's chronotopes are not neutral information units but pragmatic structures adapted to concrete situations. On this point, however, Bakhtin was not likely influenced by Bartlett because the procedural approach to knowledge in literary criticism is clearly indebted to Russian Formalist criticism. Formalist criticism is built on the idea that "functions" (both semantic and syntactic) make up the core of literary studies. Formalists hold that the separation of formal mechanisms and content data is not methodologically fruitful; both must be seen as coincidental in literary knowledge. Bakhtin and his circle affirm this point of view, but we can also see them move in a more cognitivist-pragmatist direction when they attack the Formalists' restricted view on the role of literary devices in cognition -- such as the defamiliarization function of poetic language. The idea of "making strange" proposed by Russian Formalism too readily accepts that "the process of experiencing, seeing, and comprehending is carried along in a stream of inner speech" (Medvedev 133) and that literary "cognition" is achieved through deviant forms of language. The object of study among members of the Bakhtin circle is not so much the way in which words model our understanding of the world as it is the utterances which express our practical attitude towards concrete situations -- "integral, materially expressed inner acts of man's orientation in reality" (134). In other words, although procedural knowledge is

clearly the basic premise of their theory of literary cognition, the units of this knowledge are no longer linguistic units but pragmatic elements, which they call "genres." The kind of procedures they are thinking of are large units that appear to fit Barlett's definition of schema: "every significant genre is a complex system of means and methods for the conscious control and finalization of reality. ... Human consciousness possesses a series of inner genres for seeing and conceptualizing reality. ... The artist must learn to see reality with the eyes of the genre" (133-34). This insight enables the Bakhtin circle to open up the study of the literary system toward other cultural systems (see Bennett, *Formalism and Marxism*). Consequently, the Historical Poetics they offer entail a rich historiographic methodology that allows one to skip from a history of *Epochenstile* (Radnóti) to a history of "classes of texts" (Prince) which are dominated by invariant cognitive structures and relatively fixed pragmatic strategies.

   In the essay on chronotopes, Bakhtin extends the genre theory found in the earliest writings of the Bakhtin circle by defining generic devices as chronotopic structures: Genres are seen as founded on a complex of temporal and spatial markers which dominate a specific class of texts. Medvedev and Bakhtin still concentrated in 1928 on traditional genre categories and argued, for instance, that "the lyric ... has access to aspects of reality and life which are either inaccessible or accessible in a lesser degree to the novella or drama" (Medvedev 133). In "Forms of Time and of the Chronotope in the Novel" Bakhtin refined this conception by pointing to genre units which exist within one of the traditional genres -- the class of texts subsumed under the designation of "novel." Thus, the genre of the provincial novel is defined as having a schematic base in images that consist of a world limited to "a well-defined place and a well-defined narrow circle of relatives, that is, to the family circle" (232) and of a temporal development that is structured by the life and death of nature (seasons) and of people (generations). These and other examples in his essay allow us to conceive of generic conventions as schematic properties embodied in (the "long term memory" of) literary agents. Chronotopes, in this sense, are not purely formal phenomena but mental constructions that take shape in the pragmatic interaction with texts. Although time and space are embedded in texts, they do not unite until they enter the minds of concrete writers and readers. This shift in perspective allows Bakhtin to redefine literary communication in a revolutionary way. He no longer puts the emphasis of critical analysis on the narrative action, as has so often been the case in a long tradition of literary criticism, but on the chronotopic constructions that writers and readers associate with the text.

   It is this specific contribution to what we could call the "epistemology of literature" that will be further explored in this paper. I will compare Bakhtin's hypotheses to two complementary research traditions that have been inspired by Bartlett's theories: The schema theory of cognitive psychology and text grammar, on the one hand, and of artificial intelligence theory, on the other. The one accentuates schemata concerning the structuring of discourses (mostly story discourses); the other concentrates on schemata concerning events in a given "possible world." Bakhtin's vision of chronotopes can be linked to both tendencies because his concept is deeply marked by this ambiguity.

