Numerically Aided Phenomenology: Procedures for Investigating Categories of Experience

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Abstract: Complementarity between quantitative and qualitative methods often implies that qualitative methods are a step toward quantitative precision or that quantitative and qualitative methods provide mutually validating "triangulation." However, there also is unacknowledged quantification within the type of analytic induction that is considered pivotal in qualitative thinking. We attempt to justify this claim and present a form of phenomenological analysis that invokes numeric algorithms. Numerically aided phenomenology is a procedure for systematically describing categories (kinds, or types) of lived experience within a set of experiential narratives. In a comparative reading, recurrent meaning expressions are identified and paraphrased. Then judgments about their presence or absence are used to create matrices representing the profiles of meanings expressed in each narrative. Finally, cluster analytic algorithms are used to group these experiential narratives according to the similarities in their profiles of meaning expressions. In this way, categories of similar experiential narratives—and their distinctive attributes—can be identified. Rather than an essentialist conception of the qualities defining classes, in numerically aided phenomenology classes are defined by more-or-less invariant attributes, i.e., classes are formed such that members share a large number of expressed meanings, although no single meaning (or set thereof) is necessary or sufficient for class membership.

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1. Introduction

Although numeric algorithms are sometimes considered incompatible with the distinctive objectives of qualitative studies, quite frequently quantitative and qualitative methods are presented as complementary modes of inquiry. One rationale for their complementarity is that qualitative methods enable the discovery and analytic articulation of previously unobserved phenomena. And, sometimes—but not always—the qualitative methods that provide these discoveries facilitate development of the quantitative measures that are traditionally deemed a hallmark of scientific endeavors (cf. LOOS 1995). Although this rationale for complementarity gives credit to the intellectual accomplishments evident in efforts to disembed subtle phenomena from the flux of human affairs, it would be inappropriate to conclude that qualitative methods necessarily lead to quantitative refinement; quite often qualitative methods—and the connoisseurship that supports them—constitute the very best science available (POLANYI 1958). However, when investigators allow that *occasionally* qualitative methods lead to quantitative refinement, we regard this position as defensible within a perspective that gives both quantitative and qualitative inquiry a fruitful location within the human sciences. [1]

Another rationale for complementarity supports methodological triangulation between quantitative and qualitative research strategies. From this perspective, the trustworthiness (nee validity; LINCOLN & GUBA 1985) of findings in qualitative studies partly depends upon their convergence with results obtained using quantitative methods that are not subject to the same sources of imprecision (MORSE 1991). The emphasis on convergence (and, when appropriate, divergence) of qualitative and quantitative findings gives epistemic priority to evidential coherence—even though the relevant coherence criteria remain markedly less concrete than the decision rules articulated for psychometric construct validation (CRONBACH 1971). However, it should be remembered that coherence criteria play an important role *within* qualitative methods per se and that, in many circumstances, purely qualitative coherence is just as (or even more) important than qualitative-quantitative convergences.[1] So, provided that deference is not automatically given to quantitative "precision," we also regard triangulation between qualitative and quantitative methods as defensible investigative praxis. [2]

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1   For example, qualitative methods that provide convergence across levels of analysis (e.g., interview comments descriptive of anxiety that converge with interview comments indicating avoidance of a task) may be more revealing than qualitative-quantitative convergences at the same level of analysis (e.g., interview comments descriptive of anxiety that converge with—or are largely redundant with—questionnaire responses indicating anxiety).

Despite their appeal, the preceding forms of qualitative-quantitative complementarity beg questions that are less frequently considered and potentially more basic. Is there an unacknowledged form of quantification in what are usually considered qualitative methods? Does this unacknowledged form of quantification play an important role in the type of analytic induction that is pivotal in qualitative thinking? Is there a place—or even a need—for numeric algorithms at the inductive core of qualitative methods? We think the answer to each of these questions is, "yes." Our goal here is to clarify this conclusion and then to demonstrate that selected numeric algorithms offer significant advantages in phenomenological forms of qualitative research by adding precision to what it means to think "qualitatively." Specifically, we will introduce a form of phenomenological investigation that inductively brings categories of experience to greater distinctiveness, coherence, and richness through the quantitative systematization of categorical thought. [3]

2. Sources of Imprecision in Investigative Praxis

2.1 Imprecision in the quantification of variables

Primarily because of its association with achievements in the physical sciences, quantified measurement seems a step toward enhanced precision. But, precision, as understood here, means more than reliability and validity; it also requires appropriately complex representation of the target construct. In phenomenological terms, precision refers to the *distinctiveness* that fosters reliability, the *coherence* that assures validity, and the *richness* that is appropriate to the targeted phenomenon. First, *distinctiveness* is the extent to which a phenomenon is discriminable from others. Judgments about distinctiveness require more than explicit (e.g., operational) definitions. They require the capacity to anticipate attributes that remain implicit in even the most explicitly conceived phenomenon and, on the basis of those implicit meanings, to consistently verify that phenomenon's presence or absence. Second, *coherence* is the extent to which judgments about the attribute structure of a particular phenomenon are congruent. Short of logical entailment but beyond associative contingency, judgments about coherence require consideration of both the explicit and implicit meanings of the attribute structure they describe. Third, *richness* is the extent to which judgments about a phenomenon capture its complexity and intricacy. Richness entails full differentiation of a phenomenon's attributes, identification of its attribute structure, and appreciation of its structural incongruities. [4]

Implicit in this tripartite conception of precision is a critique of indices in quantitative human sciences research. Indices, in contrast to direct measurement, often entrench imprecision within measurement procedures. For example, suppose we were interested in student use of library books. Direct measurement might combine the number of times library books are borrowed and the length of the borrowing period. In contrast, an index of student use of library books might be the number of times library books are borrowed, independently of how long they were borrowed. Although this index might suffice within the pragmatics of some research designs, it fails to grasp the complexity of the

targeted construct. Quantitative measurement in human sciences research regularly lacks precision because, as in this simple example, the complexity of the targeted construct is not fully represented in the methods of measurement. [5]

Quantitative methods are, in part, a response to the demand for greater precision in human sciences research. However, quantification often fails in this objective because it does not meet the demand that measurement capture the rich complexity of the targeted construct. To appreciate this argument, it will be useful to examine more concretely how the promise of quantification can, in practice, betray the investigator's commitment to precision. Consider first how a dichotomous, nominal scale is implied in an affirmative response to the open-ended question, "Are you sad?" "I am sad" implicitly is contrasted with its negation, "I am not sad." And yet, this simple affirmation remains ambiguous; it does not reveal *how* sad the person is. In these circumstances, the introduction of an ordinal scale (0= "I am not at all sad," 1= "I am slightly sad," 2= "I am very sad," 3= "I am extremely sad") seems like discriminatory refinement of the type that can be properly compared with the physicist's instrument-guided measurement of spatial or temporal continua. Although we may have some qualms about whether "slightly," "very," or "extremely" mean the same to everyone, we are sufficiently assured of the conventionality of these meanings that this quantifying procedure plausibly enhances precision in judgments about a person's sadness. [6]

