

Literary processing and interpretation: Towards empirical foundations

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The present article provides a framework for evaluating literary interpretation and critical analysis. The framework provides a method of approaching the “text” that involves distinguishing text *features* from text *effects*. In addition, a definition of the “reader” is described in terms of populations of readers. Within this framework, one criterion for critical interpretation of a text is that it incorporate common literary effects within a given population; such an interpretation is termed a *potent* interpretation. One of the chief benefits of this criterion is that it can be evaluated empirically. The approach is illustrated with a Postmodern crime story, *Emma Zunz*, by Jorge Luis Borges: A critical analysis of *Emma Zunz* is described and then evaluated in two experiments.

1. Introduction

A fundamental issue inherent in all literary scholarship, regardless of its theoretical persuasion, is the problem of how meaning has been, is, or can be attributed to literary texts. Attempts to deal with this issue have led literary scholars to follow many divergent paths, covering a wide range of assumptions and methods. Some of these include: descriptions of linguistic and textual structures governing the possibilities of meaning (model structuralism,¹ story grammars); semiological inquiries into extra-textual codes and conventions that affect literary value and meaning (Czech structuralism, structuralist poetics); elaborations of methodologies for the correct decoding of meaning (general hermeneutics²); and hypothetical speculations about how “ideal”, “implied”, “informed”, “model” or “super” readers construct

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¹ Model structuralism is the term coined by Gunther (1971). It refers to that brand of structuralism inspired by linguistics, in particular, phonology.

² The term “general hermeneutics” was coined by E.D. Hirsch, Jr. (1976).

meaning from a text (reception theory and reader response criticism³).

However, in spite of the impressive wealth of material produced by these approaches, no method exists for effectively evaluating the acceptability of any given interpretation. At the heart of the matter lies the thorny issue of the authority of the reader. While some argue that only the readings of qualified critics are reliable and enlightening,⁴ others defend that view that all interpretations are to be considered on equal footing (Bauer, 1972). Some posit the existence of ideal readers, or homogenous reading publics with their "horizon of expectations" (Jauss, 1970), or "communities of readers" (Fish, 1980), while others proclaim that all interpretations are either idiosyncratic (Bleich, 1978; Holland, 1975; Slatoff, 1970), or erroneous (Le Man, 1971). Other scholars remain ambiguously uncommitted by asserting that there are no universally valid interpretations (modern hermeneutics⁵), or simply that some interpretations are more appealing than others (Iser, 1974; Culler, 1975). In spite of these controversies, critical analysis is still considered an essential component of literary appreciation, and readers continue to derive meaning from texts. A theory of literary processing requires a reconciliation of these divergent views. Is it possible to define the relationship between authoritative critical analysis and the various reading performed by individual readers? Is it possible to assess, in some objective manner, the value of a given interpretation?

Although it would be naive and utopic to presume that an absolute test of merit could (or should) be devised, what does seem necessary is a framework or model for understanding the processing of literature in which the issue of different readers and the relationship of their divergent interpretations can be addressed. Integral parts of such a framework include a working definition of the text, an elaboration of the concept of the reader, and an understanding of literary processing and interpretation. It is the purpose of our paper to provide this framework. Based on our approach, we argue that experimental evidence on literary processing can be used to evaluate a critical analysis of any given literary text.

We begin by defining the terms "text" and "reader", which are central to any theory of literary processing and interpretation. Following these defini-

³ J. Culler relies on the notion of "ideal reader" in his *Structuralist Poetics* (1975); W. Booth introduces the notion of the "implied reader" in *The Rhetoric of Fiction*, (1961), and it is developed later by W. Iser in *The Implied Reader: Patterns of Communication in Prose Fiction from Bunyan to Beckett* (1974); S. Fish refers to the "informed reader" in "Literature in the Reader: Affective Stylistics" (1970); M. Riffaterre speaks of the "super reader" in "Describing Poetic Structures".

⁴ For a discussion of this "elitist" trend of literary criticism, see Krieger (1981).

⁵ For an overview of "modern hermeneutics", see S.R. Suleiman and I. Crosman's introduction to *The Reader in the Text*, Princeton, 1980.

tions, we move to an analysis of literary processing and interpretation, and propose a workable empirical criterion for the value of a critical interpretation. This approach provides an account of the relationship between critical and individual responses to the text. The approach is illustrated with a Postmodern crime story, *Emma Zunz*, by Jorge Luis Borges: We describe a critical analysis of *Emma Zunz* and evaluate this interpretation in two experiments.

2. The text

Defining the status of the text has developed into a polemic that is endemic to all ongoing debates on meaning in literature. On one side are the advocates of the perspective for which Hauptmeier et al. (1989) have coined the term “text-bound” (1989). Practitioners of this approach maintain that the text is a concrete, objective, and autonomous entity with clearly identifiable features, and that literary processing is a function of these features which guide the reader towards a particular kind of aesthetic experience. On the opposite side are those who argue that textual features are not a property of the text, but are assigned to it by the reader in the process of reading. Stanley Fish has expressed this “reader-oriented” view very clearly in his introduction to *Is there a text in this class?*:

“... it is not that literature exhibits certain formal properties that compel a certain kind of attention; rather, paying a certain kind of attention... results in the emergence into noticeability of the properties we know in advance to be literary.” (Fish, 1980)

We believe that a resolution of this issue hinges on a clear distinction between text *features* and text *effects*. In our terminology, a text feature is objective and identifiable in the sense that it is possible to specify an explicit rule that serves to test whether a given text contains the feature or not. Presumably, anyone who understands the terminology and nomenclature in which the rule is couched would be able to decide whether a given text possesses the feature; under many circumstances, a suitably devised computer program may suffice. Formally, a text feature can be described as a Boolean function on the space of possible texts. For example, the number of words in a text is a text feature; so is the mode of narration; so also are the setting, primary characters, plot events, and so on. It is, of course, assumed that we can agree on objective definitions of these terms that refer only to the words on the page. In each case, it should also be possible for different readers to agree on whether any text contains the feature or not. Although it is easy to specify simple, local features of a text, such as number of words and

mode of narration, features may also be abstract and global. For example, it may be possible to describe the perspective of the narrator as a text feature, again, provided that we can devise an explicit test for the concepts involved.

In our view the range of possible text features are open-ended: Because there are an infinite number of possible (explicit and objective) rules, there are an infinite number of possible text features which may or may not be present in a given text. In other words, text features are a matter of definition, and there are an infinite number of features in a text because there are an infinite number of possible definitions. However, we anticipate that only a relatively small number of features are likely to be interesting and useful in the study of literature. A specification of such features is the province of literary theory. Thus, although the concept of a text feature is objective and concrete, the concept of interesting and important features is a matter of theory and debate. We note in passing that this approach does not solve a number of thorny issues concerning the status of the text. For example, is the text feature “in the text” or merely a product of the rule that defines the feature? Do features have “meaning”? These are deep philosophical problems that are beyond the scope of the present article. Our position is simply that it is possible to specify an explicit decision rule that an informed reader can use to decide whether any given text has a particular feature.