Genological Chronotopes as Superstructural Memory Schemata

In their early work, the members of the Bakhtin circle deploy a genre concept already resembling the notion of memory schemata. In his (later) work Bakhtin refines the notion of genre by the newly coined concept of "chronotope" and by stating that "it is precisely the chronotope that defines genre and generic distinctions" (85). Chronotopic structures do not coincide with novelistic stories in general but point to types of stories that are almost invariantly reproduced throughout literary history. The most instructive example Bakhtin provides in his chronotope essay is the tradition of the adventure novel (for his other texts on spatial forms, see Vlasov). This example simultaneously helps to make clear how Bakhtin uses a cognitive viewpoint to conceive of literary genres and how he contrasts the adventure novel with "realist" or "concrete" literature. The plot of the adventure novel was developed in the tradition of the so-called "Greek romance" such as Heliodoros' *Ethiopian Tales*, was reproduced in its basic narrative structures until the eighteenth century (e.g., in the chivalric romance and the baroque novel of the seventeenth century) and -- it could be added -- is still being followed in mass produced adventure novels (e.g., Fleming) and

their cinematic adaptations. In his essay Bakhtin explains this whole evolutionary series as the result of a "template" he calls the "chronotope of the adventure novel of ordeal." He stresses that this kind of plot has "a typical composite schema" (87) consisting of a stereotypical sequence of spatial settings and invariant series of time segments. In the adventure novel time is organized by means of a plot that mechanically links up an impressive series of (adventurous) events as well as by means of time markers ("suddenly...," "at that particular time...") announcing those events (91-92). This time-structure is embedded in the time of the love relationship between the hero and the heroine and is projected onto an invariant sequence of events: The meeting of the lovers; love at first sight; the separation from the beloved; the confrontation with sudden handicaps; the rediscovery of the beloved; and finally the marriage ceremony. Space is organized equally abstractly: Its structure is a concatenation of remote localities and is also introduced by markers that accentuate an aleatory logic ("by chance her savior also arrived at the court..."). This chronotopic schema shows that the events in the adventure novel are temporally and spatially interchangeable: "The adventure chronotope is ... characterized by a technical, abstract connection between space and time, by the reversibility of moments in a temporal sequence, and by their interchangeability in space. In this chronotope all initiative and power belongs to chance" (100).

The importance of such a chronotopical analysis lies in its contribution to (a sociological kind of) historical poetics that allows for cognitive-theoretical extrapolations. Historical poetics in Bakhtin's work, however, does not mean the history of poetical programs but indicates the link between historically determined world views and poetic constructions of textual worlds. The schemata that determine literary communication must be seen as fundamentally historical constructs; they are developed at a certain moment and continue to inform -- sometimes in an invariantly reproduced, sometimes in modified form -- the memory of posterior writers and readers. I will not deal with the history of the novel at length here but the core of Bakhtin's argument cannot be neglected, since it tells us something about the functioning of chronotopes. Bakhtin suggests in "Forms of Time and of the Chronotope" that the history of the novel can be analyzed by differentiating between several ways of organizing prior knowledge -- i.e., chronotopic knowledge. He gives an impressive survey of the basic schemata in the history of the novel, even if this survey also appears a little fragmentary. Still, he uses a number of dichotomies that point to differences in the schematic structure of the listed chronotopes (see Vlasov 43). The most important of those dichotomies -- at least for the problems I am dealing with -- is the distinction between static and dynamic. In his manuscript on the *Bildungsroman* (written around the same time as the chronotope essay and focusing on almost the same narrative material) Bakhtin elaborates his Historical Poetics by repeating that chronotopic knowledge takes on two opposed forms. In addition, he emphasizes the fact that (the temporal characteristics of) both types of knowledge can be used to shed new light on the different shapes of novelistic protagonists. In the first group of novelistic schemata -- that of the traditional novel (the travel narrative in the vein of Apuleius and Petronius and the adventure novel and its variations: The chivalric romance, the Baroque adventure novel, the Gothic novel) -- the hero neither has to nor is able to develop because he is caught in a static world model, where space and time adhere to the laws of suspense. In the Renaissance fiction of Rabelais and in the eighteenth-century *Bildungsroman*, which is fundamental to all subsequent forms of the realist novel, Bakhtin sees a clear connection between the novel's new world model and the nature of the plot: The hero becomes a dynamic character because he moves in a social world charged with historical dynamics. From the bipolarity of static and dynamic world models we may conclude that Bakhtin's historical survey is not only a classification of texts, but also a theoretical explanation of the cognitive-psychological functions of the novel. By pointing to chronotopic knowledge as the main "trigger" activating literary communication, he links up literary historiography, genre theory, and pragmatist narratology. This rich theoretical construct enables us to describe the history of literature as a process that functions by means of spatially and temporally organized memory schemata. It allows us to conceive of genres as parts of a historical "genre memory" and suggests that all prior knowledge needed for encoding or decoding literary texts is organized by means of stereotypical cognitive structures.

