FQS FORUM: QUALITATIVE SOCIAL RESEARCH SOZIALFORSCHUNG

Volume 2, No. 1, Art. 9
February 2001

It's Logic in Practice, My Dear Watson: An Imaginary Memoir from Beyond the Grave[1]

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Key words: qualitative research, abductive reasoning, logic

Abstract: Using the technique of the imaginary memoir, this article seeks to illustrate the logical and semiotic foundations of an empirical inquiry into meaning. The voice of Sherlock Holmes is used to highlight critical issues involving actual logic in use in qualitative research. Suggestions for modifying existing qualitative research practices, based upon this richer understanding of the logic in practice of the method, are also offered.

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1 Support for this paper was provided to the author (while participating in their International Visiting Scholar program) by the Institute of Social Research, Department of Sociology, University of Surrey, Guildford, Surrey, UK. Thanks are also extended to Duquesne University for supporting this leave of absence. Also, special thanks are due to Len MOSKOWITZ, whose Sherlock Holmes Web page at: http://www.bcpl.lib.md.us/~lmoskowi/HolmesQuotes/quotes.html provided the initial source for most of the Holmes quotes used in this paper.

1. An astonishing turn of affairs

I am about to chronicle an unbelievable set of events that have occurred to me over the past several weeks. I am a man of science, and so I can offer no explanation, other than the familiar plaint put to Horatio that there is indeed more under heaven and earth than we can imagine. [1]

By all accounts, I have led a perfectly ordinary life. I was born into some minor privilege, and so was able to pursue the leisurely life of the scholar. I drifted eventually into the area of research methods in the social sciences, where I was granted an advanced degree in the speciality area of qualitative research. It was with great humility that I accepted a position of Assistant Professor of Research Methods at a prestigious university in the States. [2]

The past several years have been a time of great struggle, however. I am the only qualitative specialist on faculty. My quantitative peers are nice enough people, but I truly think that they do not understand why there should be a difference between our two approaches. To this end, they have invited me to prepare a university-wide address on the topic of the inter-relation of qualitative and quantitative methods. [3]

The easy way out would be to take a standard 'mixed' approach. In the mixed approach, all I would have to do is to state the hoary old chestnut that it is the question, and not the method, which really matters. But this position obscures the uniqueness that each approach brings to the process of inquiry. How can I honor that uniqueness, without at the same time creating an unbridgeable gulf between the two positions? My respect before my colleagues and my peers in the university as a whole depended upon me coming up with an answer to this Gordian question. [4]

Here is where things started to take an unusual, nay macabre, turn. First of all, I found myself being drawn to a curious rare and obscure book store near the fringes of campus. I felt the most powerful and irresistable urge to secure a leather bound copy of the complete stories on Sherlock Holmes. I had never read

these stories before, and had only the scantest acquaintance with them through television and an occasional old movie. In the past, I found these stories mildly diverting but hardly interesting. Now, however, I found myself fixated upon them. And in particular, I had the strangest feeling as I read the so-called words of Dr. Watson. He seemed so familiar to me; it was if I had known him intimately at some point in the murky past. [5]

After a week or so of tortured reading, I was compelled by my inner voice to return to the self-same curious shop. This time, I was greeted by a curious little gnomelike man who presumably owned the shop. This strange little gent handed me a Ouija board, and bade me consult the oracle that very night. I told him that my concern was with trying to find some way to bridge qualitative and quantitative research without reducing one method to another. [6]

"The secret," he said to me, "is to look at the logic of practice in research. But for you to understand this, you must first practice the occult art of consulting the Ouija. You will come to see what I mean in good time." [7]

That very evening, I held my first personal and solo séance with the spirits. What follows is nothing more than the messages that I received from the beyond from my partner in an earlier lifetime. And so I present his words to you without editing and without correction, for you to judge and believe as you will: [8]

2. The ways of fate are indeed hard to understand. If there is not some compensation hereafter, the world is a cruel jest[2]

Who would have thought the world to be such an ironic place, my dear Watson? Here I am, lo these many years in the Afterlife, and here you are, reincarnated in America as a struggling and muddled academic trying to justify your qualitative research practices by creating a talk for your colleagues where you describe potential new ways to look at the field of research that show the true inter-relation of qualitative and quantitative methods. What guided your hand to Ouija board, which I am now using to communicate with you? [9]