However, such enhancement is often illusory. Consider, for example, quantification of the extent to which mentation reported upon awakening from sleep is "dreamlike." As with sadness, a dichotomous nominal scale is implied in an affirmative response to the open-ended question, "Were you experiencing dreamlike imagery just before you awakened?" "I was experiencing dreamlike imagery" implicitly is contrasted with its negation. And, as with sadness, the introduction of an ordinal scale might seem a welcome advance in precision (0= "I was not experiencing dreamlike imagery," 1= "I was experiencing slightly dreamlike imagery," 2= "I was experiencing very dreamlike imagery," 3= "I was experiencing extremely dreamlike imagery"). However, elaboration of the original nominal scale is problematic in this case because, perhaps more obviously than with "sadness," the targeted construct "dreamlike imagery" is subtle and multifaceted. The conventionality of its meaning—and hence the meaning of every point on the scale—is not by any means assured, and neither then is precise measurement. [7]

Thurstone scaling (THURSTONE & CHAVE 1929) is one attempt to ensure the conventionality of meaning in scale items. The first step in these procedures is to present an open-ended question to a large number of people (e.g., "What was going through your mind just before you awakened?"). Then, based on the level of the targeted construct expressed in each response (e.g., "dreamlikeness"), each statement is assigned a value by a panel of judges. Typically, each judge independently sorts these statements into ten numbered piles, attempting to maintain equal intervals between each pile. Those statements with high inter-judge reliability are selected as options for the scale, assuring that each item on

the scale is conventionally understood as representing a particular level of the
targeted construct. When the completed scale is administered, respondents
check the statement that most clearly describes their experience (e.g., "I
experienced imagery in the form of an emotional and bizarre story.) [8]

Imprecision in scales developed using this procedure resides partly in those
responses to the original open-ended question that are "unreliably" sorted. Even
ignoring unique responses, statements that recur (if not verbatim, then at least in
the theme-repeating form familiar to qualitative researchers) but that are not
reliably sorted according to level, are removed from the final scale and, hence,
from the measurement procedures. To this extent, the resulting scale becomes
an index and not a direct measure of the targeted construct. Moreover, among
the individuals responding to the completed scale, those whose experience is
thematically captured by the recurrent *but not reliably sorted* statements will be
required to align their ratings with the scale's *reliably sorted* statements. To that
extent, their scale responses distort their self-perceptions and constitute a critical
source of imprecision in quantitative measurement. One goal of qualitative
methods is to recover and relocate those recurrent but not reliably sorted
statements—and restore conceptual precision to investigative efforts. [9]

2.1.1 An example of quantitative imprecision

An actual example may help to consolidate this argument. Although not
developed using Thurstone scaling, an instrument frequently used to judge the
dreamlike quality of sleep mentation is the Dreamlike Fantasy Scale (FOULKES
1970). To develop this scale, FOULKES combined several dream attributes within
a single continuum. The resulting scale, designed for use after systematic
awakenings from different stages of sleep, introduces the following 8-point
continuum:

1. Mind was blank
2. Experienced something but forgot what it was
3. Conceptual (no imagery), everyday content
4. Conceptual (no imagery), bizarre content
5. Non-hallucinatory (sensory) imagery, everyday content
6. Non-hallucinatory (sensory) imagery, bizarre content
7. Hallucinatory (sensory) imagery, everyday content
8. Hallucinatory (sensory) imagery, bizarre content [10]

Two features of this scale underline the extent to which it is an imprecise
measure of the dreamlike fantasy continuum. First, points 3-8 on the scale reflect
interactive conjunctions of sensory imagery, hallucinatory quality, and
bizarreness. For example, conceptual (no imagery) mentation cannot be
hallucinatory, whereas sensory imagery can be either hallucinatory or non-
hallucinatory. Thus, unlike the sadness continuum (see above), points along the
dreamlike fantasy dimension do not tidily manifest "more" or "less" of some single

attribute. In fact, as FOULKES acknowledged, such conjunctions suggest that this instrument might be better understood as an array of nominal categories rather than as an ordinal scale.[2] Second, these interactive conjunctions are not arbitrary, but rather reflect the investigator's considerable experience with responses to the open-ended question, "What was going through your mind just before you awakened?" However, these conjunctions are not exhaustive. Some recurrent forms of response to the open-ended question are difficult to locate on this continuum. For example, dreams in which a traumatic event (e.g., a combat episode) is vividly re-experienced are not "bizarre," and yet such dreams would be rated as less dreamlike than those containing a minor incongruity (e.g., a figure that combines the features of two different people). Thus, despite FOULKES' (1985) argument that there is "general agreement" about "what dreams are" (p.18), the re-experiencing dream is a recurrent response that is not (to use a Thurstone scaling analogy) among those "reliably" sorted. In this way it conceals imprecision in ways that betray its scientific objectives. [11]

We believe that the type of imprecision found in the Dreamlike Fantasy Scale is representative, rather than rare, among instruments developed for measurement in the human sciences. Reference to the Thurstone scaling procedures demonstrates that assessment of the precision gained—or lost—through quantitative measurement depends upon familiarity with the full array of responses to an original open-ended question. To be precise, an instrument must exhaust the complexity of that array. If recurrent responses are omitted, the instrument's faithfulness to the targeted construct is diminished. This argument does not preclude scale refinements that more and more adequately address such complexity. But determining how adequately *any* scale addresses such complexity requires systematic consideration of the recurrent expressions presented in response to the original open-ended question. In effect, qualitative investigation is logically anterior to precise "scale" development—and it plays a critical role in the assessment of that precision. [12]

2.2 Imprecision in qualitative judgments of kind

We suggested earlier that precision refers to the *distinctiveness* that fosters reliability, the *coherence* that assures validity, and the *richness* that is appropriate to a targeted construct. Implicit in this conception of precision is a critique of the failure in qualitative research to address issues pertaining to the "extent" to which a category of experience is manifest in an experiential narrative. The failure to address these issues entrenches a source of imprecision within qualitative research, a source that is complementary to the sources of imprecision in quantitative studies. To justify this conclusion, we will consider just one form of qualitative study: phenomenology. The reason for this focus is that phenomenologically oriented investigators explicitly aspire toward distinctiveness, coherence, and richness in the articulation of their targeted constructs. How effectively do they attain their objectives? [13]

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2   We would also argue that the sadness scale conceals an array of nominal categories, but making that case here would take us too far afield.