In Bakhtin's essay the theory relating chronotopes to cognitive functions is left implicit. Consequently, it is not easy to determine the precise function of chronotopes in literary communication. However, the pragmatic and cognitive-psychological implications of Bakhtin's text do permit certain extrapolations. Chronotopes can be seen as coincidental with generic classes because they are grounded in stereotyped templates in the minds of readers and writers. Since this thesis is implicitly schema-theoretical we can link the concept of chronotopes to the more workable premises of contemporary schema theory. In order to conceive of the generic chronotopes of Bakhtin's essay as pragmatic and social-psychological elements we have to reformulate them. First, Bakhtin's theory of chronotopic types comes close to the schematic structures that are central in Radical Constructivism, especially Siegfried J. Schmidt's conception of "socially produced world-models" ("The Fiction" 259; "Media Societies"; Spivey, *The Constructivist Metaphor*; see also Riegler, < http://www.univie.ac.at/constructivism/key.html >). Even the bipolarity is similar: "The system of literature seems to be the only place where the construction of world-models as such becomes thematic, and where this thematizing can bear upon all positions from ortho-models to remote fantasy worlds" (265). The schematic structures they most resemble, however, are the linguistic structures which Teun Van Dijk calls "generic superstructures." Van Dijk defines this concept as a memory schema that classifies knowledge in the form of types of discourse (like "the scientific article," "the story," or "the newspaper article"). The application of such superstructures -- according to Van Dijk and Kintsch in *Strategies of Text Comprehension* -- is a principle of the reading process as well as a strategy in the production of texts. It models the information of a text by influencing semantic (macro)structures: "superstructures are schemata for conventional text forms; knowledge of these forms facilitates generating, remembering, and reproducing [thematic or macrosemantic] macrostructures" (Van Dijk and Kintsch 54). This thesis opens perspectives for better understanding the chronotopes of the novel because the temporal and spatial categories of different types of novels can be compared with the various categories of superstructures. For Van Dijk the superstructure of a story schema is a "hierarchically organized sequence of categories" that are linked by means of combination rules (Van Dijk, "Story Comprehension" 12). Thus, the category of "plot" is ruled by the combination of episodes, and the category of episode is a combination of the categories of "setting" and "event" (Van Dijk, "Story Comprehension"; see also Van Dijk, *Tekstwetenschap*). These networks of categories, in Van Dijk's view, form a pragmatic unity. During the reading process, for instance, the recipient makes use of such superstructures to organize the incoming information and even to anticipate the actions and descriptions that will follow.

Because Bakhtin defines chronotopes as a combination of setting and plot, they can be viewed as a kind of textual "superstructure." A chronotope may be reformulated as a network of (spatial and temporal) categories that is governed by specific combination rules. Similar to Van Dijk's pragmatic units, a chronotopic structure determines the way in which a text will be constructed (by the writer) or reconstructed (by the reader). If a text for instance pictures a peasant community, a rural setting and actions referring to different generations, the reader is forced to think in terms of the idyllic-provincial chronotope. He will call the text "a family novel" and will tend to anticipate semantic topics typical of that kind of novel (such as father-son conflicts, the rise of industrialism, etc.). In other words, chronotopes are also pragmatic structures that superimpose themselves on the semantic macrostructures of the text. At first sight such a comparison between superstructures and chronotopes appears to be sound. The problem however resides in the fact that Van Dijk identifies superstructures with very large classes of texts, with macro-generic categories like story, article, advertising message, letter, etc. Chronotopes, by contrast, are linked with very particular classes of texts. Moreover, they only refer to two parameters (plot and setting, time and space) whereas superstructures are networks of several hierarchically ordered categories. Bakhtin's chronotopic structures are thus at once more specific and more general than Van Dijk's generic superstructures. Such differences, however, are not really problematic since the theory of chronotopes does not pretend to develop a real story grammar: it is only interested in the interaction between text processing and literary history or genological history. Bakhtin's chronotopes have to be more specific because they need to describe

the superstructural logic of particular classes of stories, or "kinds of stories." If we want to get a more solid grasp on the influence of genological history on reading processes, the extension of a schema like Van Dijk's story-superstructure would be too large. For if readers find themselves reading a story they do not as a rule compare it with the general form (the story structure); they compare it with a class of stories displaying a similar world model. We do not read *The Forsyte Saga* only as "a story" but also and foremost as a typical variation of the family novel. The world Galsworthy displays is so specific to this class of texts that we will be surprised when elements appear that fail to fit into our knowledge of the idyllic world. The fact that we use very specific categories is the reason for the generalizations found in Bakhtin. That he concentrates only on two general categories is legitimate given that those categories are fundamental semantic elements: they define world models. It is precisely this interaction between a world model and a concrete text that constitutes the core of the chronotope concept.

