Reading Perception – Perceiving Literature: an Interdisciplinary Approach

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Abstract

This paper presents the results of experiments made within the interdisciplinary project between the Department for Comparative Literature at the University of Tübingen and Max Planck Institute for Biological Cybernetics. We examined the following three questions using both psychophysical and structuralistic-hermeneutical methods: a) Are there regularities in the judgments of spatial descriptions by different readers? b) Do readers encode the perceptual perspective of characters during reading? c) Are there correspondences between foregrounding effects and the physiological reaction (galvanic skin response) of readers? The results show that a) that the semantic validation of spatial descriptions showed high homogeneity; b) the method actually showed more about literary strategies concerning object occluding and required the development of new experiment approaches to identify the perspective taken by the reader, that c) the emotional response is quite idiosyncratic but can be roughly divided into two schemes (high or low response).

1. Introduction

In the act of reading, two only apparently prefigured systems interact and influence each other constantly: the text and its reader. Iser [7] used, in his reader response theory, a cybernetic model for this procedure but examined his concept of an 'ideal reader' on a merely theoretical level. We tried in the practical part of our project to analyze aspects of real reader behaviour as suggested by Miall [9]. The detailed descriptions, test arrangements and results will be presented in parts 2 to 4.

The more theoretical portion of our project considered how perceptual phenomena are represented in literature. We claim that literature can focus on and show on a text-immediate level how personal concepts, perceptions, and ideas are transformed into (more or less) communicable signs – words, texts, and images – and how these correspond with or confront historically and/or culturally different forms, norms, and habits of perception. We think that perception (at least as treated in literature) is always a social and dialogical phenomenon since the 'things inside the head' are only accessible and communicable by signs (Eco [3]). Semiotics, however, does not have to look inside the "black box" of human mental representations and their more or less iconographic contents but can instead can focus on how these become functional units in a semiotic process.

We also think that literature plays not only a significant role in the semiotic process in which perceiving is communicated and evaluated, but also in the actual act of perception. Apart from Peirce's assertion that there is also a nonverbal semiotic process (Peirce [10]), it is still unclear if "we only see what we know" or if "we only know what we see". Every act of perception is a hypothetical conjecture based on the current cognitive processing of external facts and on previous cognitions. 'Facts', however, have to be named, so every categorical system is at least partially depended on the words, verbal ideas, and terms that shape and model the world and how it is perceived and described. Besides this problem, literature can not only influence and deform our perceptions, but in extreme cases completely replace one's own perceptions. So literature not only represents models of reality but also can create new possibilities of realities, even if only in the readers' minds.

A literary text may function as an interface that either enhances or hinders the reader's (non-) voluntary intention during and after the reading process to have certain encoded perceptual perspectives (Experiment 1), emotional responses (Experiment 2) or spatial impressions and ratings (Experiment 3) by using special syntactical, semantical, morphological, stylistic and poetical strategies.

2. Experiment 1

Do readers encode the perceptual perspectives of characters during narrative comprehension?

2.1. Experiment 1: Hypothesis

Following the design of Horton and Rapp [6], we used literary stories, which described situations in which certain objects were occluded from the protagonists´ point of view. The hypothesis was that *information no longer visible to story's protagonist is less accessible for the reader as well because the reader would assume the protagonist's perspective.* Verification questions about an occluded object should provoke slower reaction times than questions about a still visible object.

2.2 Experiment 1: Design of and Differences to Horton and Rapp

Eleven Participants (6 female, 5 male) with no special literary schooling had to read 15 texts in a randomized order (black lettering on a white background) on a computer screen in a neutral environment.