Let me start by saying that I am happier now than I ever was in Life. That is why I resist returning to the World, as you have done. I have also come upon a dear friend up here, and he and I pass our time playing chess and quarreling about Logic and Method. His name is Charles Sanders PEIRCE (1839-1914)[3]. He is an American with a tendency to be nettlesome at times, but as you might guess I have no trouble taking that in stride. And God is the man bright! I must confess that I have learned much from him, and perhaps the two of us can help you finish this paper on the ways that people can look at qualitative methods as an integral

2 From "The adventure of the veiled lodger" (DOYLE 1967/1896, Vol. II, p.460).

3 Comparing Holmes and PEIRCE is nothing new in the scholarly world. Thomas SEBEOK in particular has done it often, most notably in an article with Jean UMIKER-SEBEOK (SEBEOK & UMIKER-SEBEOK 1983), published in a volume he edited with Umberto ECO where Holmes in particular, and detection in general, has served as the basis for a discussion of the role of abduction in empirical inquiry (SEBEOK & ECO 1983).

and necessary part of the regimen of logic in actual practice. That should solve your little inter-relation dilemma, old chap! [10]

3. Depend upon it there is nothing so unnatural as the commonplace[4]

Why don't we begin at the beginning? Qualitative research, it seems to me, is nothing more than the systematic empirical inquiry into meaning (SHANK 1994). And what is more ordinary than meaning? My friend PEIRCE assures me that all inquiry starts not with what we can prove, but with what we in fact believe (5.367-5.369).[5] I must confess that this idea gave me a bit of a start at first. As you know, I have long believed that a good detective should start a case with an absolutely blank mind, and then simply observe and draw inferences from those observations. From what you have written in earlier drafts, I can infer that there are chaps, in the States and elsewhere, who do something called Grounded Theory that says pretty much the same thing that I used to espouse (GLASER & STRAUSS 1967). [11]

But my dear PEIRCE is adamant that there is no way to really do this. "Sherlock," he says to me,

> you may think that you are taking a blank mind into the fray, but you should really know better. At best, you can say that you are setting aside those preconceptions of which you are aware. But how do you know that you are not being guided by unreflective or unconscious preconceptions? And aren't these the most potentially obstructive preconceptions of all? [12]

4. Any truth is better than indefinite doubt[6]

So what can we do about these preconceptions? Here is where Mr. PEIRCE operates with the sort of keen logic that I have only seen in myself and perhaps Professor Moriarty. He says that we need not worry about our preconceptions unless our inquiry creates no troublesome puzzlement for us (5.265). As human beings, we are determined to live in a world that makes perfectly good sense. This is the purpose for us holding beliefs, be they conscious or unreflective. Therefore, rather than trying to either eliminate beliefs or hold them at bay, all we need to do is to act confidently in the world as if our beliefs were certainly true. If our beliefs are true, then all is well. [13]

If our beliefs are in fact not true, then sooner or later they will betray us. And when a belief does betray us, we need to resist the temptation to 'fix' it too quickly (5.377-5.387). This is hard to do, for when a belief proves to be unreliable in action, we are then thrust into a psychological state that PEIRCE calls 'genuine

4 From "A case of identity" (DOYLE 1967/1887, Vol. I, p.404).

5 All references to PEIRCE are from his collected papers. The standard format for these references state (volume number. paragraph number). So, this reference is from Volume 5, paragraphs 367 to 369. Whenever this format is used in this paper, it will refer to the Collected Papers of PEIRCE in this fashion.

6 From "The yellow face" (DOYLE 1967/1888, Vol. I, p.586-587).

doubt' (2.443). Why 'genuine doubt' you might ask? PEIRCE has chosen his terms carefully. For PEIRCE, genuine doubt is something that presents itself to us as an intrusion into our ordinary states of affairs, and over which we have no immediate control. And genuine doubt is a truly unpleasant state to be in. You should know, Watson; you spent many an hour there yourself as you struggled to keep up with me. [14]

But for the qualitative researcher, genuine doubt proves to be the experiential key to doing really good and really innovative qualitative work. Because, if we are in a state of genuine doubt, it means that all of our preconceptions and presuppositions, be they conscious or unconscious, have let us down. Instead, we are in a state of surprise. We are not at all sure what things mean. But at the same time, we should be delighted to realize that we are also on the brink of finding out something that is potentially new, if only we have the patience and nerve to pursue it in spite of our desire to succumb to the tug of genuine doubt and get out of this state of unresolved meaning as quickly as possible. [15]