Motivic Chronotopes as Action Schemata

Bakhtin's view on generic structures in literary history clearly constitutes the central focus of his essay (see Todorov, *Les Genres* 47; Holquist 145; Clark and Holquist). In addition, however, he also mentions historical phenomena that are not generic structures and he yet calls them chronotopes. He refers to textual elements where a setting (space) intersects with actions (i.e., a temporal sequence) -- elements that are "cinematic" combinations of the three spatial dimensions with the fourth, the temporal, dimension. In his essay such images are viewed as "individual motifs that are included as constituent elements in novelistic plots" (Bakhtin, "Forms" 97). Bakhtin explicitly states that "these motifs are chronotopic" (97). Although such chronotopes differ profoundly from genological chronotopes, Bakhtin does not explain how the two chronotopic structures have to be distinguished. Moreover, he draws on a very heterogeneous body of "images." Sometimes he points to spatial situations like "the gothic castle," the conversation in the salon, the meeting on the road. In other cases he refers to narrative actions ("the spying servant," "the usurping parvenu," "the ironizing rogue," etc.) or to elementary events like "meeting/parting (separation), loss/acquisition, search/discovery, and recognition/non-recognition" (97). These can be compared with the "motifs" of early Russian narratology (Tomashevsky, Propp). In texts that are modeled according to the adventure chronotope, for instance, Bakhtin detects a motivic element which he calls the "chronotope of the meeting": "Quite frequently in literature the chronotope of meeting fulfills architectonic functions: it can serve as an opening, sometimes as a culmination, even as a denouement (a finale) of the plot. A meeting is one of the most ancient devices for structuring a plot in the epic (and even more so in the novel)" (98). On still other occasions he even extends his concept to a language-philosophical level by saying that "any and every literary image is chronotopic" (251). For Bakhtin language is a "treasure-house of images" that "is fundamentally chronotopic" (251). In all these cases, the common ground is the semantic function of the chronotope. Besides serving a pragmatic, superstructural function, the chronotope also serves a function at the level of the semantic structure of the literary text.

   Although his definitions are not rigid, a case could be made for saying that Bakhtin conceives of chronotopes as fictional world models and that this happens at two levels: at the level of genology (as in the phenomena mentioned above) and at the level of the semantic structure of a text. This ambiguity is interesting insofar as it corresponds with the ambiguity in schema theory already mentioned - an ambiguity between language-knowledge and world-knowledge approaches. My hypothesis concerning motivic chronotopes is that Bakhtin sees them as schematic structures belonging to the field of world knowledge; they are in fact a kind of "action schemata." Moreover, Bakhtin links both types of cognitive structures in a way that recalls schema-theoretical approaches to thinking. Motivic chronotopes (action schemata) are seen as closely related to the larger schematic structures of genology by the fact that they enable the reader to concretize and even to reproduce the genological language schemata he associates with a specific motif.

   To be able to elaborate upon the idea that literary texts contain motivic chronotopes, we need to prove that texts activate memory schemata by referring to everyday situations. In artificial intelligence theory and cognitive psychology such everyday schemata are analyzed as action schemata. To understand a text which mentions an action like "going to a birthday party" or