Phenomenologically grounded qualitative methods address questions of the kind:
What are the attributes A1...AN such that, when they are jointly present as
aspects of O, O is an X? For example, what are the attributes of an experience
such that, when they are expressed in an experiential narrative, that narrative is
an expression of "dreaming"? Usually the phenomenon of interest is tacitly
known. For example, it is assumed that the investigator can recognize when—but
perhaps not how—a narrative describes an experience of "dreaming." With that
confidence, the phenomenologically oriented investigator examines a set of
narratives to identify the attributes that are invariably present in the experience of
"dreaming." [14]

Implementation of this strategy begins with a form of open-ended questioning
comparable to that required in Thurstone's scaling procedures: "What was going
through your mind just before you awakened?" And, similarly, phenomenological
investigators act as judges who review the resulting array of responses and sort
them. However, rather than sorting each response according to the *level* at which
a targeted construct is manifest (e.g., "dreamlikeness"), judges sort them
according to *kind*. For example, in one study, GIORGI (1985) asked participants
to describe an experience of learning. Through detailed analysis of their
responses, he identified two different kinds of learning and articulated the
attributes that were characteristic of each. By identifying kinds of experience but
ignoring levels of their manifestation, phenomenological investigations such as
GIORGI's avoid quantification. Moreover, by addressing questions of kind, these
studies preclude the forms of imprecision that often corrupt efforts toward
quantification. That is, recurrent forms of response that may be difficult to sort by
level (e.g., dreams in which a traumatic event is realistically re-experienced) are
instead understood by phenomenologically oriented investigators to constitute a
qualitatively different kind of response. [15]

And yet, the phenomenological gain in precision may obscure a complementary
problem: in the human sciences, questions of kind cannot be asked without also
entertaining questions of level. The justification for this seemingly impertinent
assertion becomes evident when phenomenological methods are considered
more closely. Categories of experience can be identified independently of the
levels of their manifestation only when investigators are concerned with what
HUSSERL (1913/1931) called "exact essences," e.g., the essence of geometric
forms. In the articulation of exact essences, variations in the phenomenon of
interest may even be pursued in imagination; there is no need to examine their
occurrence empirically. In the examination of a concrete instance of a geometric
form such as a triangle, it is possible to imagine that *a single discrete attribute* of
that phenomenon (e.g., its color or its number of sides) is changed. After varying
this single attribute in imagination, judging whether the variation remains an
instance of the phenomenon (as in the case of varying a triangle's color) or
whether it does not (as in the case of varying its number of sides) reveals
whether that varied aspect is essential for the phenomenon to be the kind of
object that it is, i.e., a triangle. [16]

The manner in which imaginative variation has been advocated by some phenomenologists (cf. GIORGI 1985; 1997) resembles its use in the articulation of exact essences. In the confidence that the investigator can recognize when a narrative describes a particular kind of experience, it seems possible to examine narrative variations in imagination and to determine whether particular attributes distinguish that experience. By systematically imagining possible modifications of concretely given narratives, the investigator presumably can uncover the essence of the phenomenon. However, this methodological proposal is put in jeopardy when, as is almost invariably the case in the human sciences, investigation moves beyond the realm of exact essences. HUSSERL (1913/1931) contrasted exact essences, such as the essence of "triangle," with what he called "morphological essences". To appreciate this distinction, consider the kind of intentional object that those who know trees call a "red oak." Red oaks *usually* appear as trees with leaves having spiny pointed lobes; in contrast, white oaks *usually* appear as trees with leaves having rounded lobes. We emphasize "usually." The bluejack oak, for example, is a type of red oak that, unlike its red oak companions, has leaves with rounded lobes. Nonetheless it is considered a red oak because it possesses many of the other attributes of members of the red oak family, such as their characteristically bitter acorns, the hairy surfaces inside their acorns, and so on. In these circumstances, varying a concrete representation of a red oak tree in imagination so that it has rounded lobes cannot help to determine whether spiny pointed lobes are essential for a red oak tree to be the kind that it is because *some* red oaks do *not* have leaves with spiny pointed lobes. Within this deciduous domain, using the imaginative variation of single discrete attributes to identify essences simply (and in principle) does not work. [17]

As MERLEAU-PONTY (1962) pointed out, considerations such as these prompted the later HUSSERL (1938/1970) to more tightly circumscribe the role of imaginative variation. Imaginative variation became the means by which the inductive examination of numerous actual instances of a phenomenon progressively leads to articulation of their idealizing limits, a process based upon a kind of "interpolation" across concrete instances. In our deciduous example, such interpolation enables the articulation of a prototype, i.e., the ideal, prototypic limits of the category "red oak tree." This formulation captures the structure of our experience with red oak trees—and of most phenomena within the human sciences as well. It rescues the notion of essential structure from the strictures of exact essences and places it in the service of morphological essences, a shift that is seldom acknowledged in critiques of phenomenology's "essentialism." Equally important, it suggests the need to incorporate consideration of the "degree" to which an instance "fits" a prototype within phenomenologically oriented qualitative studies. [18]

By formally describing this state-of-affairs, the means by which we can more precisely address questions of "degree" become clear. Within some domains, categories of experience will have the following structure (cf. BECKNER 1959):

1. Each instance of the category has a large but unspecified number of attributes;

2. Each attribute in that array is an attribute of many instances of the category; and

3. No attribute in that array is an attribute of every instance of the category. [19]

By virtue of the third criterion, which defeats imaginative variation in its commonly advocated form, no attribute is strictly invariant. By virtue of the second criterion, each attribute is more-or-less invariant—and extrapolation from these more-or-less invariant attributes identifies the ideal, prototypic limits of the category, i.e., its morphological essence. By virtue of the first criterion, the comparison of entities across a large number of their attributes becomes the mode of access to these categories, as well as to their prototypes. Within such comparative thought, HUSSERL argues, we necessarily rely on "degrees" of similarity, primarily because the "extent" of similarity between two or more wholes depends upon how *many* parts of each are, in themselves, similar (HUSSERL 1948/1973; §45, p.193).[3] By implication, we propose, HUSSERL is acknowledging that there is inherent quantification of "extent" and "degree" within similarity judgments—and hence within the determination of morphological essences. [20]

Categories defined in the preceding way have been called polythetic classes (SNEATH & SOKAL 1973). Techniques of numerical analysis exist for the identification of such classes and of their more-or-less invariant attributes. Briefly, if members of a set of phenomena are examined for the presence or absence of an array of attributes, functions such as a correlation or distance coefficient may be used to express the degree of similarity between any two members of the set. A number of cluster analytic algorithms can then be used to classify together members of the set that have a certain degree of mutual similarity. These steps may be used to form classes whose more-or-less distinctive attributes can then be identified. And, extrapolation from these distinctive attributes enables articulation of the ideal, prototypic limits of the class. Finally, correlation or distance coefficients can be used to articulate the "degree" of similarity between any instance of the class and its ideal prototype. [21]

The conception of prototype used here must be distinguished from the conception of "typicality" that is often invoked in quantitative human sciences research. The calculation of an average as a measure of central tendency—and the determination of deviations from that average—is common statistical procedure. For example, the four values 0, 1, 1, and 1 have a mean of .75, and the deviations from that mean are -.75, +.25, +.25, and +.25. What deviates minimally from .75 is commonly considered "typical." In contrast, the values in that same array could be compared with the highest value, and then the deviations would be -1, 0, 0, and 0. The ideal, prototypic limits that constitute the HUSSERLian morphological essence are analogous to the use of the extremes (in this case, 1) of the array to identify "typicality." Moreover, this procedure is

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3 HUSSERL also appreciates that, in many instances, the parts that determine the similarity of two (or more) wholes are themselves similar—and not alike. This point underlines the multi-leveled character of similarity judgments.

