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LITERATURE AS INTERACTION: A SYSTEMS MODEL OF LITERARY COMPOSITION AND RECEPTION

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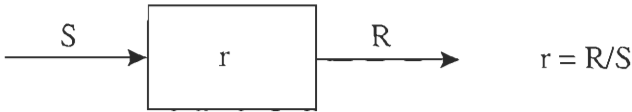
The paper outlines a theoretical model of literary composition and reception in the light of Marian Mazur's cybernetic theory of autonomous systems¹, and shows how the interactive nature of the literary process determines the negotiation of meaning both at the creating and the receiving end.

In systems science the "system" is generally understood as a set of interrelated elements², with emphasis on "interrelatedness" between the elements involved. Such an integrative, holistic approach implies that empirical reality cannot be treated as a simple conglomeration of different elements thrown together at random, and neither can it be reduced to a selected element or types of elements. For example, a reduction of literary meaning to a single factor: be it the socio-economic conditions in which the text is produced (as in Marxist criticism), the author's intimate personal history (as in Freudian criticism), the intrinsic aesthetic qualities of the text itself (as in New Criticism), or the reader's subjective, associative response to the text (as in deconstructive criticism), betokens a fragmentary and therefore reductionist approach to literary meaning. In an integrative model postulated by systems science the literary process is viewed as consisting of interrelated systems involving the *author* and the *reader* as autonomous systems³, with their personalities, life histories, and literary competences; the *text* as a linguistic medium of communication possessing its own structure; and the socio-cultural *environment* in which both the author, the reader, and the text are immersed, with every system involved affecting and being affected by all the others⁴.

Systems constituting empirical reality *interact* (or are coupled) with one another by exchanging information and energy⁵, the process that of necessity affects all the systems involved. For example, during literary composition the author's personality and life are in various ways affected by the writing process, as is the text itself in the sense that is being written, revised, edited, etc. At the receiving end of the literary process the reader's personality and life are also in various ways affected by the reading process, as is the text itself in the sense that it can be glossed, annotated, edited, censored, banned, destroyed, etc.

When system X is being affected by system Y we talk about the *input*, or *stimulus*, to system X, and when system X affects system Y we talk about the *output*, or *reaction*, of system X. Interaction between coupled systems means in practice a transformation

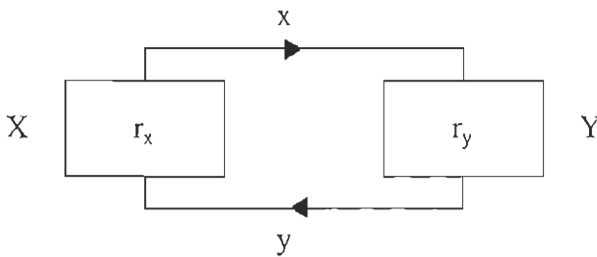
of received stimuli into reactions. This is possible due to the processes occurring inside the system, that is, due to the system's *reactivity*. Following Mazur⁶, reactivity can be defined as a ratio of reaction (R) to stimulus (S):



A simple transformation of this formula gives us an equation for the reaction of the system as $R = r \cdot S$, which has far-reaching theoretical and practical implications regarding the behaviour of empirical systems. Here we shall confine our discussion to the problem of literary composition and reception.

First of all, the equation tells us that the reaction of any system has always *two causes*, of which one exists *inside* the system (its reactivity), while the other comes from *outside* the system (stimulus). This effectively means that no system can react on the basis of stimulus alone (as is maintained, for example, by behaviourism), and that no system can react on the exclusive basis of its internal processes (as in biological determinism for example). Any reaction of necessity involves the positive values of two parameters: one existing inside the system independently from the environment, and the other coming from the environment independently from the system.

In the process of literary composition we are dealing first of all with the coupled systems of author and text, and in the process of literary reception we are dealing, in the simplest case, with the coupled systems of text and reader. In either case, the relations between reactions, stimuli, and reactivities of the two systems involved can be visualised in the following schema:



System X with a given reactivity r_x is coupled with system Y with a given reactivity r_y . The reaction x of system X provides the stimulus to system Y, just as the reaction y of system Y provides the stimulus to system X. If the interactions between the two systems continue in time, we are effectively dealing with feedback loops, each including (beginning with system X) reaction x_1 as the stimulus to system Y, reaction y_1 to

stimulus x_1 determined by reactivity r_y in system Y, reaction x_2 to stimulus y determined by reactivity r_x in system X, and so on. Using the main equation for the reaction of the system ($R = r \cdot S$) the first cycle of interactions between systems X and Y (author—text, or text—reader) can be expressed as $y_1 = r_y \cdot x_1$, and the second cycle as $x_2 = r_x \cdot y_1$. This means that the reaction of any coupled system involves simultaneously the system's reactivity and the reaction of the other system.