Our position departs from the text-bound approach in that we make no a priori assumptions concerning the relationship between text features and processing. Although a given feature of the text may be entirely objective and explicit, it need have no bearing on the process of reading that text. A trivial example may suffice to make this point. We may define as a text feature the presence of the letter J in the fifteenth sentence. In our terms, this is a perfectly legitimate text feature because one can easily verify, for any given text, whether it contains a J in the fifteenth sentence or not. On the other hand, we suspect that the feature has no interesting implications for the process of reading or understanding. If one found a text in which this feature was present, it is likely that it could be easily removed with very minor changes in the text, and that these changes would be virtually undetectable in normal reading. Although features are open-ended, only some of these features have any impact on the actual processing of the text. This point is not limited to examples as trivial as the present one. Potentially, there is a wealth of theoretically interesting text features that have no effect on the reading process of a given reader.

When text features do affect the course of processing, we assume that they generate some collection of internal, mental states in the reader. We refer to these states as the *effects* of the text. Text effects include a range of processes that have been studied extensively in discourse processing, including lexical and sentence-level representations, local inferences generated by

the reader, referential representations, and long-term memory for the text (e.g., Just and Carpenter, 1987; Van Dijk and Kintsch, 1983; Singer, 1990). In addition, text effects include a range of processes that have been less well studied but which are commonly held to be important in literary processing, such as suspense, surprise, humor, and other affective reactions (e.g., Graesser et al., 1989; Gerrig, 1989). Although text effects are internal and subjective, we assume that they are potentially measurable. In fact, the history of research on discourse processing can be characterized as a search for empirical methods of measuring text effects in the reader (c.f. Masson and Sala, 1978; McKoon and Ratcliff, 1980).

The relation between text features and text effects can be illustrated with an example. Critics have often noted that Hemingway's *The Old Man and the Sea* evokes biblical and epic images and that the portrayal of the central character evokes the image of Christ. In our terms, these images and attitudes evoked by the work are the effects of the text because they are mental states in the reader. Although such states are subjective, potentially they can be measured and assessed. For example, one might simply ask readers who the main character is reminiscent of; our expectation is that many readers would note the similarity between the main character and Christ. The text features, on the other hand, do not consist of those images; instead, the features consist of those identifiable aspects of the text that produce those images. For example, the main character is often described with terms that are associated with traditional Christian values, and such terms clearly contribute to the Christian image of the main character. The use of these terms constitutes a text feature because one can specify these terms a priori based on other considerations, and then simply count the number of times these terms are used to describe the main character. In other words, one can objectively identify those words in the text that contribute to the image evoked in the reader's mind. Presumably, the images evoked by *The Old Man and the Sea* are produced by an entire constellation of such text features, each of which can be explicitly and objectively identified.

We suspect that the relationship between text features and text effects is rarely simple. Text features are likely to interact with one another so that they produce different effects singly or in combination. Moreover, we share with the reader-oriented approach the view that text effects are likely to depend on dispositional characteristics of the reader and the nature of the reading context. Despite this complexity, we believe that the relationship between text features and text effects is not idiosyncratic or capricious. Instead, we assume that it is lawful and amenable to systematic empirical investigation. In order to explicate how we believe such an investigation can proceed, we turn now to a characterization of the reader.

3. The reader

An empirical approach to literary processing and interpretation requires a concept of the reader that surpasses speculative notions about hypothetical readers, without limiting itself to the purely idiosyncratic readings of individual readers. In the present framework, we posit a new concept of the reader which we refer to as the *statistical reader*. It derives largely from some basic tenets of probability and statistics, hence the term “statistical”. It may be apparent that the view we are proposing here is not new, but rather a restatement of many of the implicit assumptions involved in the standard data analysis procedures. However, there are crucial advantages in making these notions explicit and applying them to the field of literary reception. For example, the notion of the statistical reader, as we shall define it, posits that scientific claims about literary processing and interpretation cannot be made in the abstract, but only with respect to some explicitly-defined population of readers. Moreover, reader populations are unlikely to be uniform and monolithic with respect to interesting aspects of literary processing. Instead, we view any given reader population as consisting of a complex collection of overlapping and nested groups, each with potentially distinct literary processes. In this respect, we believe that the “statistical reader” surpasses vague and informal notions of the reader that have often prevailed in literary studies.

The notion of the statistical reader is based on two powerful concepts: *population* and *measurement*. We first present a relatively formal description of these concepts in their simplest form. We then describe how these ideas can be elaborated to provide a rich and productive framework for discussing literary processing.

3.1. Population

A population is a collection of individuals about which substantive statements are made. For example, a population might be all undergraduate students in the U.S. and Canada; another might be skilled readers of English; still another might be literary critics who have published papers on Borges. We propose that any scientific claim about reading, processing, and interpretation must be prefaced with a description of the population to which the claim applies. In other words, scientific claims cannot be justified in the abstract, but only with respect to a particular domain of reference. However, there is no restriction on size, scope, or criteria for defining a population, and there may be any number of populations about which interesting claims might be made. In particular, literary processing in one population might proceed in one way, and in an interestingly different way in another. Moreover, the multitude of interesting populations may be related in complex ways: they

may be nested, so that one population is a subset of another; they may be disjoint, so that no individuals in one population are in another; or they may overlap, so that some individuals in one population are also contained in another. Sorting out the facts that apply to these various populations is a difficult but empirically tractable problem. However, its solution requires that the populations be specified at the outset.

A population is explicitly and objectively defined by a *sampling procedure*, and each distinct sampling procedure defines a distinct population. A sampling procedure is a process by which one finds individuals in the population, that is, selects a sample from the population. For example, suppose one wished to evaluate hypotheses about the images produced by *The Old Man and the Sea* in skilled readers of English. These hypotheses might be evaluated in an empirical study in which readers are asked about their reaction to or view of the main character. In this situation, it is crucial to have some appreciation for the manner in which readers were selected for inclusion in the study because this sampling procedure defines the population to which any conclusions apply. Ideally, if the intended population is skilled readers of English, one should have a sampling procedure in which every skilled reader of English has an equal (but small) chance of participating in the study. In practice, one typically settles for sampling procedures (and associated populations) that are constrained in arbitrary ways. For example, in running the proposed study, we might select skilled readers at random from the Edmonton area to participate in our study, and skilled readers from elsewhere would have no chance of participating. Thus, the population to which our conclusions apply is skilled readers in *Edmonton*, not skilled readers in general. Such sampling procedures are acceptable only because it seems likely from other considerations that skilled readers in Edmonton understand *The Old Man and the Sea* in the same way as skilled readers elsewhere. However, the precise nature of the sampling procedure must be kept in mind because this sort of generalization to larger populations is not always defensible.

3.2. *Measurement*

A measurement is anything that one can assess or evaluate about an individual, his or her behavior, or the situation which the individual is in. Measurements are objective in the sense that it is possible to explicitly describe the procedure by which the measurement was collected; this procedure is the measurement *instrument*. Although measurements are often quantitative, they need not be. Measurements might be disjoint categories (e.g., good reader or bad reader), lists (e.g., the books read this year), or even open-ended verbalizations. In the example above, the measurement instrument might consist of a questionnaire asking about one's image of the main

character; the measurement would consist of the readers' responses to these questions.