5. It is of the highest importance in the art of detection to be able to recognize out of a number of facts which are incidental and which vital[7]

Yes, Watson, I can hear you muttering. What does all of this have to do with actually doing research? Where is the system? Where is the logic? I can assure you that we can provide for that, if you but maintain that patient silence which so suits you. [16]

When Charles talks about logic, he means far more than that sterile symbolic exercise that dominates so many undergraduate textbooks. Logic is not just symbol manipulation. It is the rule system for all sorts of reasoning, deductive or otherwise (2.619 -2.625). We all know about the deductive syllogism, and how we can use it to derive true and certain and necessary conclusions from true premises. We might even know quite a bit about induction, or the so-called art of creating a probable general rule from specific observations. [17]

But our familiar model of logic ultimately fails us as empirical inquirers, because it paints a truncated picture of the role and types of reasoning that we need to do as researchers. Did you know, for instance, that there is not one, but three distinct types of induction? [18]

Allow me to demonstrate each type of induction in action. When we decide which phenomena in a situation need to be considered to be central for consideration, and which other phenomena are merely accidental, then we are making a type of inductive inference. We are in essence reasoning to the *fact*. When we decide which facts to pull together to predict, or reason to, a *hypothesis*, we are making a different type of inductive inference. And finally, when we pull together some collection of hypotheses to shape, or reason to, a *theory* to explain some

7 From "The Reigate squires" (DOYLE 1967/1887, Vol. I, p.341.

regularity of nature, we are performing the third and most abstract type of induction. [19]

These are the sorts of reasonings that scientists, for example, perform each and every day. They are part of the logic-in-practice that define the very nature of the scientific method. But we tend to truncate the process when we report our findings, and act as if there were only one general mode of induction used (combining several or all three processes of induction into one); one that seems to mirror the one mode that deductive reasoning can legitimately take on (which, of course, is reasoning to the *necessary demonstration*). Any working scientist will recognize the three logics of induction described above, yet he or she usually only acknowledges the single more general and abstract mode when writing up his or her findings. [20]

But wait! The matter becomes much more complex when we consider the logic we use to resolve issues of meaning. This mode of logic, more or less discovered by PEIRCE, he called abduction, or abductive reasoning (2.270). [21]

6. There are many ciphers which I would read as easily as I do the apocrypha of the agony column. Such crude devices amuse the intelligence without fatiguing it[8]

Let us go back to our erstwhile qualitative inquirer. We have left this poor inquirer in a state of genuine doubt, unable to move forward and resolve meaning. Is there a logical way to do so? Most of us tend to think of meaning as being something personal, or private, or at best the product of an artistic endeavor. But PEIRCE thought otherwise. His overall model of logical reasoning is comprehensive enough to address a systematic logic of meaning. This mode, as I said earlier, is called abduction. [22]

When we make an abductive inference, we reason from some surprising situation toward resolving that situation as a case of something more understandable (5.189). Some have called this 'reasoning to the best explanation', which is part but not all of the process (HARMAN 1965; JOSEPHSON & JOSEPHSON 1994). The trick is to make the unusual somehow more understandable. The best way to do this is to assume that the thing before you, the surprise, is somehow a sign of something else (Technical Appendix 1 will deal with the relationship between sign theory, or semiotics, and empirical inquiry). As a sign, it has some unseen object grounding it, and some plausible interpretation (1.346). Putting the original surprise into the form of a sign is what abductive reasoning is all about. [23]

But some signs are more far reaching than others, and some allow for more systematic processing. When all is said and done, there are in fact six different ways we can reason from what is before us to a sign. (Technical Appendix 2 will lay out a formal statement of this matter. See also SHANK and CUNNINGHAM 1996 for an earlier version of this model.) Therefore, there are six different modes

8 From "The valley of fear" (DOYLE 1967/1888, Vol. I, p.472).

of abductive reasoning that play a role in empirical inquiry. We shall deal with each of these ways one at a time, in increasing order of systematicity. [24]