With regard to the process of literary composition, with the author as system X and the text as system Y, the interactive formula shows that the text created by the author is at every stage a product (in the mathematical sense) of the author's reactivity, involving such complex parameters as authorial intention, literary competence, etc., and the stimulus in the form of the current shape of the text. The author's reaction (a new fragment of text written down) is in turn a stimulus to the already existing text, as a result of which the text changes its reactivity in that the relations binding the elements of the system together undergo change. A modified text provides then a new stimulus to the author, who reacts by adding new elements, a reaction determined both by the current shape of the text and by the author's new response to it. As these interactive cycles unfold, the author keeps adding new elements to the text and constantly changing its shape, which in turn modifies the author's subsequent responses to the text.

Let me use an imaginary example to illustrate how this interactive process might work⁷. A playwright sets out to write a soliloquy for a tragic protagonist who in the course of events found himself in a situation with no apparent positive solution. The playwright begins the soliloquy by writing, say, "To be", thus creating a text consisting at this stage of two elements, "To" and "be", bound together by a grammatical rule which tells us that "To be" is a verb meaning "to exist" in the infinitive form. This text is now perceived by the author, who reacts to the general meaning of "existence" in the light of what he intends to tell us about the protagonist caught in an apparently insoluble existential crisis. If, for example, the playwright wishes to indicate a situation of existential choice, he may decide to contrast the already existing text "To be" with an alternative concept of "nonexistence", thus presenting the protagonist with a dilemma. So the author adds the words "or not to be", expanding the text with new elements which affect the former relation between the words "To" and "be", creating new text and generating new meaning. In the new text "To be, or not to be" the former text "To be" ceases to function as a general verb denoting "existence", and has now become an element in an alternative which raises an existential question of whether or not to exist. This new meaning provides in turn a fresh stimulus to the author, who now considers the text in its present shape, and decides to sum up the new meaning by writing "that is the question", to indicate the protagonist's awareness of his existential dilemma. The newly-created text "To be, or not to be — that is the question" consists now of an enlarged number of elements, whose meaning has again been modified into something that was not in the text before, and as the cycles of interactions between the author and the text unfold, more text and new meanings are

being generated.

Mechanical as this exchange of feedbacks may appear, it does not in fact take away from the writing process the characteristics usually associated with literature such as creativity, originality, even mystery. The nature of interactions can be described in physical and mathematical language, but it is impossible at any stage to determine either the number and type of textual elements or their meaning before the text has been completed. The creative process is at every stage a product of the author's intention—a very elusive, shifting, and often intuitive thing indeed, and the stimulus provided by the text itself. The unpredictable nature of those feedbacks explains the excitement often felt by writers during creation, as well as the impossibility to determine the final shape of the text before it is finished. James Joyce's *Ulysses* started as a short story which got out of hand, ending up as a long and formally extremely complicated novel. Situations of this kind occur when the author's reactivity (intention) changes in the course of writing, constantly modified by the changing shape of the text, so that the two variables (the author's and the text's reactivities) constantly modify one another in a way impossible to determine or predict.

It would appear that the above described dynamic nature of interactions between the author and the text is at variance with a view dominating in contemporary critical theory, whereby the author is denied the status of a thinking and willing agent, able to act intentionally in relation to his work. In postmodern thought in general intellectual freedom is regarded as a myth, as is the notion of authorial intention, since—it is argued—what appears in the mind is an unstable collection of concepts determined by language and culture operating outside the author and independently from him. In literature reduced to socially determined discourse, texts are effectively denied any individual authorship (*vide* Roland Barthes' pronouncement of the "death of the author"), and are seen as existing outside the mind in a linguistic meta-sphere, in some inexplicable way unaffected by the will and intention of human agents who produce these texts.