The collection of measurements that might, in principle, be collected from an entire population is referred to as a measurement *distribution*. Although measurements are generally collected from some small sample of individuals, those measurements may provide a substantial amount of information about the population in general. In fact, well-established procedures are available for generating precise mathematical descriptions of the population measurements from relatively small samples selected from that population. That is, one may infer, with some degree of confidence, properties of the measurement distribution from a restricted sample of measurements. The notion of a measurement distribution is crucial because it admits the possibility that populations are heterogeneous with respect to any given measurement. For example, in the hypothetical study of *The Old Man and the Sea*, one might measure the image of the main character in some sample of readers. And, from this measurement sample, one may infer properties of the measurement distribution for skilled readers generally. However, the measurement distribution is unlikely to consist of simply "the" single image that readers have, nor is it likely to be a bland assertion that readers differ with respect to their reaction to the text. Rather, the distribution is likely to consist of a precise description of the proportion of the population that have each of several different images of the main character. Thus, the measurement distribution indicates both central tendency (i.e., what reactions are likely in the population) and variability (i.e., what are the range of possible reactions).

It is useful to distinguish two types of measurements. *Dependent* measurements are those that depend on the literary processing engaged in by readers in a particular situation. Generally, dependent measurements are the empirical data with which notions of literary processing and interpretation can be tested. It is unlikely that any single measurement will provide an entirely valid and comprehensive view of literary processing. For example, the length of time taken to read a text segment may provide information about the nature and extent of literary processing on first encounter with the text. However, it seems likely that important aspects of literary processing occur during subsequent reflection and study of the text. We propose that a more appropriate strategy is to find any number of measurements that index literary processing in a variety of ways. For example, in addition to initial reading time one may also collect information concerning the reader's evaluation of the text initially and after further study, the reader's response to directed questions about the text, the reader's pattern of reading times on rereading, and so on. Logic and inference can then be used to combine these indices into a detailed account of the processing that produced the obtained measurements.

Reader measurements are those that describe relatively stable properties or

characteristics of individuals in the population. Such measurements are crucial to a theory of literary processing because they allow one to provide a principled account of the heterogeneity that exists in a population. For example, one may find that only readers in a population that have had substantial formal training in literary theory think of the main character in *The Old Man and the Sea* as a Homeric epic figure; readers with less training generate other images. In this case, the reader measurement, training, provides an explanation for at least some of the variability in the effects of the text: A certain amount of training is required in order to generate a particular class of effect. In this way, reader measurements provide one with the opportunity to partition the population into a variety of groups and subgroups that may differ with respect to their literary processing in any number of ways.

In conclusion, literary processing is amenable to systematic empirical investigation. First, one must characterize the population in terms of the important distributions of reader measurements. These distributions allow one to describe with some precision the heterogeneous groups that comprise the population. Second, one must identify the distribution of literary processing that occurs in the population, based on the dependent measurements obtained in illuminating studies of literary processing. Finally, one may characterize the relationship between the description of heterogeneity in the population and the heterogeneity in literary processing. This approach goes beyond the simple assertion that different readers process literature in different ways. It provides the framework for specifying exactly how readers differ, and how these differences are related to literary processing. So the “reader”, then, is a statistical abstraction that is neither monolithic and homogeneous, nor capricious and idiosyncratic. Rather, the concept of the statistical reader provides an opportunity to describe with quantitative precision the commonality found in groups of readers as well as the variability. Although the program of empirical research entailed by these ideas is challenging, it is by no means unworkable. It is entirely feasible, and indeed, essential to a scientific understanding of literary processing.

4. Literary interpretation and literariness

The concepts of text features, text effects, and the statistical reader set the stage for an analysis of literary processing and interpretation. Any given text can be thought of as producing a collection of effects in a given population of readers. Some of these effects will be idiosyncratic and may occur with only a few readers. However, at least some effects are likely to be present in many readers in the population. We refer to such effects as *common effects*. The notion of common effects is central to our analysis of literary processing

because it allows for individual variation: A given reader may not have all or even any of the common effects, and all common effects are unlikely to occur in any single individual. Yet the nature and source of common effects can be studied by aggregating over many individuals in the population, and such an investigation may yield important insights concerning literary processing in general. In other words, we may be able to make substantive statements about the common effects of literature in the population without making any specific claims about the effects that must occur in all readers.

A crucial premise in our framework for studying literary reception is that literary processing is, in some way, different from text processing in general. More precisely, we assume that literary processing produces *literary effects*, and that such effects can be distinguished in principle from other classes of text effects. At the moment, we prefer to be relatively agnostic about the essential characteristics of literary effects; at least some properties of these effects are likely to emerge with continued theoretical development and empirical investigation. However, as a step in this direction, we propose that one characteristic of literary effects is that they emerge over time. In other words, the hallmark of at least some literary effects is that they do not occur spontaneously on the first casual reading of the text, but are generated only later through study and reflection. This characteristic of literary effects may be related to the intuition that good literature lingers with the reader and continues to be processed over an extended period of time after the initial reading. We refer to effects that are produced later, after the initial reading, as *emergent effects*. Although all emergent effects are not literary effects and all literary effects are not emergent effects, our position is that the two tend to go together: Most emergent effects are literary and vice versa.

The notion of literary effects suggests a natural view of literariness: A text is literary if it generates a large number of (common) literary effects in a population. Of course, this view of literariness is vacuous without some specification of the nature of literary effects. Our proposal that literary effects tend to emerge over time may be a part of a more general solution to this problem. Despite this limitation, this view of literariness has some interesting implications. It suggests for one thing that literariness is relative to a population; what is literature for some readers may not be literature for other readers. Further, our definition of literariness focuses on the interaction of the reader with the text. In this view, literariness is not to be found in some objective sense in the text itself. Finally, this view suggests that, in principle, literariness can be established empirically. With further specification of the nature of literary effects, it should be possible to test whether a given text generates literary effects in the population and thus satisfies the criterion for literariness. An example of such a test of literariness is provided in Experiment 1, based on the proposal that literary effects generally emerge over time.

Our notion of interpretation also builds on the concept of literary effects of the text. In particular, we think of an interpretation as an integrated structure or representation that incorporates some number of effects. Clearly, then, a useful literary interpretation is one that incorporates literary effects, and the more literary effects that are incorporated, the better the interpretation. In our view, it is not necessary to assume that a given interpretation must incorporate all of the effects generated by a given reader, nor is it necessary to assume that interpretations are mutually exclusive. One might easily entertain one interpretation that accounts for some of the literary effects, while simultaneously considering another, perhaps contradictory interpretation that incorporates other effects. For example, suppose that *The Old Man and the Sea* produces a collection of images reminiscent of Christ and Homeric heroes. These effects, as well as others, might be incorporated into an interpretation that suggests that modern culture and society has deteriorated by the loss of the values associated with these religious and mythical heroes. In our view, arriving at such an interpretation requires some processing and reasoning that is separate from those processes that produce the text effects (i.e., the images of Christ and Homeric heroes). In particular, many readers may generate the effects (the images) without arriving at the interpretation (the contrast with degenerate modern society). We assume that readers can easily disagree about the interpretation of a text while sharing many of the same text effects.