extended across a number of attributes that are more-or-less invariant for the class. So, if members of a polythetic class had the following profiles of 10 attributes (where 0 = attribute absent and 1 = attribute present):

Class Member #1	1, 1, 0, 0, 0, 1, 0, 1, 1, 0
Class Member #2	0, 1, 1, 0, 1, 0, 1, 1, 1, 1
Class Member #3	1, 0, 1, 0, 1, 0, 0, 1, 0, 1
Class Member #4	1, 1, 1, 0, 1, 0, 0, 0, 1, 1

The ideal prototype would be:

Ideal Prototype	1, 1, 1, 0, 1, 0, 0, 1, 1, 1 [22]

Note that, because this is a polythetic class, no actual profile is identical to the ideal prototype. Moreover, by determining the proportion of coinciding 0's and 1's, the profile of each member of the class can be characterized according to the "degree" to which it resembles the ideal prototype: Class Member #1 (.6), Class Member #2 (.8), Class Member #3 (.8), and Class Member #4 (.9). Due to variation in attribute frequency (e.g., .00 for the fourth attribute and .25 for the sixth), correlations between profiles provide a more exact indication of the "degree" of similarity to the ideal prototype: Class Member #1 ($r = .273$), Class Member #2 ($r = .575$), Class Member #3 ($r = .636$), and Class Member #4 ($r = .779$).[4] [23]

Within the domain of experiential narratives, this strategy—embedded within an approach that is, in general, derivative from HUSSERL's (1938/1970) examination of the life world—defines numerically aided phenomenology (KUIKEN, SCHOPFLOCHER, & WILD 1989). We will now proceed to describe and demonstrate this method. [24]

3. Numerically Aided Phenomenology

The objective of numerically aided phenomenology is to bring to distinctiveness and coherence the full complexity of different categories of lived experience. With all the refinement and nuance that language will allow, and with the support of selected numeric algorithms, the aim is to articulate the (morphological) essences of these categories of experience. In what follows, we present the sequence of steps that defines these methods. [25]

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4   These procedures enable determination of the degree of similarity between actual attribute profiles and the ideal prototype. This numeric assessment of degree involves *profiles of attributes* rather than *individual attributes*. Although we appreciate the potential importance of the latter (see note 3), we have not attempted to address the analytic problems that arise from the combination of nominal and ordinal variables in estimates of profile similarity. It should be noted, however, that some available software facilitates the assessment of ordinal information during attribute identification (cf. KUCKARTZ 1995; WEITZMAN & MILES 1995). The possibility of coordinating ordinal and nominal attribute judgments deserves further consideration.

3.1 Thematizing description

A consistent feature of phenomenological methods, including numerically aided ones, is the identification and explication of recurrent themes within a set of experiential narratives. In our approach, recurrent expressions must be evident within an analogous component of the genre that characterizes the chosen set of narratives. Sometimes, for example, the genre is temporally linear narrative, such as in the recollection of a dream. Sometimes the genre has a hierarchical structure, such as when a general open-ended question is followed by a series of specific questions that invite elaboration of particular aspects of the response to the open-ended item. Although narrative genre varies from study to study, the general principle remains: the recurrent themes must be expressed in analogous components of the given genre. [26]

For example, in CARRARE's (1989) study of tragic life events, each person described the moment during which realization of the tragic turn occurred. One person, describing that aspect of his experience of a pogrom in Poland, said:

> A woman, a neighbor, was crying, crying wounded, calling my mother by name ... A shudder went through me from this *constant* moaning of this woman in the street ... (p.119). [27]

Another person, describing an analogous aspect of her experience of the death of her brother, said:

> All of a sudden, this shrieking, animal-like sound came out of my father. It was the most painful noise I think I have ever heard ... (p.119). [28]

The phenomenological task is to identify and explicate the similarities in meaning among such recurrent expressions. A paraphrase of those similarities is then portrayed in statements such as the following:

> Someone I knew cried out in agony, moving me to compelling recognition of her/his pervasive suffering. [29]

It is crucial to capture as fully as possible the shared meaning of such descriptions, drawing out the nuances of meaning that they explicitly or implicitly share. A paraphrase of that shared complexity is called a constituent (KUIKEN & WILD 1988). [30]

These procedures for identifying and explicating constituents contrast with some other approaches, such as GIORGI's (1985; 1997). First, for reasons indicated earlier, imaginative variation is not considered a vehicle for articulating the shared meaning of recurrent expressions in experiential narratives. Second, in contrast with GIORGI's suggestions, it is unnecessary to provide constituent descriptions that reflect a selected discipline, such as psychology or anthropology. The similarities in meaning among recurrent expressions may, in fact, cross these somewhat arbitrary disciplinary boundaries. Third, it is not advisable to articulate

a constituent with reference to some pre-established conception of the kind of experience that is under consideration, e.g., tragedy. Numerically aided phenomenological methods enable the identification of unanticipated categories or kinds of experience. Presuming to know these categories in advance may even distort constituent descriptions. Instead, in our approach, constituent descriptions are constrained exclusively by the requirement that they emerge from the comparative effort through which are captured the similar meanings of *actually recurrent* expressions within the set of narratives. In short, careful comparison displaces theoretical expectations. [31]

3.2 Similarities, classes, and distinctive constituents

When a constituent has been identified, each narrative within the available set is systematically re-read to determine the presence or absence of that expressed meaning. Gradually an array of such constituents is identified, each of which is neither rare (i.e., found in less than 10% of the narratives) nor ubiquitous (i.e., found in more than 90% of the narratives). [5]Elaboration of the constituent array can never be exhaustive; more likely, the pragmatics of the investigative context will determine when the next procedural step can be taken. [32]

When a full array of constituents has been identified, similarities between each pair of narratives are determined by calculating similarity coefficients (e.g., Euclidean distances). Then cluster analysis (e.g., Ward's method) is used to group narratives according to the mutual similarities in their profiles of constituents. In general, cluster analysis (cf. BAILEY 1994) is a group of numeric algorithms that groups such profiles so that the degree of similarity between members of the same cluster is maximized and the degree of similarity between members of different clusters is minimized. Ward's method, for example, begins by treating each individual profile as a group, and then it progressively combines profiles into larger groups. At each step, the criterion for the next combination is that within-cluster variance, as measured by the sum of within-cluster deviation from cluster means, is minimized. Thus, the average distances among all members of a cluster are minimized. Ward's method is hierarchical, i.e., it allows the identification of subgroups within a cluster, and the resulting clusters are mutually exclusive (rather than overlapping). [33]

Each cluster identified in this way describes a class, and, as a result, categories of similarly lived experience are derived. The numeric algorithms used in these procedures should neither be over- nor under-estimated: their use compensates for human difficulties in assessing similarities that, in our studies, involve from 50 to 300 constituents and 30 to 75 narratives. First, these algorithms provide disciplined, pair-wise assessment of the degree of similarity between the profiles of constituents associated with each narrative expression. Second, they