Each text was shown line per line and participants could continue on to the next line by pressing a key on a computer keyboard. In order to simulate a normal reading experience, the individual lines were centered on the screen, were placed in a typeface similar to that one would find in a book, and were not divided in semantic units but sorted by length (80-90 characters including spaces). All texts were written in an auctorial point of view. In 5 stories, an object was occluded at some point during the story. In 5 other stories, the object was always visible for the protagonist. There were also 5 filler stories for which we asked about objects that didn't occur in the stories. The stories were between 4 and 10 lines long (average 7.4). The object occlusion always happened implicitly (i.e., no story contained a sentence like "X couldn't see Y any more"). After reading a text, participants had to answer a verification question about a particular object. They had to answer the question as quickly and accurately as possible. There was no time limit.

In contrast to Horton and Rapp, we used literary texts that were not specially written for the experiment and differed in form, content, length, object accentuation, and mention (see Section 2.3). All of Horton and Rapp's texts consisted of 7 sentences. In the first three sentences, the protagonist and his environment were introduced. In the fourth, the object is named. In the last two sentences, the object is either occluded or stays visible. Horton and Rapp used a response time limit of 2500 ms.

2.3. Experiment 1: Results and Discussion

We could not confirm the hypothesis of Horton and Rapp. We found no significant differences in reaction time between occluded and visible objects. In fact, participants showed a slight tendency towards slower reactions for visible objects.
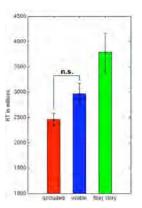

Figure 1: Reaction Times averaged by the three conditions

Our conjecture is that literary texts pursue a somewhat different 'occlusion strategy' than the texts written by Horton and Rapp. Literature often channels the focus of attention on an object despite of, or because of, its occlusion. Texts name objects in different numbers (in our case between 1 to 8 times) and at different points in the story. The concentration of actions and their traceability also vary within a story and texts do not always invite the reader to identify with a protagonist's viewpoint. The texts differ in the emotional allocation of objects and especially their symbolic value and importance for the story.

To have a better control over the input texts, one might change the narration time and the point of view of the stories. Maybe readers identify more strongly with the protagonist's point of view when a story is told by a first person narrator rather than in an auctorial perspective. Such a change avoids the problem that our texts were too heterogeneous and that the Horton and Rapp's texts were too homogeneous. It also allows us to concentrate on the question which literary stylistics could influence the perspective the reader encodes.

3. Experiment 2

Do readers react emotionally to foregrounding effects in literature?

3.1. Experiment 2: Hypothesis

The emotional response to literature is still an underestimated factor researched only in the last two decades. So, we decided following the proposal of Anz [1] to analyze a possible correspondence between

foregrounding effects in literature and the galvanic skin response of readers. The role of emotions in receiving literature has been disregarded since Wimsatt and Beardsley's *The affective fallacy* [2]. They claimed that the emotional effect could not be an objective measure for analyzing literary texts. Wimsatt and Beardsley were not interested in the role of the reader anyway, since they followed the ideas of the *New Criticism* (which focuses exclusively on text-immanent analyses).

Instead of this approach, we had the following hypothesis: R*eaders will show similar galvanic skin responses to certain foregrounding effects in texts.* The term *foregrounding* (see Hakemulder [5]) describes a procedure through which certain text elements get in the reader's focus of attention because they subvert habits and norms of perceptions and/or language systems. This effect of defamiliarzation can be a conscious cognitive process while still affecting the reader's physiology, in our case the galvanic skin response. GSR is, evolutionary seen, a 'fight-or-flight' reaction (Kandel/Schwartz/Jesell [8]), so we supposed that foregrounding effects in literature – as they function as described above – would increase the GSR.

3.2. Experiment 2: Design

The principal design of Experiment 2 was quite similar to Experiment 1. Five participants (3 female, 2 male) had to read 10 texts (randomized order) as described in Section 2.2. The number of read lines was 12 to 41 (average 29.3). Between each pair of texts, there was pause of 60 seconds to avoid 'emotional overlapping' between texts. During the whole experiment, the participants were connected to a galvanic skin response device so we could set the read lines in correspondence to the GSR gradient of each participant. Unfortunately, we could not examine the relationship 'word – gradient'. Further research with eye-tracking devices would be necessary to do this.