"going out to do some shopping in a supermarket" we have to use a memory schema that contains all necessary information (e.g., the fact that food is a component of a birthday party). Action schemata thus point to specific knowledge structures we use in everyday situations (Thorndyke and Yekovich 24). In the early 1980s several theories were developed to understand literary motifs as action schemata. The analysis of Poe's stories by Dieter Freundlieb, for instance, emphasizes the idea that readers "try out knowledge frames in order to explore whether seemingly unimportant details at the level of local interpretation can be safely ignored or whether they contribute (or can be made to contribute) to the formation of macropropositions" (Freundlieb 35). Most scholars, however, concentrated on empirical research concerning readers (see Spivey, "Construing Constructivism"; Flower). Recently, scholars in the United Kingdom have developed a coherent theory on action schemata that combines text analysis and reception theory. Within their theoretical framework, action schemata are defined as follows: "The main function of schemata is to enable understanders to form expectations about what is likely to happen next, either in the real world, or in the world of a text. This does not only contribute to the disambiguation of references and of figurative expressions, but also to the readers' ability to infer what they do not witness directly, or what is not explicitly mentioned in a text" (Semino 172). Elena Semino is very convincing in her analysis of literary texts by developing a reading method that strives to link textual triggers to memory schemata. This method corresponds with Bakhtin's attitude towards motivic chronotopes. When Bakhtin writes that "any motif may have a special chronotope of its own" (Bakhtin, "Forms" 252), we can replace the concept of motifs by 'textual triggers' and chronotopes by "memory schemata." Thus, the motif of meeting with the beloved (a feature of the adventure novel) can be seen as a trigger activating an action schema (the reader's prior knowledge of love affairs).

A further advantage of schema theory is that it helps us to understand the different forms of motivic chronotopes in Bakhtin's text. Especially the last theory of one of its pioneers, Roger C. Schank, is able to counter ambiguities in the chronotope essay. Schank distinguishes between two kinds of action schemata that correspond with two phenomena described by Bakhtin. First, he refers to the concept of "scene": "a memory structure that contains information about a setting and about a series of actions (a script) that takes place in that setting for the achievement of a certain goal" (Schank 95-97). This definition can easily be adapted to the chronotopes mentioned by Bakhtin in his analysis of the adventure novel. When a text refers to the meeting of lovers or to upcoming dangers, it refers to scenes that belong to the prior knowledge of writers and readers. The image of the haunted maid in a Gothic castle is another mnemonic scene; it corresponds with stereotyped information about a setting and a series of actions and with a stereotyped goal (the reunion of the lovers). Scenes, in Schank's conception, are nevertheless only the elementary data of human memory. The second type of action schema deals with more complex situations. Human subjects also use memory schemata combining different scenes in a "Memory Organization Packet" (MOP). A MOP -- which is comparable to what other schema theorists have called "a situation model" (Van Dijk and Kintsch 310) -- arranges the sequence of scenes in such a way that a complex situation can be understood. In the case of literary images Schank's distinction is of obvious importance since situations in literature consist of several images that together constitute a given possible world. The chronotopes of the road, the castle, the salon, the provincial town or the threshold -- the examples Bakhtin uses in the last draft of his essay (1973) -- refer to such complex situations. Even when a road is mentioned or a castle is described to activate a "scene," they will always appear in a context that requires several schemata. So the space of parlors and salons in the novels of Stendhal and Balzac is "the place where the major spatial and temporal sequences of the novel intersect" (246), but they are also much more than that. To understand the meaning of the salon in a novel by Balzac the reader has to know something about the social organization of Parisian society in the first half of the nineteenth century (the regular meeting of prominent people and artists, the exchange of ideas, etc.,). The same applies to "historical images" in realist novels. Bakhtin refers to "Balzac's marvelous depiction of houses ... and his description of streets, cities, rural landscapes" show that those images are "materialized history" (247; see also Bakhtin, "The Bildungsroman" 25). The chronotope of the road -- "a chronotope

that is typical of the picaresque novel" (Bakhtin, "Forms" 165) -- can also be seen as a MOP, since "spatial and temporal paths of the most varied people -- representatives of all social classes, estates, religions, nationalities, ages -- intersect at one spatial and temporal point" (243) To understand the meaning of the road in a novel, we need information on the people who use it, the geographical context and the hero who finds himself confronted with all this.

Despite the obvious parallelism with action schemata (scenes and MOPs) Bakhtin's analysis of chronotopes is not identical with the reading method proposed by "literary" schema theoreticians. In literary criticism, schema theory historically developed in the direction of a defamiliarization aesthetics -- a turn that was explicitly inspired by the criticism of Russian Formalists. Guy Cook and Elena Semino, for instance, link their views on literariness with the work of the *Opojaz* group and especially that of Shklovsky (Cook 206; Semino 154; see also Miall and Kuiken, <http://www.ualberta.ca/~dmiall/reading/BEYOND_t.htm>. Symptomatic in this respect is Cook's definition of literariness: "literariness as a dynamic interaction between linguistic and text-structural form on the one hand, and schematic representation of the world on the other, whose overall result is to bring about a change in the schemata of the reader" (Cook 182). The basic idea with Cook and Semino is that texts challenge the reader's schemata, that they "involve the destruction of old schemata, the creation of new ones, or the establishment of new connections between existing schemata" (Semino 153). Because of the predominant place defamiliarization takes up both in the *Opojaz* group and in contemporary schema theory, too little attention has been paid to the importance of schematic invariants in literary communication. When Bakhtin stated that "any and every literary image is chronotopic" (Bakhtin, "Forms" 251), he was not echoing the defamiliarization thesis of the Russian Formalists; rather, he was affirming that literary communication is grounded in a set of stereotypical representations that can be recalled, imitated and parodied. He was in fact interested in those literary phenomena that Cook and Semino call schema reinforcing, schema preserving or schema adding (Semino 153). Action schemata for Bakhtin are not a means of saying how literature differs from everyday cognition, but a concept showing how images are part of an invariant construction that is used in social interaction.