We are now in a position to develop our criterion for critical evaluations. We define an interpretation as *potent* for a given population if it incorporates a large number of the common literary effects in that population. For example, the proposed interpretation of *The Old Man and the Sea* would be potent for readers if the Christian and Homeric images it incorporates are common in the population. Several aspects of this definition should be made clear. First, potency is always evaluated with reference to a population. For example, an interpretation that is potent for a population of literary scholars may not be potent for a population of skilled readers in general, simply because important effects of the text are not produced in most readers. Second, potency is a relative rather than an absolute criterion. That is, the potency of an interpretation varies with the number of literary effects that are incorporated and how common those effects are (i.e., how many readers in the population share those effects). Third, a potent interpretation is not necessarily common in the population. In other words, potency does not entail that most or even many readers in a population spontaneously arrive at the interpretation in question. Potency simply means that the effects that participate in the interpretation are common. Although readers in a population may not all agree with a given potent interpretation, they should be able to understand the interpretation and how it applies to the text.

The concept of a potent interpretation has a number of interesting

implications. Consider, for example, a story with a simple allegorical structure. If the allegory is obvious, the story is likely to elicit a common, potent interpretation. In other words, everyone in the population understands the story and agrees on its meaning and how the underlying meaning accounts for the story's effects on the reader. Under such circumstances, one might say that the story is interpretationally shallow. Interpretationally deep texts are much more interesting from the point of view of literary criticism. In this case, there may be a small number of potent interpretations that are rarely generated spontaneously. For example, there may be a single interpretation that makes all the pieces of the text "fall together", but the nature of the interpretation may be difficult to discern or may only be found with extended study. Literary criticism plays a crucial role under these circumstances because it may be able to help readers find an interpretation that incorporates the effects generated by the text. Another implication is that there are no potent interpretations if there are no common effects. If everyone in the population has an entirely different reaction to the text, there is no interpretation that is going to be satisfying to the population as a whole. Such texts would not even be literary by the criterion described above. For some population of unsophisticated readers, for example, John Barthes's story, *Lost in the Funhouse*, would not be literary. Related arguments concerning the relationship between semantic openness and literariness have been made by Murray Krieger.⁶

5. Measuring literary effects

An empirical assessment of literariness and interpretation potency hinges on finding some methodology for measuring literary effects. It might be possible to list a substantial number of the literary effects that would be generated by a given work, and then to test for their presence in a sample of readers. Although feasible, this type of approach is difficult to implement. There may be a large number of different types of literary effects of a given text, and there may be no simple instrument that might serve to measure many of these. Our approach is less direct, but easier to apply to a range of different texts. We assume that some constellation of literary effects in the aggregate contribute to readers' appreciation of a given text. In other words, we hypothesize that readers enjoy and appreciate texts that are evocative, intriguing, stimulating, and so on. A global evaluation of the story may then serve to summarize the presence of these types of effects.

⁶ See *Arts on the Level* (p. 62): "There is a ... pervasive body of critics these days who would deprive the poem of its peculiarly aesthetic nature by dwelling upon its openness to all other discourse and to the language system at large, in effect deconstructing all texts into undifferentiated textuality".

The main drawback of summary evaluations of a text is that they may be influenced by any number of other factors that have little to do with literariness or literary effects. For example, a text may be rated highly because it describes pleasant themes, because the reader agrees with its perspective, or because it evokes socially desirable values. Thus, we do not use simple summary evaluations as an index of literary effects. Instead, we have developed a *rereading paradigm*, in which readers evaluate a text twice, after each of two successive readings. We assume that the change from one evaluation to the next reflects the emergent effects that are produced on second reading. We refer to the change score as *depth of appreciation*, on the view that it reflects the added appreciation of the text that emerges from a deeper understanding. Because emergent effects are generally literary effects, we assume that the depth of appreciation measure provides a global index of at least some of the literary effects of the text. Further, a variety of factors that may affect overall evaluations would have relatively little effect on depth of appreciation. For example, if readers evaluate a text higher if it describes pleasant themes, they would tend to evaluate the text highly on both first and second reading, and the difference in evaluation would remain unaffected by thematic content. Thus, we anticipate that the change in global evaluation should be larger for literary texts than for other types of texts.

Although depth of appreciation may provide a general index of literary effects, more precise information concerning those effects is required to evaluate the potency of an interpretation. In particular, one must test whether *particular* effects (namely, those involved in the interpretation) are common in the population. The depth of appreciation measure, in itself, does not provide this information because it reflects an aggregate of all of the emergent effects of the text. Our strategy to test for the presence of particular text effects is to manipulate the text features that produce those effects. The logic is that if the text is appreciated partly because of the effects produced by a particular feature, then removing that feature should eliminate the associated effect and reduce the text's appreciation. Moreover, if the effects in question are emergent literary effects, removing the associated features should produce a substantial reduction in depth of appreciation; there should be much less improvement in appreciation from first to second reading. In sum, an interpretation can be tested for potency by assessing whether the effects that are central to the interpretation are common in the population. Our test for common effects is to remove the text features that are assumed to produce those effects and assess whether there is an associated reduction in depth of appreciation. When such a reduction does occur, we can conclude that the effects produced by the manipulated text features are common and emergent and that the interpretation based on those effects is potent.

The balance of this article serves to illustrate this approach. We used as

our text a postmodern crime story, *Emma Zunz* by Jorge Luis Borges. First, the literariness of the story is evaluated by comparing its depth of appreciation to that for a control, nonliterary story. The results confirm our expectation that this story is literary and validates our depth of appreciation measure. Next, we describe a critical analysis of *Emma Zunz* that identifies a certain text effect, appreciation of narratorial point of view, as a crucial component of a coherent interpretation of the story. Finally, the potency of this interpretation is tested in a second experiment in which a key feature of the text involved in this effect is removed. To anticipate, the results of the experiment indicate that depth of appreciation for some readers is substantially lower without this text feature and that our interpretation of *Emma Zunz* is potent for at least some segments of the population. Taken together, the experiments suggest that our approach is workable in a much larger sense.

6. Experiment 1

The first experiment assessed the depth of appreciation in two stories. The first was *Emma Zunz* by Borges. We assume that critics would generally agree that this story is an example of good literature; the experiment tested whether the story was literary by the criteria and measures developed here. The literariness of *Emma Zunz* was compared to that for a control text that we assumed would have few literary values. In this case, we used a story entitled *Death was her Dowry*, taken from a “true detective” magazine. The two stories were superficially similar in that both concerned a murder and involved a woman as a central character.

6.1. Population and sample

The population of readers we were interested in could be described as skilled readers with little formal or systematic exposure to literature or literary criticism. In actuality, our sample consisted of 45 students selected randomly from undergraduate psychology courses at the University of Alberta. These students had no more than a single course in English or literature at the university level. The students in our sample were asked to indicate their favorite books and authors; virtually none of them mentioned any canonized works or writers. Our working assumption is that this sampling procedure provides information that is representative of the intended target population.