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5   Using this criterion to eliminate rare or ubiquitous constituents minimizes some problems that arise when these numeric methods are applied to sparse matrices, e.g., difficulties in systematically identifying the constituents that differentiate the clusters. These criteria also pragmatically constrain how exhaustive (and exhausting) the process of constituent identification will be.

contribute to the disciplined formation of categories of experience, categories that might not otherwise be identified. [34]

Finally, comparison of the prevalence of each constituent across clusters enables determination of those constituents that are associated with each category. Numerical procedures can be invoked here, too, to provide a disciplined characterization of those constituents that (1) differentiate a category from at least one other category, (2) distinctively identify one particular category, or (3) uniquely identify one particular category. Because in our studies cluster analysis has typically revealed 3 to 6 distinct classes, we suggest that no fewer than 30 experiential narratives are required to identify the more-or-less characteristic constituents, i.e., the morphological essences, of these classes. [35]

4. A Demonstration

In what follows, we will demonstrate these methods by summarizing a study of different kinds of reading experience. ROSENBLATT (1978) has suggested that variations among experiences of literary texts are comparable to variations in the performance of a musical composition. Independently of skill in reading the score, musical performances may vary dramatically as aesthetic moments. Similarly, different "performances" of literary texts may be equally competent but quite distinct aesthetically. The presence of certain experiential qualities, perhaps in a certain configuration, may justify reference to some reading experiences as aesthetic ones, not simply because they are valued but because they constitute a certain kind of experience (KUIKEN 1998). Theories that articulate such aesthetic qualities in reading events have been influential. For example, ROSENBLATT's (1978) distinction between efferent and aesthetic reading and HUNT and VIPOND's (1985; 1986) related distinctions between information-driven, story-driven, and point-driven reading continue to shape empirical studies. Although think-aloud studies have already aided articulation of certain aesthetic qualities in reader experiences (cf. MANY 1991), more precise descriptions might further that objective. It was in this spirit that we examined the range of reading experiences reported by participants in the present study. [36]

4.1 Methods

Thirty advanced undergraduate English students read Sean O'FAOLAIN's short story, "The Trout." "The Trout" is the story of Julia, a young girl, who finds a live trout in a small, water-filled hollow in her garden. After worrying about the trout's predicament and listening to various explanations of how it got there, she gets up at night to rescue it by releasing it into a river. This brief story was presented segment by segment on a computer screen in a manner that allowed self-paced reading of one story segment (roughly a single sentence) at a time. Participants were encouraged to concurrently describe any and all aspects of their reading experience: thoughts, feelings, interpretations, evaluations, memories, and so on. These instructions, and a laboratory setting that was made as private and comfortable as possible, were designed to permit expression of any understanding or reaction. Although it is impossible to eliminate implicit demands,

explicitly conveyed expectations to demonstrate expertise, such as instructions to comment on style (cf. GRAVES & FREDERIKSEN 1991), were not included in our procedures. [37]

Readers' verbal expressions were tape-recorded and transcribed for subsequent review. Their responses to each story segment, and to groups of such segments (a story section, roughly one paragraph), were systematically compared in order to identify similarly expressed meanings. Statements with similar meanings occurring in three or more reader narratives were identified and paraphrased to reflect as much of their common meaning as possible. For example, in response to the opening lines of the story in which Julia returns to a haunting natural setting called the Dark Walk, some participants offered comments such as, "The Dark Walk seems like a scary place," or, "The Dark Walk is almost gothic." Such similarly expressed meanings were identified and paraphrased as, "The Dark Walk seems threatening." As indicated above, this aspect of our procedures ensured that constraints on the meanings paraphrased were maximally provided by the expressions of other participants, rather than by the researchers' preconceived categories. This crucial aspect of our phenomenological approach can be contrasted, for example, with studies in which participant meanings are coded according to preconceived discourse categories (cf. ANDRINGA 1990; GRAVES & FREDERIKSEN 1991). [38]

The resulting constituents were articulated at three levels of generality. This allowed empirical determination of the level of analysis that would be most fruitful, thereby avoiding the excessive generality that has diluted the findings from some think aloud studies of literary reading (cf. OLSON, DUFFY, & MACK 1984; WAERN 1980). First, at Level One, constituent descriptions captured as much of the similarity in meaning as possible (e.g., "The Dark Walk seems threatening"); at Level Two, constituent descriptions captured the nature of the interpretive acts in somewhat more general terms (e.g., "I characterize the mood of a setting [threat]"), and at Level Three, constituent descriptions were still more general (e.g., "I characterize the mood of a setting"). This procedure allowed appropriate consideration of similarities between Level One constituents either within or across segments; for example, at Level One, "The Dark Walk seems like a scary place" (in response to story segment 1) and "The well seems dangerous" (in response to segment 25) are both paraphrased as, "I characterize the mood of a setting [threat]" at Level Two. This procedure, and its extension in principle to Level Three, enabled broader consideration of similarities among reader expressions. Despite such increasing generality, the meanings paraphrased remained the expressions of the participants, rather than of any theory. Our procedures are phenomenological *methodologically* rather than *theoretically*. Categories derived from the phenomenological theories of reader response, such as those of INGARDEN or ISER, were shunned as completely as those from studies in cognitive psychology. [39]

The presence or absence of such constituents was used to create matrices that could be explored using the numerical algorithms of cluster analysis. This step allowed identification of distinct categories of reader response according to

profiles of similarities among reading experiences. The unit of analysis, the experiential narrative, was the complete reading experience, i.e., the reader's commentary on all 84 story segments. The genre of the experiential narrative was determined by participants' response to each of 15 story sections and by their comments after reading the entire story. [40]

Cluster analysis (Wards method, Euclidean distances) of arrays representing 299 Level Three constituents revealed four distinct types of reading experience. The number of clusters chosen was determined using the agglomeration schedule to identify a break in slope and by assessing the interpretive coherence of the profiles of distinctive attributes. The stability of these clusters was assessed by varying constituent level, similarity coefficient (Jaccard's coefficient), and clustering algorithm (average linkage) with moderately similar results. A Level Three constituent was regarded as differentiating if the proportion of individuals expressing it within a cluster was greater than the proportion expressing it in at least one other cluster, using Fisher's LSD test (p<.05) as a guideline that takes into account both mean differences and variability. (Although cluster analysis only involved Level Three constituents, identification of differentiating constituents also was extended to the Level Two (p<.05) and Level One (p<.10) constituents that they subsumed.) A constituent was regarded as differentiating (D) if it distinguished a cluster from one or two but not all three of the other four clusters. A constituent was regarded as differentiating and distinctive (DD) if it differentiated a cluster from all of the other three clusters. A constituent was regarded as differentiating, distinctive, and unique (DDU) if it was found only in a single cluster. We also monitored what we call characteristic constituents, i.e., those that, while not differentiating, were found in more than 50% of members of a cluster. This helps to preserve the context for understanding the other constituents that identify the cluster. [41]

4.2 Results

4.2.1 Cluster one: Story rejection, impersonal memories, and unresponsiveness

One identifying feature of readers in Cluster One (see Table 1) was their negative emotional reaction to the story. They reacted negatively almost immediately, suggesting that their rejection of the story was readily evoked: in response to the first segment, they indicated dislike for an ambiguous reference to the setting, a place identified only as "G---". However, their rejection was also general and persistent: after reading the entire story, they discretely indicated that it did not "grab", "excite", or "overwhelm" them.