A second problem in literary schema theory is the fact that most researchers (Semino, Cook, Bange, Freundlieb as well as most reception researchers) concentrate on action schemata only and neglect the concept of superstructure. This concept, however, is indispensable if one wishes to analyze invariant structures in literary communication as fully as possible. In order to do so, we need to learn from Bakhtin that motivic chronotopes (action schemata) are linked to generic structures. The latter are in Bakhtin's perspective the bearer of a world model. If genological analysis is neglected, schema theory becomes a kind of "history of ideas" approach that links motifs with information from the "cultural context." Freundlieb for instance uses the knowledge frames of phrenology and mesmerism to shed a new light on Poe's texts, but this operation is far too restricted. Although he speaks of the "application of cultural knowledge," his method cannot deal with any of the culture-theoretical implications of genological schemata. Bakhtin's method, by contrast, opens up this possibility because with him the action schemata are linked to superstructural schemata. Although the 1973 additions to his chronotope essay treat motivic chronotopes as isolated units, I would argue that the additions are intended to link motivic to genological chronotopes. Even in the last draft of his text Bakhtin stresses that motivic chronotopes should be understood as "organizing centers" that function as vehicles "for the fundamental narrative events of the novel" (250) This means that motivic chronotopes cannot be isolated from the development of the plot nor consequently from the genological chronotope linked with its time structure. The intimate relation between the two levels of chronotopicity, moreover, is affirmed throughout the main part of the essay. When dealing with the adventure novel, for example, Bakhtin states explicitly that the chronotopic motif of the meeting strongly relies on 'utterances' that are structured by generic devices. In the vocabulary of schema theory we could say that action schemata cannot be separated from superstructural schemata nor from the world models the latter imply. We may conclude from this that Bakhtin's vision corresponds most closely with the position taken up by Van Dijk, who says that action schemata are instantiations of more

general formal schemata with genological and pragmatic significance (Van Dijk and Kintsch 57, 308).

Suggestions for Further Narratological and Historiographical Research

The link I established between schema theory and the chronotope concept has a theoretical meaning first and foremost. I have tried to demonstrate that Bakhtin's concept may be used to study the way in which literary communication functions by means of memory schemata and that those schemata can be seen to operate on two levels: The level of textual motifs (the thematological dimension of texts) and that of fictional world models (the genological dimension). It seems to me urgent for literary theory to define the nature of the concept in all of its dimensions by distinguishing between the thematological and genological aspects of the construction of fictional worlds. The main problem is that we need a theoretical frame for studying the connections between both dimensions. Bakhtin's suggestions on the dialogue to be found among chronotopes within a text and between textual and extratextual chronotopes (Bakhtin, "Forms" 252; see also Vlasov 45) are certainly inspiring, but they also need to be further elaborated. In addition, these connections have to be enriched by empirical, narratological and historical evidence. A first task therefore would be to link the empirical evidence recently collected by scholars in the field of cognitive theory with the hypotheses I have formulated in this contribution (see Situation Model Research Group, <http://www.nd.edu/~memory/index.html>; see also Steen, Cognitive Cultural Studies, <http://cogweb.ucla.edu/>). The exact impact of spatio-temporal models in the reading and production of texts has to be determined by way of interdisciplinary research in order to shed light on the connection between motivic and genological world constructions. A second, non-empirical, yet no less necessary task -- and one I will briefly outline by way of a conclusion -- concerns the fields of narratology and the methodology of interpretations, on the one hand, and literary historiography, on the other.