The same interactive formula applies to literary reception, which in the simplest case involves the coupled systems of text and reader (now X and Y respectively). Analogously to the problem of literary composition, reading and understanding of the text (reaction y) is at every stage a product of what the reader expects to find in the text (reactivity r_y), and what the text reveals (reaction x). Meaning is therefore negotiated in a chain of feedbacks between the text and the reader, and it cannot exist outside this interactive process. In other words, meaning is neither present in the text alone (a common enough mistake), nor in the reader's mind independently from the text, but it requires the simultaneous presence of these two factors: one referring to the shape of the text (stimulus), and the other to the reader's literary competence and expectations (reactivity).

Among the contemporary theoretical approaches to literary reception nearest to the interactive mechanics here presented is the phenomenological reception-theory, which likewise sees reading as a psychological interaction between reader and text.

Most relevant here is Wolfgang Iser's notion of the implied reader, "designating a network of response-inviting structures, which impel the reader to grasp the text¹⁸". Iser's phenomenology of the reading process is clearly analogous to systemic formulae regarding the text — reader interactions: "reading is not a direct 'internalization', because it is not a one-way process . . . it is a dynamic *interaction* between text and reader¹⁹", and "every reading moment sends out stimuli into the memory, and what is recalled can activate the perspectives in such a way that they continually modify and so individualize one another²⁰".

The dependence of the reading process on the two variables, one presented by the text and the other brought into the process by the reader, also indicates that a relevant meaning of the text cannot be a result of a free and unrestrained "play of the signifier" in the reader's mind, as appears to be the case in certain extreme versions of the reader-response criticism. Now matter how imaginative and inventive a reader can be in imposing his or her own preconceptions on the text, the conditions presented by the text itself always participate in the negotiation of meaning, effectively constraining the meaning to what, in reasonable estimate, is relevant to the text. The text cannot be treated therefore as a "black hole" able to absorb any conceivable interpretation, because the text's parameters limit the range of permissible meanings (provided of course that the reader is prepared to accept these parameters as constraints in interpretation). To use a rather facetious example: while there can be disagreement among critics whether some of Shakespeare's sonnets describe heterosexual or homosexual love (both relevant meanings), all readers will probably agree that these sonnets are about love and not about the possibility of life on Mars (an irrelevant meaning).

The coupling between text and reader and the meaning thus negotiated can be illustrated by an earlier-quoted example. At some point in the play in which the protagonist has been brought to a situation of no apparent positive solution, the reader reads (or hears from the stage) the words "To be" at the start of what looks like a soliloquy (since the actor is alone on the stage). Provided the reader's curiosity (positive reactivity) has been aroused by the developments in the play up to this moment, the reader reads on (or continues listening) to discover the new element "or not to be", which modifies the earlier "To be" so that now it forms an element in an alternative "To be, or not to be". Assuming that the reader's reactivity remains positive, the presented alternative combined with the protagonist's dramatic situation suggests to the reader an existential dilemma. The next element "that is the question" again modifies the meaning of the earlier text by implying the protagonist's awareness of the dilemma. The chain of feedbacks thus set in motion continues as long as the reader's interest in the text persists, and as long as the text is able to sustain that interest, that is, as long as both the reader's and the text's reactivities remain positive.

The interactive nature of literary composition and reception also shows that the two sides of the literary process, the creative and the receptive, are to a large extent analogous. In particular, the interactive model dispels a commonly held view about the basically "active" character of writing as compared to the basically "passive"

character of reading. The physical nature of feedbacks shows that any interaction between coupled systems, be it author—text or text—reader, is both active and passive at the same time, because it relies in essence on receiving stimuli by both systems involved and on transforming them into reactions. Both the author and the reader negotiate their meaning of the text through a series of feedbacks, and no meaning exists apart from this interactive, passive-active process.

Another important observation that can be made from the interactive model of the literary process is that we are always dealing with two main types of meaning related to the text: one negotiated by the author and the other negotiated by the reader. Following a similar distinction introduced by E. D. Hirsch, Jr.¹¹, the *meaning* of the text is negotiated in the course of the author's interaction with the text, whereas the reader's interaction will produce the *significance* of the text. Which of these two types of meaning is the more important depends on the objectives and assumptions underlying the critical exercise. For example, traditional, historical criticism has always been more interested in the reconstruction of the author's original meaning in the light of authorial possible intention and the historical context, while the more recent reader-oriented schools of criticism have focused more on the significance of literary works. In the latter case authorial intention is dismissed as both indeterminable and ultimately irrelevant, and literary interpretation relies for the most part on identifying the critic's own, often highly subjective and hermetic response to the text (as in deconstructive analyses).