Story Rejection:

C	**I emotionally respond to a literary device**	
D	I negatively emotionally respond to literary style (phrase/word choice)	
D		*I dislike use of the form "G---"*
D	**The story did not grab/excite/overwhelm me**	

_____

Impersonal Memories:

D	**The setting evokes a life-world comparison**	
D	The setting reminds me of a personal memory	
D		The setting reminds me of something that I have experienced before
D		The setting description reminds me of the North/Northern prairie

_____

LEVEL 3 CONSTITUENT

LEVEL 2 CONSTITUENT

LEVEL 1 CONSTITUENT

_____

KEY: C=Characteristic; D=Differentiating (but not distinctive); DD=Differentiating and Distinctive; DDU=Differentiating, Distinctive, and Unique

Table 1. Examples of constituents identifying Cluster 1 (*Reading Resistance*; N=5) [42]

Another indication of these readers' remote stance toward the story was their reference to relatively impersonal memories. In three of four such differentiating constituents, they reported similarities between familiar environments and story settings. Although dependent upon personal experiences with those environments, the memories that these readers brought to their understanding of the story were hardly intimate. For example, midway through the story, description of a long, bright, and hot June day reminded one of them of comparable midsummer days on the northern prairies of Canada. This type of recollection can be contrasted with that of other readers who responded to descriptions of character *actions* with relatively personal reminiscences (see below). [43]

A further symptom of these readers' distance from the story was that they were repeatedly unresponsive during the think aloud task. On average, they failed to comment on 43 of the 84 story segments. In comparison, readers in Clusters

Two, Three, and Four declined comment on an average of only 18, 7, and 10 segments, respectively. Thus, readers in Cluster One were joined together not only because they gave common voice to their negative reactions, but also because they did *not* give voice to sentiments and reactions that might have linked them with members of the other clusters. [44]

In sum, the members of this cluster were distinctive in three respects: (1) they generally were unimpressed by the story; (2) they offered impersonal life-world comparisons with story settings, and (3) they frequently declined to think aloud as they read. A summary phrase that describes their experience might be: Reading Resistance. [45]

4.2.2 Cluster two: Emotional reactivity, holistic imagery, and personal memories

The most distinctive characteristic of readers in Cluster Two (see Table 2) was the range and frequency of their emotional reactions to the story. When the emotional valence of these readers' reactions was expressed, it was neither consistently negative toward literary devices nor consistently positive toward story characters, as had been the case in Cluster One. Instead these readers sometimes reported positive and sometimes negative reactions both to literary devices (e.g., " Dogs do not say 'bark bark'") and to story characters (e.g., "I have sympathy for Julia's brother"). And, they did so more often than members of any other cluster, providing nine differentiating constituents that referred to emotional reactions, whereas Clusters One, Three, and Four provided only five, three, and zero, respectively.

Emotional Reactivity:

DD	**I emotionally respond to a character**
D	I positively emotionally respond to a character
D	*I have sympathy for Julia's brother*
C/D	**I emotionally respond to a literary device**
C/D	I negatively emotionally respond to literary style (phrase/word)
C/DD	*Dogs do not say "bark bark"*

Holistic Imagery:

D	I imagine a character and/or actions (holistically)
D	*I imagine Julia vividly from this description*
C/D	**I construct an imaginal story feature**
C/D	I imagine the setting holistically
DD	*I imagine what the "scraps of moon" would look like*

Personal Memories:

C/D	**Actions evoke a life-world comparison**	
D		Actions remind me of a personal (childhood) memory
C	**The setting evokes a life-world comparison**	
D		The setting reminds me of a personal memory
DD		*I have looked through a tree like Julia is*

_____

LEVEL 3 CONSTITUENT

LEVEL 2 CONSTITUENT

LEVEL 1 CONSTITUENT

_____

KEY: C=Characteristic; D=Differentiating (but not distinctive); DD=Differentiating and
Distinctive; DDU=Differentiating, Distinctive, and Unique

Table 2. Examples of constituents identifying Cluster 2 (*Emotional Engagement*; N=7) [46]

The members of Cluster Two also reported that they vividly imagined story
elements. They could picture the setting in all its complexity (e.g., "the mountains,
moon, firs, and light"), and they could readily imagine characters and their actions
(e.g., "I could imagine Julia vividly from this description"). While Cluster Three
also provided one differentiating constituent referring to holistic imagery, the
members of Cluster Two did so at four different points in the story. [47]

A subtler indication of these readers' personal involvement in the story was that
they occasionally recalled personal and even childhood memories (three
differentiating constituents). In contrast to Cluster One, some of these memories
were evoked by character actions rather than setting elements. And, the evoked
memories sometimes suggested identification with the character involved. For
example, in response to a scene in which Julia looks through the shadow of a fir
tree at the moon, these readers said something like, "I have looked through a
tree like Julia does." [48]

In sum, members of Cluster Two were distinctive in that they: (1) reacted
emotionally to story elements, (2) reported vivid imagery, and (3) recalled
personal memories. A summary phrase descriptive of their experience might be:
Emotional Engagement. Their reliance on personal memories resembles the
"allegorizing" reading strategy identified by DIAS and HAYHOE (1987), but differs
from theirs by also referring to imagery and emotional reactivity. Our more
complex, polythetic characterization of this experiential category reflects the
procedural choices described earlier. [49]

4.2.3 Cluster three: Articulable uncertainty, concern with character emotions and motives

The most distinctive characteristic of readers in Cluster Three (see Table 3) was the frequency of their reported uncertainty about a variety of story elements (e.g., "I do not know what motivates Julia to go to the Dark Walk"). Much more often than in other clusters, these readers provided differentiating constituents expressive of uncertainty or confusion about character identity (five constituents), character motives (three constituents), the nature of the setting (two constituents), and other story elements (three constituents). Although readers in Cluster Two also fairly frequently reported uncertainty (nine times), members of Cluster Three were further differentiable in the frequency (three times) with which they tried to clarify their understanding by articulating story details not directly stated in the text but readily derived from it (e.g., "Julia is speaking to her brother"). This suggests that these readers were actively voicing their uncertainties aloud as they attempted to clarify and resolve them, a type of self-conscious elaboration that was uncommon in all other clusters. Such constructive reaction to uncertainties may have been part of a more generally positive attitude: after their reading, members of this cluster were more likely than members of any other cluster to indicate that they "liked/enjoyed the story as a whole."