6.2. Measurement procedure

Subjects in the experiment were tested in small groups. They were given a handout containing a short preamble about the nature of the study they were

Table 1
Evaluations of *Emma Zunz* and *Death was her Dowry* after first and second reading

Question	<i>Emma Zunz</i>		<i>Death was her Dowry</i>	
	First reading	Second reading	First reading	Second reading
Is this good literature?	3.91	4.82	3.87	4.13
Did you enjoy it?	3.77	4.41	4.65	4.65
Recommend to a friend?	3.18	4.18	3.74	4.09

participating in and were asked to read one of two short stories. Subjects were told that they would be asked a number of general evaluative questions about the story they read. Half of the subjects were given *Emma Zunz* to read, while the other half were given *Death was her Dowry*. Although *Death was her Dowry* was ostensibly nonfiction, it contained fictionalized elements and had a structure clearly reminiscent of short stories. The story was edited to remove errors of English usage and to have an overall length similar to that of *Emma Zunz*. *Emma Zunz* was 2116 words in length, while *Death was her Dowry* was 2752 words.

After reading the story, subjects were asked a series of 15 questions concerning the story. Some of these questions involved short answers while others required a response on a numerical rating scale. In the present research, we were primarily concerned with responses to 3 questions concerning their overall appreciation of the story. These were: "Is this story an example of good literature?" "Did you enjoy reading this story?" and "Would you recommend this story to someone else to read?" Subjects responded to these questions on a seven-point scale. Subjects in the study were then asked to read the story a second time and to respond to these questions a second time. The mean of the responses to these questions are shown in Table 1. At the conclusion of the second evaluation, readers were asked a number of questions about their background and reading habits.

6.3. *Derived measures*

For each subject, an index of the general evaluation of the story was compiled by averaging the numeric responses to the three general appreciation questions. The average values for our sample are shown in Figure 1 for the two groups of subjects (those who read *Emma Zunz* and those who read *Death was her Dowry*) and for the first and second reading. As can be seen, the evaluation of both stories improved from first to second reading. However, *Emma Zunz* improved substantially more than *Death was her Dowry*, even though initially it was appreciated less. In other words, *Emma Zunz* showed substantially more depth of appreciation than does *Death was her Dowry*. As can be seen from Figure 1, depth of appreciation was 2.54 for *Emma Zunz* but only 0.61 for *Death was her Dowry*.

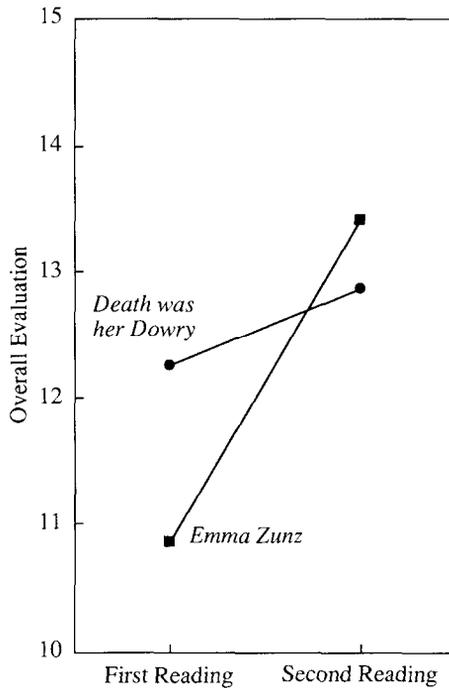


Fig. 1. Evaluations of texts in Experiment 1 on first and second reading.

We assume that the greater depth of appreciation of *Emma Zunz* is due, in part, to literary effects that emerge on second reading, and that there are few literary effects generated by *Death was her Dowry*. An index of these literary effects can be obtained by subtracting the depth of appreciation for *Death was her Dowry* from that for *Emma Zunz*. In this study, the “literariness” of *Emma Zunz* relative to *Death was her Dowry* was 1.94.

6.4. Generalizing to the population

The results obtained for our sample of readers can be used to make inferences about the distribution of measurements in the entire population. In particular, we can estimate confidence intervals for our depth of appreciation measure using standard statistical techniques. For *Emma Zunz*, we calculate that the average depth of appreciation in the population as a whole is in the range 1.30 to 3.79 with 95% probability. For *Death was her Dowry*, we calculate that the average depth of appreciation in the population is in the range -0.51 to 1.72 with 95% probability. It is significant that the confidence interval for *Emma Zunz* does not include zero. This indicates

that we can be relatively certain that this story has some depth of appreciation in the population; in other words, we can be confident that the evaluation will improve on second reading.

A crucial question concerns the derived measure of literariness, that is, the difference between the depth of appreciation for the two stories. In this case, the confidence interval is 0.31 to 3.56 (with 95% probability). Because this interval does not include zero, we can conclude with some confidence that in the population, *Emma Zunz* is perceived as more literary (i.e., has greater depth of appreciation) than *Death was her Dowry*.

6.5. Conclusion

The results from this experiment support the conclusion that *Emma Zunz* generates more emergent effects than *Death was her Dowry*. Presumably, the effects that emerge on second reading contribute to the appreciation of the story, which, in turn, produces an improved summary evaluation of the story. In this sense, *Emma Zunz* is more literary for this population.

Although this conclusion seems obvious to specialists in literature, we suspect that it is by no means a forgone conclusion for any number of populations or subpopulations. For example, it is entirely conceivable that some group of readers who have limited reading skills or comprehension abilities would appreciate little of Borges style and art and would not show the depth of appreciation results we observed in our sample. By this token, it seems important to verify a work's literariness for a given population.

In fact, it might be surprising in the view of some scholars that the untrained and unsophisticated readers in our population were able to appreciate *Emma Zunz*. Empirical discoveries such as these may render it necessary for literature specialists to rethink the assumptions about literary competence and the skills acquired through literary training. This is by no means to suggest that literary training is not necessary for the appreciation of literature, and that the readings of all untrained readers are just as profound and enlightening as those of informed and skilled readers. It does seem, however, to challenge the assumptions that an appreciation of literariness can only be acquired through the reading of high, serious, or canonized literature. In particular, the present results suggest that naive and unsophisticated readers are intuitively sensitive to at least some of the nuances of complex literary styles such as that of Borges.

A crucial result from our perspective is the demonstration of a new methodological tool for investigating literariness and interpretation. The results of this experiment verified that emergent effects can be measured in a rereading paradigm in which subjects are asked for their evaluation after both first and second reading. Moreover, the contrast between the large change from first to second reading obtained with *Emma Zunz* and the

almost nonexistent change for *Death was her Dowry* suggests that the emergent effects measured here were associated with the literariness of the Borges story. In this sense, the results are consistent with our assumption that literary effects are often emergent and vice versa. A more stringent test of these assumptions is provided below, where we use the rereading paradigm to test the potency of a critical interpretation of *Emma Zunz*. First, we describe our analysis of this story, and then we present an experiment in which we manipulate features of the text related to narratorial point of view.

7. Critical analysis of *Emma Zunz*

Emma Zunz is the story of a young woman who takes the law into her own hands in order to avenge her father's death, and who, in doing so, succeeds in committing the perfect crime. Upon receiving a letter from a stranger informing her of her father's death, Emma recalls in her memory an oblique comment made to her by her father before his arrest, that Loewenthal, manager of the firm for which he worked, and now its owner, as well as Emma's boss, was really guilty of the embezzlement for which he was charged and imprisoned. The story elaborates her ingenious plan to murder Loewenthal, which consists of constructing an elaborate alibi by picking up someone in a bar, having intercourse with him, proceeding to Loewenthal's residence, murdering him, and then claiming to the authorities that he raped her and that she killed him in the ensuing struggle.