7. The world is full of obvious things that no one by any chance ever observes[9]

The first thing we notice about any abductive inference is its openness. It does not really nail anything down even in terms of probability. It is about possibility or plausibility at best. But what more can we expect of a logic toward meaning? Should we not keep in mind that such a logic will allow us to ask questions of meaning, and are not such questions the heart and soul of qualitative research? But I digress, I fear. Let me return to the process of working through the various forms of abductive reasoning. [25]

What is the most open form of inference? Let us seek it out using an example from the concrete world of experiences. Suppose we have an archaeologist walking along a meadow. She comes to a small river that wanders and meanders and serves as a boundary between the meadow and a forest. She is looking for places where prehistoric natives may have camped while on hunting expeditions. At one spot, the river turns and cuts an indentation into the meadow bank. This indentation has all the appearances of having been there for a long time. The archaeologist reasons to a *hunch* that perhaps this place is the sort of place that a hunting party just might have stopped to build a fire and set up shelter for the night. [26]

This hunch is grounded on the possibility that this site might possibly resemble a campsite. It provides a starting point for determining what this indentation might have meant to prehistoric people in the region, assuming of course that there had actually been any such people and they had come this way. [27]

Formally, we can describe the hunch as the type of open inference that leads us to the possibility of a possibility, based on the action of mere resemblance alone. As tenuous as this sounds, there has not been a single genuine breakthrough in empirical inquiry that did not begin with a hunch. [28]

Furthermore, please notice that the hunch, as 'artistic' or as 'personal' as some might have it, is actually a form of inference. It is an inference that has a very special and prescribed range and nature of use, but an inference nonetheless. If we can articulate it, and link it to other modes of logic-in-practice, haven't we made the task of the inquiry of meaning a bit easier? [29]

But let us press ahead to types of inferences into meaning that are a bit more substantial in their groundings. [30]

9 From "The hound of the Baskervilles" (DOYLE 1967/1888, Vol. II, p.18).

8. Only one important thing has happened in the last three days, and that is that nothing has happened[10]

Resemblances can play other roles besides setting up possibilities of possibilities. Sometimes, a current resemblance orients us not toward current or previous possibilities, but toward possible future events. [31]

In a sense, this resemblance is operating as possible evidence possibly being generated. This resemblance may or may not be relevant to such future evidence, and this future evidence may or may not relate in some important way to some future event. The clouds of doubt are not really being parted here. Instead, we reason to the possibility of predicting some possible future meaning of something we see now. We can call this reasoning to an *omen*. An omen is a sign of the possibility, based on current resemblances, of a future event. [32]

Let us go back to our archaeologist. She is trying to decide whether or not to start some preliminary digging. What does she do first? She looks to the sky. It is mid-morning, and so there is time to do some digging before nightfall. But there, over to the Southwest, the faint trails of dark clouds are peering over the edge of the low hills. A slight wind has been building. As one might say, it looks like rain. All the omens available to her lead her to reason in this direction, and so she packs up and heads back to wait for signs of better weather. [33]

Omens have come upon bad press in the history of empirical inquiry. We mock our predecessors who cut open sheep and pigs to study their entrails so as to divine the future. The layout of tarot cards, and the fall of yarrow sticks for the reader of the I Ching, seems like superstitious nonsense to us. How can the look of anything tell us about the future? [34]

But the empirical world is full of things that are in process of changing and becoming something else qualitatively different from what they are now, and often these changes are marked by visible (or other sensible) changes. To what degree have our senses been dulled by the certain knowledge of what we must find when we look where we look? How risky it seems to look ahead as we study the way things appear, but how ultimately necessary this effort must be for the genuine seeker of empirical meaning. [35]

9. What one man can invent, another can discover[11]

It may seem, my dear Watson, that the empirical inquirer must remain a passive observer of possible resemblances. This is a very important point. We must be careful, as qualitative inquirers, to be open to taking the world as it reveals itself to us. We are not so foolish as to believe that the world is so meaning-poor that we must impose meaning upon it. Both of the reasoning devices described earlier depend on the notion that the world is meaning-rich. [36]

10 From "The adventure of the second stain" (DOYLE 1967/1886, Vol. I, p.313).

11 From "The adventure of the dancing man" (DOYLE 1967/1898, Vol. II, p.543).

Sometimes, however, meaning is elusive to us. Most often, this is because we are pursuing it via well-worn paths. We need, at times, to be able to alter our paths in order to actively use resemblances that we might not otherwise use. In a sense, because of a larger and more abstract state of genuine doubt, we are creating smaller and more arbitrary states of doubt as a tool for getting at our larger empirical 'prey'. [37]