   A coherent theory on chronotopes must not only distinguish between the two dimensions I have mentioned, but also theorize the links between both. In doing so, some of the stalemates of (explicitly or implicitly) phenomenological theories of literature (e.g., Bernard-Donals; Morson) must be avoided. At first sight it might seem that there is a resemblance between phenomenological theories and Bakhtin's conception of the genological determination of textual motifs, yet it would appear that Bakhtin's concept of chronotope is at odds with a phenomenological vision on cognition. Cognition in phenomenology stresses the autonomy of the interpreting and producing agents of literary communication. In Iser's *Der Akt des Lesens* the determination of texts by forms of prior knowledge is indeed a part of reception analysis -- Iser states that "der Text eine ihm vorausliegende Bekanntheit einkapselt" (115) -- but his elaboration of the concept of prior knowledge shows that he sees this interaction as a selection by an autonomously operating production agent from "vorangegangene Texte ... Soziale und historische Normen [und] den sozio-kulturellen Kontext im weitesten Sinne" (115). For Iser prior knowledge is thus a field of "freischwebende" semantic units or evaluations that exist independently of perceptual and linguistic schemata. Iser's reconstruction of the "repertoire of the text" therefore cannot be extrapolated to a historiographical description of genological invariants. A fruitful historical and genological theory needs an interpretative method that distinguishes textual units that serve a broader use. I would rather suggest elaborating upon the concepts developed in pragmatist semiotics (see Maingueneau 42; Eco). In particular the concept of "scenario" appears to be an interesting tool, since it is very similar to the idea of motivic chronotopes and explicitly refers to the concept of "action schemata I developed earlier. Although Umberto Eco and Dominic Maingueneau define the concept of scenario by reference to the older views of Minsky and Schank and Abelson, they are right to see literary communication as an activation of prior knowledge. Their approach moreover distinguishes between two types of prior knowledge: Everyday scenarios and intertextual (literary) scenarios. By means of this distinction it should be possible to determine the intertextual relations within specific classes of texts and project them onto a diachronical axis. The concept of the scenario, to give but one example, could help us determine the intertextual scenario of "arrival in the big city" (e.g., the opening scenes of Emile Zola's *Le Ventre de Paris*, Theodore Dreiser's *American Tragedy*, Anders Hjort's *Sporet er frit*) and to link it to the class of

realist-naturalist texts that make frequent use of this motivic chronotope (see Chanda). In a second move it should then be possible to compare this class of texts to other classes like that formed by images of the flâneur in late nineteenth-century symbolist texts.

The approach of (schema-theoretically inspired) pragmatist semioticians permits also a second correction on contemporary interpretative theory. In textual analyses that often refer to Bakhtin a methodological shift can be observed toward the analysis of visual images (Stam 11, 41-2; Palmer) or imaginative space (see Vice 200-228; Rosenthal; Pearce). The emphasis on visual associations is problematic from both a cognitivistic and a narratological point of view. Although literary texts certainly activate "visualized" prior knowledge, the notion of "visual images" is a treacherous one to work with. On the one hand contemporary students of Bakhtin are right to mention the role of spatial visualization in literary communication. Especially metaphors and descriptions "are psychologically effective partly in the sense that they function as good conceptual pegs for associated images, thereby enabling readers to retrieve additional information from the memory well" (Paivio 11). This idea is also confirmed by Michael Denis, who states that imagination is responsible for an "additional encoding" of semantic material: "as much as imagery is a process that makes it possible to integrate units of information and maintain them in highly organized structures, it is a factor for increased efficiency of mnemonic encoding, since retrieval of one unit is likely to direct subjects to other associated units in the configuration" (Denis 132). This psychological condition is responsible for the fact that readers tend to associate spatial associations with a textual topic -- a phenomenon also described in literary criticism (see Hillebrand 418; Lotman 312). Literary images, on the other hand, are more than mere "pictures in the head." For images are very unstable. Experiments in cognitive psychology show that the human imagination does work with vague spatial coordinates: "Although many people report experiences of visualizing objects in imagery tasks, an image does not seem to be a mental picture in the head. It differs from a picture in that it is not tied to the visual modality, it is not precise and can be distorted, and it is segmented into meaningful pieces" (Anderson 63).