The texts were divided into two groups. In the so-called 'neutral' texts, neither feelings nor actions, which could cause a relevant emotional response, were directly described. In contrast, the other texts were the 'affective texts'. Due to shortage of space, we can only present one example text (Figure 2).

3.3. Experiment 2: Results and Discussion

For the Heiner Müller text, reader response is highly idiosyncratic. There are tendencies for a general peak rising in line 1 (where there is a strange conjunction between 'hair of a young woman' and the unusual word – at least in this context - 'to gather together''), line 8 ('bone gripper' and 'cut the chest'), and line 12

Figure 2: Text by Heiner Müller. Foregrounded elements are marked red.
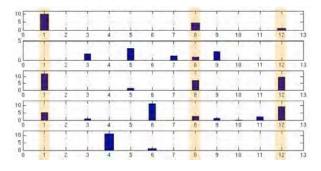

Figure 3: significant peaks per line of all readers

(here we have the shift from auctorial point of view to first person narration and an abrupt action of cruelty: 'to put needles into eyes'). There is also the fact that participants showed either constantly high (participants 1 and 5) or low response (participants 2 and 4). In future experiments, we definitely need a) more participants to get more objective results and b) stronger contrasting texts (e.g., non-literary texts or political speeches). It also would be interesting to analyze the relationship between personal appraisement of emotion and actual GSR results.

4. Experiment 3

Do readers respond to spatial descriptions in literature with similar semantical judgements?

4.1. Experiment 3: Hypothesis

Reading spatial descriptions in a story evokes mental representation in readers. We wanted to analyze (following the experiment of Franz [4]) *if different readers would judge narrated rooms in a similar way.*

4.2. Experiment 3: Design

As in the other experiments, 21 participants (14 females, 7 males) had to read 10 texts (randomized order; 7 to 42 lines long, average 14.1). After each text,

participants had to rate the described rooms using 5 semantic differentials, the order of which was randomized. The semantic differentials had a seven point scale and were as following:

1. hässlich – schön (ugly – nice)
2. geschlossen – offen (closed – open)
3. langweilig – interessant (boring – interesting)
4. unangenehm – angenehm (unpleasant – pleasant)
5. ungewöhnlich – gewöhnlich (unusual – usual)

We chose texts written in an auctorial perspective in which no comments by intermediatory story protagonists could influence the room description. We also tried to avoid any other prejudicial text-immanent elements.
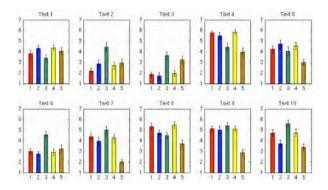
4.3. Experiment 3: Results and Discussion

Figure 4: Ratings of the participants for each room. X-axis represents the 5 semantic differentials; Y-axis: ascending sequence from negative to positive judgements.

We found a correlation between 'ugly', 'closed', and 'unpleasant', but no correlation between 'interesting' and either 'ugly' or 'nice'. There was also a correlation between 'unusual' and 'interesting', so the last both results showed that readers were fascinated more through aesthetic form than content. Small and narrow rooms produced rather negative responses (text 3). Interestingly, text 3 was also the only one in which a protagonist (and his bad mood) could have influenced the room impression. The sex of the participants had no significant impact on the pattern of results. Future experiments could concentrate on culturally different reactions to room descriptions, if there is a different reaction on old and new texts, and if it is significant if there are actions described in a room or not or the room is seen by a protagonist or not.

5. General Discussion

The interdisciplinary approach showed new perspectives and insights on perception and more research needs to be done. Where psychophysical experiments help to understand the emotional and cognitive process of re-/perceiving literature, semiotic literary sciences can analyze in which historical, ethical and social contexts individual or collective perceptions are made and transformed into signs. Both the brain and literature are so to say filter-tools that form and construct 'as-if-realities', but literary texts boost ambiguities and polysemies where in contrast the biological perception-apparatus is inclined to establish a monological and unambigous reality.

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