A rule of resemblance is a very simple thing. We can say 'X is like Y.' In its strongest form, we say 'X is Y.' The strongest form of 'X is Y' is the notion of equivalence. Somewhere between equivalence and resemblance is the metaphor. When we reason to a *metaphor* we are deliberately manipulating this tension between equivalence and resemblance. That is, a metaphor is stronger than a resemblance claim but weaker than an equivalence claim. As a result, we take it more seriously than a simple resemblance, but we stop short of saying that we have really proved anything when we link two things together via a metaphor. Instead, a metaphor is a rule or law based on nothing other than possibility. [38]

How can we use metaphors as empirical inquirers? Let us look, for instance, at a problem that might be perplexing the Headmaster of one of those elementary schools you have in the States. He is upset because there is a seemingly irrevocable gap between his students and his teachers. The teachers see the school as a place to raise and shape young minds. The students see it as a place where they are forced to go and do things they don't want to do. In short, there is a vast gap in interpretation in operation between the two camps. [39]

One way to dig deeper into this matter is to use metaphor. The teachers seem to be operating using a 'School is a Garden' metaphor, while the students are using a 'School is a Prison' metaphor. Each metaphor highlights and conceals certain aspects of a complex and meaning-rich situation. [40]

Suppose our Headmaster decides that he needs to do some metaphor exploration of his own. Is there a metaphor, which can synthesize and enhance a reconciliation between the two current clashing metaphors? I will leave the search for such a metaphor to you, Watson, as an exercise to challenge your keen intellect. But keep this notion in mind. What if our Headmaster consciously and deliberately proposes a seemingly arbitrary metaphor for the sole reason of turning genuine doubt along some new and unexplored direction? Is this not the path he needs to take, rather than following the rather shopworn metaphorical paths that the teachers and students have been following? [41]

This is less fanciful than it might seem. The history of empirical inquiry is full of examples of seemingly bizarre metaphors leading to profound conceptual breakthroughs. Classic examples include Kekule's dream of a snake eating its tail that led him to discover the Benzene ring, and the sudden breakthrough that led Watson and Crick to think of DNA as a double helix. [42]

10. It is, of course, a trifle, but there is nothing so important as trifles[12]

Not all possibilities deal with resemblances. Sometimes, we have something before us that indicates, by its mere presence, that something else has either already happened or is happening now. Furthermore, the thing before us may or may not tell us more about what is happening or what has happened. Therefore, it is important for us to reason not about the present something as it is, but for what it can possibly tell us about something else. Here, we can say that we are reasoning to a *clue*. [43]

A clue is nothing more than an indicator, or sign, of the possibility of an actual event that has already happened. If a clue is a potential indicator of an ongoing event, we then say that it is a symptom. The only real difference between a clue and a symptom is temporal; a clue can tell us about a past event and a symptom can tell us about a current event. [44]

I will not insult your intelligence, my dear Watson, with an example of a clue or a symptom in empirical inquiry. But I will make three interesting claims. [45]

First of all, clues and symptoms are similar in a way to omens, but the difference is more than just temporal. For both clues and symptoms, there is something manifest in the world of experience to see, be it a footprint or the telltale spots of a case of measles. For the omen, what is manifest in the world is a possible precursor to the event, which may or may not lead to the event. So the manifest present is not a clue, since there is no guarantee that anything will actually happen. [46]

Second, clues and symptoms bear an interesting relationship to facts. Indeed, a fact is nothing more than a clue that has been promoted from mere possibility to strong probability. But our inference from clue to fact is not just a matter of gathering evidence of probability. It is also a matter of inducing at least the precursor of an empirical law so that the fact is not hanging there by itself, no matter how likely it might be. [47]

Finally, when we introduce clues and symptoms into empirical inquiry, we are also introducing a dynamic very much akin to the art of reading. We cannot observe just for the sake of observing on the one hand, but on the other hand we cannot be so certain of what we will find that we rule out other modes and styles of reading. Therefore, every branch of empirical research, no matter how objective and precise it might appear to be, has this covert hermeneutical dimension to it. [48]