Articulable Uncertainty:

DDU	**I query a character's motives**
DDU	I am confused about a character's motives
DDU	*I do not know what motivates Julia to go to the Dark Walk I have sympathy for Julia's brother*
D	**I query a character's actions**
D	I am confused about a character's actions
D	*I do not understand the idea of the trout panting*

Articulable Uncertainty:

DDU	**I query a character's motives**
DDU	I am confused about a character's motives
DDU	*I do not know what motivates Julia to go to the* Dark Walk
D	**I query a character's actions**
D	I am confused about a character's actions
D	*I do not understand the idea of the trout panting*

Clarify Understanding:

D	**I clarify my understanding of the story**
D	I add details to clarify the action
DDU	*Julia is speaking to her brother*

_____

Concern with Emotions:

C/D	**I characterize a character's emotions**
C/D	I characterize a character's emotions (unworried)
C/D	*The children's excitement makes them unafraid of the dark now*
C	**I characterize a character's emotions**
D	I characterize a character's emotions (sympathy)
D	*Julia feels sorry for the trout*

_____

Concern with Motives:

C/D	**I characterize a character's motives**
D	*Julia is threatening/manipulating her brother*
D	**I characterize a character's motives**
DDU	I characterize a character's motives (pleasurable desire)
DDU	*Julia shares her excitement with her brother*

_____

LEVEL 3 CONSTITUENT

LEVEL 2 CONSTITUENT

LEVEL 1 CONSTITUENT

_____

KEY: C=Characteristic; D=Differentiating (but not distinctive); DD=Differentiating and Distinctive; DDU=Differentiating, Distinctive, and Unique

Table 3. Examples of constituents identifying Cluster 3 (*Story-line Uncertainty*; N=9) [50]

Despite pervasive uncertainty, these readers regularly tried to characterize the emotions and motives of story characters. More often than members of Clusters One and Two (eight constituents vs. one each) and about as often as members of Cluster Four (10 constituents), readers in Cluster Three offered differentiating constituents referring to character emotions. Also, more often than members of

Clusters One and Two (nine constituents vs. none in either) and about as often as members of Cluster Four (11 constituents), these readers offered differentiating constituents referring to character motives. [51]

In sum, the members of Cluster Three were distinctive in that they: (1) repeatedly voiced their uncertainties and attempts at clarification and (2) regularly attempted to describe character emotions and motives. A summary phrase that describes their experience might be: Story-line Uncertainty. These readers' provide an emphasis on character emotions and motives that resembles the story-driven reading strategy referred to by HUNT and VIPOND (1985). However, we find no indication that such reading provides the "vicarious experience " to which they refer (p.27), perhaps because accompanying reader uncertainties interfere with that possibility. [52]

4.2.4 Cluster four: Animation, interpretive coherence, and symbolic interpretation

Whereas members of both Clusters Three and Four were concerned with character motives and emotions, only members of Cluster Four (see Table 4) frequently went beyond those domains in attempts to describe characters' thoughts. On nine occasions, these readers provided differentiating constituents referring to characters' thoughts: their doubts, their preoccupations, their reflections, etc. No other cluster did so more than twice. Also, only members of this cluster enlivened the trout through anthropomorphosis (twice), referring to its loneliness and later its fear, and only these readers attributed a mood to the setting (three times), repeatedly affirming its "gothic" and "menacing" qualities.

Characterizing Setting Mood/Connotation:

CD	**I characterize the mood of the setting**
D	The Dark Walk seems foreboding/evil/gothic

―――――――――――――――――――――――――――

Concern with Thoughts:

C/DD	**I characterize a character's thoughts**
C/DD	I characterize a character's thoughts (reflection)
C/D	*Julia reflects on her ordeal*

―――――――――――――――――――――――――――

Concern with Character:

CD	**I characterize a character**
CD	I characterize a character (self-centered)
D	*Julia is possessive*

―――――――――――――――――――――――――――

Anthropomorphosis:

C/DD	**I anthropomorphize a story figure**
C/DD	I anthropomorphize the trout

Symbolic Interpretation:

D	**I maintain the integrity of a symbolic interpretation (across at least two sections)**
C/D	**I interpret a story symbolically**
C/D	I interpret a story element symbolically (narrow confined world)

Interpretive Coherence:

DDU	**I confirm/elaborate my previous characterization**
C/D	**I anticipate story development**

LEVEL 3 CONSTITUENT

LEVEL 2 CONSTITUENT

LEVEL 1 CONSTITUENT

KEY: C=Characteristic; D=Differentiating (but not distinctive); DD=Differentiating and Distinctive; DDU=Differentiating, Distinctive, and Unique

Table 4. Examples of constituents identifying Cluster 4 (*Aesthetic Coherence*; N=9) [53]

Another—and perhaps related—feature of these readers' commentaries was their concern with character. They more frequently provided constituents descriptive of enduring character traits than did members of Cluster Three (12 vs. four), whereas only one was provided in each of Clusters One and Two. Moreover, character attributions were more diverse in Cluster Four: at different times they saw Julia as curious, disenchanted, or independent, whereas Members of Cluster Three were consistently concerned with her maturity. [54]

Despite their use of trait attributions, members of Cluster Four also perceived Julia as changing or developing through her actions in the story. That perception was consistent with their readiness to read the entire story as a symbolic account of her transformation. Whereas members of Cluster Three occasionally offered symbolic interpretations of isolated sections of the story, *only* members of Cluster Four elaborated a coherent characterization of the story's symbolism across two or more sections. Also, *only* members of Cluster Four provided more than one

attempt to express the connotations of story elements (four constituents),
frequently finding them mysterious and life promoting (e.g., involving feeling
renewal, enrichment, rebirth). Such interpretations reinforced their concern with
Julia's development and maturation, extending it universal significance within the
"general pattern of life", the "tensions between life and death", the
"transcendence of a narrowly conceived world", etc. The coherence of their
symbolic interpretation was accompanied by local attempts to confirm and
elaborate previous characterizations (four constituents) and to anticipate
subsequent story developments (four constituents). Such links between current
and previous story elements and between current and anticipated story elements
probably contributed to an account of the story's point, typically included in these
readers' closing comments. [55]

In sum, these readers were distinctive in that they: (1) animated story elements
by attributing moods to settings and by spelling out story figures' thoughts and
character; (2) refined their interpretative comments retrospectively and
prospectively; and (3) developed an inclusive account of the story's symbolic
significance. A summary phrase describing their experience might be: Aesthetic
Coherence. [56]

4.2.4.1 Examining prototypic instances of a category

To examine the clearest instances of each type—and to review the distinctive
constituents within the context of the entire experiential narrative—we identified
the actual narrative that was most similar to the ideal prototype of each category
of experiences. We did so by calculating the correlations between each reader's
profile of constituents and each cluster's average constituent profile. For Cluster
Four, for example, this allowed determination of those cluster members whose
individual profiles corresponded most closely with that average profile. The
experiential narrative for the individual reader whose profile most nearly
resembled the average one (r = .622) is presented in Table 5. The passages that
figured most prominently in the determination of cluster membership are
highlighted, and the constituents definitive of Cluster Four are aligned with the
corresponding sections of the narrative. [57]