What at first might appear to be a simple crime story reveals itself, at a deeper level, as a philosophical statement on the tenuous link between language and reference. We see this link suggested in what we have identified as multiple levels of aborted communication in which speakers and receivers of linguistic messages create possible, fictional, or alternate worlds which do not correspond to the perceived real world. In a true Borgian spirit, these levels reflect each other in a parodic game of specious relations, as we shall illustrate. One communicative situation involves the protagonist, Emma, as a receiver of two distinct messages. The first was her father's confession. The second is the content of the letter written to Emma by the unknown Fain, which informs her that her father accidentally took an overdose of veronal and died. From these two messages, which Emma relates in her mind, she infers that Loewenthal is directly responsible for her father's life circumstances and suicide. On the basis of this inference, she conceives her ingenious plan. It is important to note that no textual evidence is offered by the narrating voice anywhere in the story that (a) Loewenthal did directly embezzle the money, that (b) Emma's memory of her father's message is accurate, that (c) Fain's account of her father's death is correct, and, even if Loewenthal were the criminal and the father committed suicide, that (d) the

suicide was a consequence of the false accusation. On the contrary, the text does provide suggestions that Emma's inference is to be distrusted: upon receiving the letter, she is emotionally distraught, and, later in the story, her memory "repudiates and confuses" (p. 134) details pertaining to the murder. Surprisingly however, numerous critics have accepted the protagonist's inferences unquestioningly.⁷

A second communicative situation involves Emma as sender of a message, and the police, and "everyone" who hears her story and believes it, as the receivers of her utterance. Here, a first analogy is established between Emma and "everyone", as receivers of messages. Just as Emma (and, for that matter, the reader) lacks information about the concrete situations in which her father and Fain's messages are uttered, and is therefore in no position to reach conclusions about the situations to which these utterances refer, "everyone" also lacks information about the concrete situation in which Emma enunciates her message. Just like Emma however, "everyone" infers ontological truth from mere propositional logic. As the narrator concludes in the last paragraph of the story: "Actually, the story *was* incredible, but it impressed everyone because substantially it was true. True was Emma Zunz' tone, true was her shame, true was her hate. True also was the outrage she had suffered: only the circumstances were false, the time, and one or two proper names" (p. 137). Clearly, the narrator is commenting on the tenuous, problematic relationship between Emma's story and the kinds of inferences one is inclined to draw from them.

A third communicative situation involves the Narrator as sender of the story, and the Reader as receiver of the same. Here, the language of narration used to relate the story suggests that the reader's inferences about what happened in it might not be valid. The narrator himself purposely draws our attention to his professed lack of knowledge regarding the protagonist's motivations, state of mind, and even her whereabouts at certain moments. The language used in the following selection of examples is clearly one of intentional ambiguity: "*Perhaps* on the infamous Paseo de Julio she saw herself multiplied in mirrors ... but *it is more reasonable to suppose* that at first she wandered, unnoticed, through the indifferent portico ..." (p. 134); "... *did* Emma think once about the dead man who motivated the sacrifice? *It is my belief that* she did think once ..." (p. 135); "*Perhaps* it comforted her to verify ... that what had happened had not contaminated things" (p. 135) (italics are our own). Because this self-portrayal of confusion and uncertainty defies the traditional convention of narratorial omniscience, it can be read as a warning to the reader to refrain from indulging in an interpretative activity

⁷ For a summary and more detailed critique of these approaches, see our unedited article "Navegando el laberinto de las suposiciones, o cómo leer *Emma Zunz* de Borges" (Bortolussi and Dixon, 1993).

that attributes meaning where none can correctly be inferred. The analogies continue: like the Emma who draws conclusive inferences about the two messages she receives, and “everyone” who receives her message, critical readers have not heeded to the warning. There are numerous examples of critical readings which fill in the blatant gaps of the text with tenuous presuppositions and inferences about what is not stated in it.⁸ Like Emma and “everyone”, these readers create alternate, possible, or fictional worlds, which do not correspond, in any obvious way, to the real, fictional world they perceive. To carry the analogy further, like Emma, who consciously manipulates language to create a fiction intended to arouse a certain emotional effect, the narrator of the story also manipulates language and literary conventions to create a fictional, incomplete story, intended to elicit a specific kind of response. In both instances, the response sought can be described, simply, as a trap into which “everyone” and critical readers alike have fallen.

Therefore, the narrator’s use of expressions of uncertainty, confusion, and ignorance draws attention to the ambiguity of the narrator’s perspective. This ambiguity suggests two different levels of meaning: On a philosophical level, it can be read as a commentary on the inadequacy of language as a vehicle for referential communication; on a literary level, it can be read as a parodic allusion to the production and reception of literature.

8. Experiment 2

In this second experiment, we used the depth of appreciation measure devised in Experiment 1 to test that our interpretation of *Emma Zunz* is a potent interpretation for readers in our population. To reiterate, a potent interpretation in our terms is one that incorporates literary effects that are common in the population. Thus, in order to test whether an interpretation is potent, we need to assess whether classes of effects are common. In this experiment, we focused on one aspect of our interpretation: the role of narratorial ambiguity in highlighting the use of language in story telling. We reasoned that if effects related to narratorial ambiguity are common in the population, eliminating the narratorial ambiguity and the associated effects should reduce the reader’s appreciation of the story. Thus, we compared the depth of appreciation obtained in Experiment 1 with the depth of appreciation for a new version of *Emma Zunz* in which many of the cues to narratorial ambiguity were removed. If depth of appreciation varies with these cues to narratorial ambiguity, it would suggest that the readers in the population commonly appreciate the narrator’s point of view in this story,

⁸ We refer the reader to our same article (Bortolussi and Dixon, 1993).

and that an interpretation that incorporates these narratorial effects is potent.

8.1. *Population and sample*

The population and sampling procedures were identical to that used in Experiment 1. In particular, our sample consisted of two groups of 24 psychology undergraduates; we assumed that these readers were likely to be representative of the larger population of skilled readers with little or no formal experience with literature or literary criticism. For the purposes of examining common effects, we divided the readers in Experiments 1 and 2 into two subgroups: those who reported a significant amount of reading for pleasure and those who reported reading minimally. Roughly half of our sample read more than 3 hours per week; we refer to this group as “frequent” readers, although the average reported reading level was only 5.5 hours. Infrequent readers were those who read less than 3 hours per week (1.1 on average).

8.2. *Measurement procedure*

The procedure was identical to that used in Experiment 1: First subjects read the story, then they answered general evaluative questions, and then the procedure was repeated. However, in this experiment the modified versions of the stories were given to the two groups of readers. The modified version of *Emma Zunz* was changed to remove all explicit references to the narrator’s lack of knowledge or uncertainty. The passages that were removed were marked by words such as “perhaps”, “maybe”, and “might” or were framed as questions by the narrator. The replacement text was intended to preserve the informational content, tone, and style of the original; several examples are shown in Table 2. There were a total of 17 passages changed in the story, comprising about 5% of the words in the story.