To conceive of "visual images," therefore, it would be better to distinguish between the spatial data that belong to perceptual knowledge and chronotopic schemata that are typical of literary knowledge. A narratological argument that deals promisingly with this problem is the distinction between spatial and chronotopical levels in the literary text (see Zoran). This distinction allows the research to be concentrated on the very particularity of the chronotope concept, i.e., the fact that the concept refers to schematic properties of images. Literary images of spatial data, from this perspective, are merely elements that belong to a "scenario" (Eco; Maingueneau), a MOP (Schank), or a motivic chronotope. The motifs Bakhtin mentions may be understood as attempts to link action structures (the temporal dimension) with visual (spatial) schemata. The importance of Bakhtin for narratological and thematological research is precisely this interwovenness (see Mitterand 179-80). That memory involves visualisation, then, does not legitimate the reduction of chronotopes to spatial (visual) images -- even when only motivic chronotopes are at stake. To be faithful to Bakhtin's intuitions we would be better off using the pragmatist concept of 'intertextual scenarios' because these scenarios by definition point to the links between spatial schemata and narrative actions (temporal sequences).

Besides such a narratological implementation of contemporary Bakhtin criticism, there is a clear need for a genological and historiographical refinement of Bakhtin's hypotheses. A promising perspective would be the extrapolation of motifs to genological chronotopes (see Suvin, "The Chronotope"; Suvin, "On Metaphoricity," <http://www.arts.uwo.ca/substance/48/suvin.html> [inactive]). It has been said that Bakhtin tries to relate both in order to construct a theory of cultural developments. There is however no methodology available to do so. The danger exists that images will be extrapolated to genological classes without any culture-theoretical significance whatsoever. We only have to think of pseudo-genres like "the road movie" to see how an image can become a rather arbitrary genological criterion. In contemporary genological thinking, however, Bakhtin's inspiration may already be observed, since genre distinctions are being conceived as pragmatic units (classes of texts) that need to be analyzed historically. David Richter's study on the history of Romances (which studies the lineage that runs from the

sentimental novel, the historical novel and the gothic novel over the social-realist novel to the neo-gothic novel of the late nineteenth century), Gerald Prince's proposals on the historiography of science fiction, and Brian McHale's attempts to construct postmodernist classes of texts based on ontological world models are clearly in line with Bakhtin's study of the chronotopical determinations of literary communication. A schema-theoretical adaptation of Bakhtin's insights would nevertheless enrich these studies.

On the other hand, there is a current within contemporary cultural theory that provides instructive ideas for using schema theory for genological purposes, but without deploying the historical perspective so typical of Bakhtin (see Esteves; Graves; Rusch). In his *Kognitive Autonomie und soziale Orientierung* Schmidt uses a Piagetian type of schema theory in order to understand the reception processes in the different media of Western culture. Genres for Schmidt are "interindividuelle Instrumente (Programme) sozialer Wirklichkeitskonstruktion" that are processed by cognitive systems (176). His suggestions about schemata do not stick to action schemata ("kognitive Schemata") but refer to pragmatic, superstructural schemata that are interwoven with a complex pragmatic and affective attitude towards world models: "wie andere kognitive Schemata dienen auch Medien-Schemata der ökonomischen Bildung von Invarianten. Insofern gehören sie allgemein in den Bereich von Klassifikationen, die beim Problemlösen eingesetzt werden, und müssen relativ zu konkreten soziokulturellen Bedingungen differenziert werden" (176). It is in this sense that Bakhtin's historical genology is valuable, for Bakhtin shows how stereotypically imaginative structures are used in literature. Only when a historical account of schema-guided behaviour is taken care of will it be possible to gain a better insight into the connections between action series on television, James Bond movies and the Baroque adventure novel, between science fiction movies and novels, or between soap series and eighteenth-century sentimental novels.

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Author's profile: Bart Keunen teaches general and comparative literary theory at Ghent University, Belgium. His recent publications include *De verbeelding van de grootstad* (Brussels: V.U.B. Press, 2000), with the Ghent Urban Studies Team, *The Urban Condition: Space, Community, and Self in the Contemporary Metropolis* <http://www.booklounge.com/content/view/full/1358 > Rotterdam: 010 Publishers, 1999) and, with Leo Apostel and Jenny Walry, *Hopeloos Gelukkig: Leven in de postmoderne tijd* (Amsterdam: Meulenhoff, 1997). His collected volume, *Literature and Society: The Function of Literary Sociology in Comparative Literature* is forthcoming with Peter Lang in 2000. He is vice-president of the Belgian Society for General and Comparative Literature 1999 to 2000 after which he will be the president of the association to 2001. He is member of the interdisciplinary Ghent Urban Studies Team (GUST). E-mail: <bart.keunen@rug.ac.be>.