Theoretically speaking, it is possible to distinguish the following types of relations between the author's meaning and the reader's significance in relation to the same text:

— when the author's meaning and the reader's significance are identical, we talk about the reader's *understanding* of the text. This happens when the author's metaphor, allusion, a hint, etc. is correctly identified by the reader;

— the author's meaning and the reader's significance may be unidentical, which can involve the following three situations:

— when the author's meaning is not matched by any significance in the reader we talk about the reader's *incomprehension* of the text. This happens when the author's metaphor, allusion, a hint, etc. is lost on the reader, who does not even suspect the presence of any non-literal meaning;

— when the reader's significance is not matched by any meaning in the author we talk about the reader's *overinterpretation* of the text. This happens when the reader imputes a metaphorical, implicit meaning in places that were not intended as such by the author;

— when the author's meaning is different from the reader's significance we talk about the reader's *misunderstanding* of the text. This happens when a metaphor, allusion, a hint, etc. is understood differently by the reader and by the author.

A single reading of the text will include one, more than one, or all of the above-listed possibilities: that is, understanding, incomprehension, overinterpretation, and misunderstanding, in varying degrees. More precisely, a single fact will be read as

one of the above, but in a text of sufficient length and complexity all possibilities are bound to occur. Of course, the most desirable situation is a full compatibility between the author's meaning and the reader's significance, that is, full understanding of the text. This, however, is often difficult to achieve, especially in relation to complex texts, as it would require a complete "merger" of the author's and the reader's literary competences, which is nearly as impossible as expecting a perfect match and compatibility between two different personalities. In practice therefore "to understand" a text means to reduce its incomprehension as much as possible, normally accomplished by a close study of the context in which the text was composed, of the author's life and personality, of the relevant socio-cultural background, etc., as is indeed done in historical criticism. Traditional as this critical procedure may appear, it dwells on a holistic assumption that the literary process involves not only the text and the reader (as in recent reader-oriented criticism), but also the author and the original context of the text. When the author's possible meaning, however hypothetical it may be, is accepted by the reader as a constraint in interpretation, literary criticism brings the reader's significance as close to the original context of the composition of the text as historical circumstances permit, and literature is allowed to perform its communicative function in the social exchange of ideas. If, on the other hand, literary interpretation is freed from the constraints of the text, the author, and the historical context, the text becomes a launching pad for the critics own subjective (over)interpretations, in which the main object is to advertise the critic rather than the text or the author.

Endnotes

- ¹ Marian Mazur, *Cybernetyczna teoria ukladow samodzielnych (Cybernetic Theory of Autonomous Systems)* (Warsaw: Państwowe Wydawnictwo Naukowe, 1966).
- ² Ludwig von Bertalanffy, *General Systems Theory: Foundations, Development, Application* (Harmondsworth: Penguin Books, 1973), pp. 2, 63; Ervin Laszlo, *Systems Science and World Order: Selected Studies* (Oxford-New York-Toronto: Pergamon Press, 1983), pp. 4-5.
- ³ According to Marian Mazur the autonomous system possesses the ability to maintain its functional equilibrium with regard to information and energy, by homeostatically counteracting the loss of this ability (*Cybernetyczna teoria*, pp. 47-59). The class of autonomous systems thus refers to all living organisms, including of course human beings.
- ⁴ Cf. Piotr Sadowski, "Interpretation of Literary Process: A Systemic Approach", *Studia Anglica Posnaniensia* 24 (1992), pp. 78-91.
- ⁵ Marian Mazur, *Cybernetyczna teoria*, pp. 51 ff.
- ⁶ Marian Mazur, *Cybernetyczna teoria*, pp. 21-23.
- ⁷ An example also used in Piotr Sadowski, *Systems Theory as an Approach to the Study of Literature: Origins and Functions of Literature* (Lewiston-Queenston-Lampeter: The Edwin Mellen Press, 1999), pp. 27 ff.
- ⁸ Wolfgang Iser, *The Act of Reading: A Theory of Aesthetic Response* (London: Routledge & Kegan Paul, 1978), p. 34.
- ⁹ Wolfgang Iser, *The Act of Reading*, p. 107.
- ¹⁰ Wolfgang Iser, *The Act of Reading*, p. 115.
- ¹¹ E. D. Hirsch, Jr., *Validity in Interpretation* (New Haven-London: Yale University Press, 1967), pp. 57. 62 ff.