The modified version of version of *Death was her Dowry* was changed to include precisely the same cues to narratorial ambiguity that were removed from *Emma Zunz*. Again, 18 passages were changed, comprising about 7% of the words in the story; examples are shown in Table 3.

As before, our analysis focused on the responses to three questions concerning readers’ overall appreciation of the story. The mean responses to these questions are shown in Table 4.

8.3. *Derived measures*

An index of the general evaluation was compiled for each reader as in Experiment 1, and the average depth of appreciation was computed for each

Table 2
Examples of modifications in *Emma Zunz*

Original text	Modified text
<i>Perhaps</i> on the infamous Paseo de Julio she saw herself multiplied in mirrors, revealed by lights and denuded by hungry eyes, <i>but it is more reasonable to suppose that</i> at first she wandered, unnoticed, through the indifferent portico ...	On the infamous Paseo de Julio she saw herself multiplied in mirrors, revealed by lights and denuded by hungry eyes, then she wandered, unnoticed, through the indifferent portico ...
<i>Perhaps</i> it comforted her to verify in the insipid movement along the streets that what had happened had not contaminated things.	It comforted her to verify in the insipid movement along the streets that what had happened had not contaminated things.
<i>Did</i> Emma Zunz think once about the dead man who motivated the sacrifice?	Emma Zunz thought but once about the dead man who motivated the sacrifice.

Table 3
Examples of modifications in *Death was her Dowry*

Original text	Modified text
An even dozen bullets had been pumped into the victim from three different guns, however – a.25, a.32, and a.32 automatic.	<i>Perhaps</i> an even dozen bullets had been pumped into the victim from three different guns, however – a.25, a.32, and <i>some type of automatic weapon</i> .
The sheriff now had a complete confession by one of two hired killers, but he wasn't buying it in a hurry.	<i>It would seem that</i> the sheriff now had a complete confession by one of two hired killers, but he wasn't buying it in a hurry.
Found guilty of murder by the trial jury, Fricker received the sentence of death with sneering bravado, but on the morning of his execution, he showed himself for the coward he was.	Found guilty of murder by the trial jury, Fricker received the sentence of death with sneering bravado. <i>Did he think once about his victims? It is my belief that he did once, and in that moment he endangered his smug self-assurance.</i>

Table 4
Evaluations of modified *Emma Zunz* and *Death was her Dowry* after first and second reading

Question	<i>Emma Zunz</i>		<i>Death was her Dowry</i>	
	First reading	Second reading	First reading	Second reading
Is this good literature?	4.29	4.79	2.62	3.00
Did you enjoy it?	4.08	4.42	4.13	3.75
Recommend to a friend?	3.63	4.04	3.04	3.08

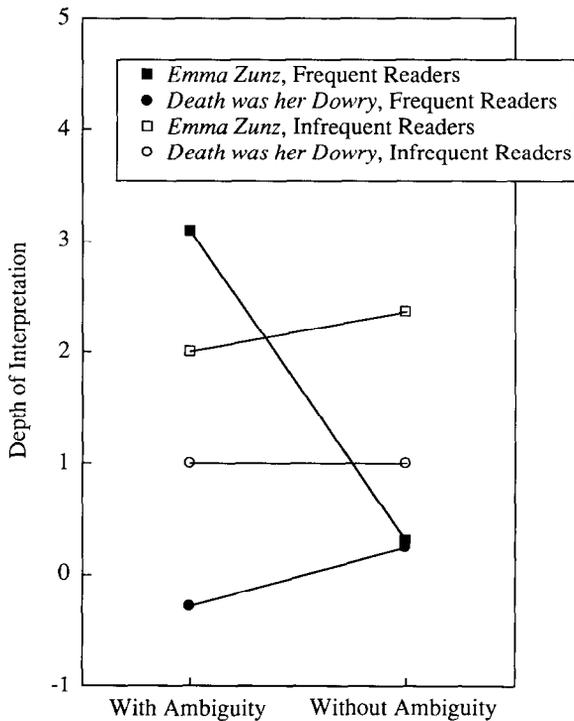


Fig. 2. Depth of appreciation by frequent and infrequent readers with and without narratorial ambiguity.

story (i.e., the change in evaluation from the first to the second reading). These values are shown in Figure 2 separately for light and heavy readers. This figure is organized to illustrate the effects of narratorial ambiguity. Thus, the stories that include cues to narratorial ambiguity (i.e., the original version of *Emma Zunz* and the modified version of *Death was her Dowry*) are shown on the left; the stories without these cues (i.e., the modified *Emma Zunz* and the original *Death was her Dowry*) are shown on the right.

Consider first the results obtained with the frequent readers (shown by filled symbols in Figure 2). These readers showed substantial depth of appreciation (i.e., a large change in evaluation from the first to the second reading) for the original version of *Emma Zunz* with narratorial ambiguity, but this depth of appreciation evaporates when narratorial ambiguity is removed. Thus, it would seem that for these readers narratorial ambiguity in *Emma Zunz* is an important feature, and that without it many of the emergent effects that contribute to depth of appreciation in the original are lost. Frequent readers show little depth of appreciation for *Death was her Dowry* and are unaffected by the presence or absence of cues to narratorial

ambiguity in this story. This confirms our expectation that the depth of appreciation shown for *Emma Zunz* cannot be ascribed to simple reactions to language usage.

Now consider the results for our sample of infrequent readers (unfilled symbols in Figure 2). These readers show greater depth of appreciation for *Emma Zunz* than for *Death was her Dowry*, but were unaffected by narratorial ambiguity in either story. This suggests that although these readers had emergent effects for *Emma Zunz*, they were unrelated to narratorial ambiguity. Thus, whatever interpretation contributed to their superior evaluation of this story on second reading, it probably did not include aspects of the narrator's knowledge and language.

In order to assess the effect of removing narratorial ambiguity from *Emma Zunz*, we subtracted the depth of appreciation measure for the modified version (without narratorial ambiguity) from that for the original version. This provides an index of sensitivity to narratorial ambiguity. As can be seen from Figure 2, this value was 2.78 for frequent readers, suggesting that these subjects were relatively sensitive to narratorial ambiguity and that depth of appreciation was substantially less without it. However, for infrequent readers this value was quite small: -0.36 . The apparent difference between frequent and infrequent readers can be assessed by subtracting the sensitivity index for infrequent readers from that for frequent readers. This provides an index of differential sensitivity that reflects how readers' response to narratorial ambiguity is mediated by experience and knowledge. This value was a substantial 3.15, and suggests that a certain amount of reading experience is necessary to appreciate narratorial ambiguity in this story.

It is important to note that our index of sensitivity produced very little when applied to our manipulation of *Death was her Dowry*. For frequent readers, the sensitivity to change was only -0.53 and for infrequent readers it was precisely 0. These results indicate that adding almost the same language to *Death was her Dowry* that was removed from *Emma Zunz* had almost no effect on depth of appreciation, regardless of reading background. This suggests that the effects of manipulating narratorial ambiguity that were found for *Emma Zunz* were not caused by some artifact of the text manipulation or measurement procedure. Our interpretation is that narratorial ambiguity only contributes to the interpretation of the story in the context of the other devices and structures used by Borges in *Emma Zunz*, and is relatively meaningless by itself.