Examination of this prototypic instance of "aesthetic coherence" is informative in
several respects. First, it is possible to assess how saturated a particular
narrative is with the constituents that are definitive of this experiential category.
Second, it enables consideration of the context in which these constituent
phrases and statements were uttered. Although that context was considered in
the original determination of constituents, the effectiveness of that effort can be
reviewed. Third, examination of this narrative underlines that *any* particular
narrative only approximates an "ideal" constituent profile for this category of
experience. In fact, a more satisfactory representation of the prototype, one that
to a greater degree reflects the entire constituent profile, might combine phrases
or passages from more than one reader, perhaps in a creative rewriting of this
actual narrative. Such rewriting and creative representation of an experiential

category should remain constrained by familiarity with the ideal constituent profile
(compare VAN MANEN 1997). [58]

4.2.4.2 Deepening constituent descriptions

The most important extensions of numerically aided phenomenology involve the
manner in which constituent profiles are *further* articulated. Closely re-reading
experiential narratives found *within* a category usually suggests additional
constituents. It is often useful to identify and explicate these constituents, to
revise and deepen the explication of existing ones, and then to assess whether
these new and revised constituents sharpen—or alter—the classes of experience
that have been identified. There is no *a priori* basis for determining whether
constituents identified by examination of narratives within a given cluster will
deepen or significantly change interpretation of an experiential category.
However, the assessment of this issue should occur within an iterative application
of the numerical methods—and within the constraints that they entail. [59]

We can demonstrate this process by presenting some proposed refinements to
the constituents that identify the aesthetic coherence category. These narratives
are tantalizingly similar to aesthetic experience as portrayed by INGARDEN
(1973;1985). First, their early description of the menacing mood of the setting and
reference to its life-promoting connotations are comparable to identification of the
"preliminary emotion" to which INGARDEN referred. Although members of
Cluster Three responded similarly during the opening passages, only members of
Cluster Four *repeatedly* attempted that characterization, as though to "satiate
[themselves] with the quality in question, to consolidate possession of it"
(INGARDEN 1985, p.114). Second, these readers' recurrent accounts of Julia's
character (e.g., she is independent) and her thoughts (e.g., she is suspicious), as
well as their anthropomorphosis of the trout in its loneliness and fear, may reflect
what INGARDEN calls the "search...for such sides and details as would enable
us to grasp new qualities entering into harmony with the initial [emotional] quality"
(p 122). Finally, these readers' attempts to confirm and elaborate previous
characterizations, to anticipate subsequent story developments, and eventually to
formulate the story's symbolic point reflect the coherence and persistence of the
search to which INGARDEN refers. [60]

Examination of these confirmations, elaborations, anticipations, and symbolic
formulations suggested the importance of more refined articulation of the
transformations of the "preliminary emotion." Our examination of these
constituents within the original narratives indicated that such transformations take
a rhythmic form in which the felt meanings and connotations of a particular theme
are repeatedly modified. These variations on a theme are experienced in a
pulsing temporal pattern that, to use a musical analogy, has the structure of a
fugue. As indicated in the following analysis, fugue-like thematic variation,
development, and saturation are evident in the prototypic narrative of the
aesthetic coherence category. [61]

I. Identifying the first moment of an unfolding thematic meaning

Speaking of the Dark Walk, this reader says: "It has a sense of mystery to it ... something that's not of this world ... It seems a place of calm for this girl to go to ..." The reader characterizes the mood and connotations of this setting in response to figurative forms in the text, e.g., "sinewy branches." The repetition of "seems" in her opening comments suggests how tentatively she offers mysterious and other-worldly calm as her initial characterization of the mood of this setting. [62]

II. Articulating the courageous connotations of that thematic meaning

As she continues, the reader's impression of Julia's enthusiasm for other-worldly calm is replaced by a variation on that theme: the impression that Julia is in pursuit of "the thrill of the darkness." But this variation does more than transform an other-worldly calm into a childishly incongruous pleasure. Julia enjoys the thrill of "challenging herself," says this reader, suggesting that one focus of her thrilling run is the courage "to complete it ..." Recognizing that her excitement about running through the Dark Walk reflects the emergence of courage is this reader's first transformation of the preliminary emotion. [63]

III. Articulating the epistemic import of that thematic meaning

At first Julia's (and her brother's) revelling in the "challenge" of the Dark Walk seems conventionally grasped as competition that is "typical of children" trying to "make themselves feel better." However, when Julia "decides to be incredulous" in response to the suggestion that there is a well in the Dark Walk, the reader realizes that Julia's concerns are more than the capacity to overcome fear. Instead, Julia's return to the Dark Walk reflects the courage of her desire for independent understanding, the "excitement of finding something new uncovered in the darkness." The same underlying theme is now understood as Julia's satisfaction in validating "her own perceptions ..." despite her fears of being in the Dark Walk. [64]

IV. Articulating courageous caring within that thematic meaning

The third transformation of this thematic meaning incorporates the readers' recognition of Julia's growing knowledge of suffering. The trout found in the well in the Dark Walk becomes a personified prisoner, "trapped" with "no choice in being there." Through comparison with her own personal understanding of wartime suffering, the reader now comprehends that Julia has become compassionately preoccupied with the trout's plight. The reader's autobiographical reference and the imputation of a reversal in Julia's attitude ("she had run through it [the Dark Walk] for a bit of excitement, but he [the trout] had to spend all of his time there") seem to drive this transformation of the theme. [65]

V. Articulating incongruous connotations of the thematic meaning

The reader refines her conception of Julia's struggle for the integrity of her compassion by acknowledging its foibles as well. Julia is tempted, says the reader, to listen to the stories that her parents' tell to her younger brother, although she recognizes Julia's determination that they not make the trout into "something foolish" or "unrealistic." Also, when Julia makes her last run through the Dark Walk to rescue the trout, the reader recognizes the adolescent satisfaction in competitive advantage ("she feels superior") and that she maintains the courage of her convictions about caring for and rescuing the trout. What emerges is an intricate and refined complex

of reflections, concerns, and motives that reflect the halting emergence of Julia's maturity. [66]

We are less confident in the stability of these particular developments than we are that something like this fugal form characterizes the modifications of a recurrent theme during reading of the kind identified as involving aesthetic coherence. While readers vary in the number of developments and in the particular modifications that characterize each, the core regularity is that, as in the musical fugue, these thematic developments move toward a certain kind of saturation, richness, or depth. In literary reading, such saturation includes: (1) the persistence, albeit in transformed understandings, of a thematized mood or feeling; (2) moving beyond conventional understandings of that thematized mood or feeling; and (3) moving beyond simple to more intricate and intimate personal understandings of that thematized mood or feeling. We are currently developing constituent descriptions that capture these notions (cf. SIKORA, KUIKEN, & MIALL, 1998). [67]

5. Conclusions

The preceding discussion is intended to demonstrate that numerically aided phenomenology integrates some of the sources of precision available through quantitative methods with some of the sources of precision promised by qualitative methods. Their integration provides both rigor and subtlety. Their rigor derives from the contribution that numeric algorithms make to judgments of "extent"; their subtlety derives from careful comparisons of the meanings that are expressed in numerous experiential narratives. This quantitative-qualitative complementarity is not a marriage of convenience; it is a relationship that is motivated by the limitations inherent in "purely" qualitative and in "purely" quantitative studies within the human sciences. [68]

Acknowledgment

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