8.4. *Generalizing to the population*

As before, we can use our sample data to estimate how our measurement procedure would have fared in the population at large. Among frequent

readers in the population, sensitivity to narratorial ambiguity was in the range 0.47 to 5.09 (with 95% probability); among infrequent readers this range was -2.52 to 1.79 . Crucially, the range of sensitivity for frequent readers excludes zero. Thus, we can conclude with some confidence that untrained readers with a certain amount of reading experience can appreciate to some extent the Borges' use of narratorial ambiguity. We can also calculate the range of differential sensitivity in the population. This works out to be 0.10 to 6.19 with 95% probability. Because this interval does not include zero, we can conclude that in the population, frequent and infrequent readers differ in their sensitivity to our manipulation of narratorial ambiguity.

8.5. *Conclusions*

The results suggest that our interpretation of *Emma Zunz* is potent for frequent readers. The emergent effects generated in these readers are clearly sensitive to specific features of the text related to narratorial ambiguity. Without these features, many of the emergent effects are lost for these readers, and their appreciation of the story changes little from first to second reading. We assume that what emerges on second reading of the original version of *Emma Zunz* is some sense of the irony involved in portraying the narrator as uncertain or confused, and this irony is much less apparent when the cues to narratorial ambiguity are omitted. Thus, any interpretation that provides an account of this irony would have a certain degree of potency. Again, the notion of potency does not entail that readers in the population will spontaneously generate the interpretation or even agree with it; a potent interpretation is simply one that readers will be able to understand in terms of the text effects it incorporates. In the present case, our experimental results indicate that frequent readers are able to appreciate the role of narratorial ambiguity in our interpretation of *Emma Zunz* as a comment on language and reference.

Infrequent readers show more depth of appreciation for the original *Emma Zunz* than for *Death was her Dowry*, just as frequent readers do. We interpret this result as indicating that emergent literary effects contribute to their appreciation of the story on second reading. However, whatever emergent effects are involved, they seem to be unrelated to narratorial ambiguity, and it seems reasonable to conclude that our interpretation of this story would not be potent for these readers. Presumably, infrequent readers appreciate literary aspects of the text other than narratorial perspective, and an interpretation based on these other text effects would be potent for this segment of the population.

It is interesting to note that the frequent readers in our sample read relatively little in an absolute sense and had quite minimal exposure to

canonized or “serious” literature. At the same time, they demonstrated clear sensitivity to the cues to narratorial ambiguity manipulated in this experiment. This result suggests some hypotheses regarding the role of training and experience in literary reception that seem inconsistent with traditional theories. For example, relatively small amounts of exposure to the conventions of narration and plot as practiced in popular fiction may engender some sophisticated (but presumably implicit) notions of narratorial perspective. The role of literary training may be less to teach students these concepts, as to make them explicit and to give them the language with which they can be discussed. If such a hypothesis bears up under scrutiny, it would entail some revision of many of the assumptions that have traditionally guided literary critics in the exercise of their profession. In particular, the view that the effects of “high” and “popular” literature are qualitatively different may need to be re-examined.

The results of the second experiment provide a much stronger test of the assumptions underlying the rereading paradigm. It is possible to generate alternative accounts of the depth of appreciation results from Experiment 1. For example, the Borges story might have used more difficult words and syntactic structures that were difficult to understand on first reading and that became clearer on second reading. We regard this account as unlikely; our impression is that the Borges translation used in the experiment was superficially just as readable as the control story. However, the crucial argument against this type of counter-explanation is that it cannot explain the effect of cues to narratorial ambiguity. The results of Experiment 2 indicate not only that *Emma Zunz* has a large depth of appreciation, but that circumscribed and identifiable features of the text are involved in this depth of appreciation. The only natural account of the results is that frequent readers appreciate something about narratorial point of view in this story.

9. Implications

In sum, our framework for understanding the processing of literary texts is that features of the text interact with characteristics of the reader to produce a collection of text effects, among these literary effects that are specific to literary processing. In our terms, a potent critical analysis is one that incorporates literary effects that are common in some population of readers. Further, we propose that literary effects are typically emergent effects that arise only with study and reflection. We have illustrated this approach with an analysis of *Emma Zunz*, and have shown that a text feature that is crucial in our analysis, narratorial ambiguity, is also crucial to the literary effects engendered by this text among our population of frequent, but untrained,

readers. Thus, we feel confident in asserting that our analysis of this story has at least a certain amount of potency.

The framework we have proposed makes methodological, theoretical, and critical contributions to literary scholarship. Methodologically, we have validated the rereading paradigm for the study of literary processing. The results of the present experiments indicate that the rereading paradigm provides reliable and important information about literary processing in the form of the depth of appreciation measure. The results further suggest that depth of appreciation is higher in literature than in nonliterature, and that depth of appreciation is determined by emergent, literary effects of the text. We suspect that depth of appreciation and the rereading paradigm more generally will become useful tools in a wide range of empirical investigations of literary processing.

Theoretically, our empirical reformulation of crucial concepts such as text, reader, literary processing, literariness, and interpretation constitutes a significant departure from traditional studies of literary reception. Our method provides a viable alternative to the polarized “text-bound” versus “reader-oriented” theories of literary reception and interpretation. It allows one to identify objective properties of the text that affect literary processing (text features) while also giving due weight to the contribution of the reader to the appreciation of literature and literariness (reader features). The framework motivates a much needed focus on the interaction between text features and reader characteristics. Our concept of “potent interpretation” allows us to reformulate the problem of the acceptability of literary interpretations by shifting the focus from subjective value judgments to empirical criteria. Although we recognize that potency is not the only criterion one might use to evaluate an interpretation, it provides a testable minimal criterion for value and utility that should not be ignored: If an interpretation is not potent for some population, it has little relevance to literary processing.

The present work also makes a contribution to the critical scholarship on *Emma Zunz*. In our interpretation of this work, we have proposed that a variety of text features are unified by the view that the story makes a metalinguistic commentary on language, reference, and fiction. Although this interpretation is consistent with a variety of other analyses of Borges work, it seems to have been generally overlooked in the scholarship concerning this particular story. Thus, we believe our interpretation contributes to the understanding of this important author.⁹ In addition to the traditional, academic value of our interpretation, we can also assert that it stands up to a certain amount of empirical scrutiny: We have demonstrated that the inter-

⁹ For a summary of scholarship on this story, we refer the reader once again to our same article on *Emma Zunz* (Bortolussi and Dixon, 1993).

pretation has a certain amount of potency for even the relatively unsophisticated readers in our population.

In conclusion, we note that the approach we are describing here requires significant contributions from both literary criticism and cognitive psychology. On the one hand, one needs some elements of experimental methodology from psychology in order to implement and carry out the empirical investigation; on the other hand, one needs the critical and conceptual tools from more traditional studies of literature to frame the problem in a meaningful way. In trying to understand the effects of literature on readers, neither literary criticism nor cognitive psychology can proceed alone. What is needed is a marriage of the two approaches if real progress is to be made.

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