12 From "The man with the twisted lip" (DOYLE 1967/1887, Vol. I, p.379).

11. I had come to an entirely erroneous conclusion, which shows, my dear Watson, how dangerous it always is to reason from insufficient data[13]

We talked above about reading clues and symptoms, my dear Watson. But individual clues are rarely interesting by themselves. There is almost a compulsion to put clues together to create precursors to rules or laws. These precursors usually lack the explanatory structure that characterizes law-like understanding. What they do instead is create a coherent picture of how various clues can be grouped together without really explaining why this grouping makes sense in empirical reality. When we put together these sorts of pictures, we can say that we are reasoning to a *pattern*. [49]

Patterns are useful ways to include certain aspects from the setting while excluding others. We look for such criteria as elegance and simplicity when we put together a pattern. "Frustra fit per plura quod potest fieri per pauciora"[14] is a perfect example of such a patterning rule, although our dear friend WILLIAM of OCKHAM might be surprised to see his famed Razor wielded in this fashion. [50]

Not all patterns are so rarefied, though. When the mechanic decides that an engine might not be getting enough oxygen because of a collection of telltale signs, but does not know why this problem exists, we say that he has diagnosed the problem but has yet to solve it. A diagnosis, whether it is medical or mechanical or scientific or behavioral, is another excellent example of pattern making. [51]

12. When you have eliminated all which is impossible, then whatever remains, however improbable, must be the truth[15]

Now we have arrived at the height of possibility. When we feel that our inquiry has progressed to the point where we can actually state some rule or law that incorporates some model of meaning, then we can say that we are reasoning to the *explanation*. [52]

This is the most refined and most systematic form of abductive reasoning. Explanations not only tell us how to put clues and the like together to make an overall meaningful statement, but they go on to explain why this statement is meaningful. [53]

Some explanations are preliminary to further research but other explanations serve to settle the matter of meaning once and for all. For instance, we have been joined rather recently here in the Afterlife by chaps like Joseph CAMPBELL

13 From "The adventure of the speckled band" (DOYLE 1967/1883, Vol. I, p.261).

14 One of several versions of OCKHAM's (or OCKHAM's) Razor. This version was obtained, interestingly enough, from the back of a mug commemorating the 700th anniversary of William's birth. Said mug was obtained by the author from the Church of All Saints in the village of OCKHAM. William was most likely baptized in this church in 1285 or thereabouts.

15 From "The adventure of the blanched soldier" (DOYLE 1967/1903, Vol. II, p.720).

and Claude LEVI-STRAUSS, who both took the notion of myth seriously. A myth is an explanation that is supposed to be meaningful, and whose historical or empirical truth status is actually irrelevant. [54]

Before you laugh too hard at natives who talk about dragons eating the moon, think yourself about telling fairy tales to your children. Did the three little pigs or the brave little tailor actually exist? And does it really matter, given what these stories explain about reality? [55]

13. Crime is common. Logic is rare. Therefore it is on the logic rather than upon the crime that you should dwell[16]

Now that we have characterized the six modes of abductive reasoning, we can return to qualitative research as a whole. [56]

One way to look at qualitative research is to see it as the way to systematize and refine all the careful and subtle resolutions of meaning we need to do as inquirers when we move from the stage of observation to the stage of theorizing. As such, then, it can be seen as an explicit version of what has been implicit in all good empirical research. Hunches, omens, metaphors, clues, patterns, and explanations are the tools of meaning. When they are implicit and covert, they are often less nuanced and subtle. As a result, our resultant uncovered truths are more likely to be less subtle and more blatant. Elegant subtle truth often has to be teased out by use of careful manipulation of doubt and meaning. [57]

The preceding discussion suggests one immediate role for qualitative research within empirical inquiry as a whole. Here we can finally return to your original topic, and look at the inter-relation of qualitative and quantitative research methods. If we allow the prevailing logic of quantitative research to define research methods as a whole, then all of the richness of abductive thought we have been laying out dwindles into the background. Instead, we are forced to squeeze qualitative thinking into the overall mode of quantitative thought. [58]

If we follow overall quantitative positions, then our 'entry points' for qualitative logic in practice are quite limited. In fact, we are reduced to looking at qualitative research as a preliminary form of detection. At best, we might define qualitative research as merely a form of detection fueled by the discovery of naturally occurring genuine doubts in empirical settings. However, such a definition of qualitative research suffers in two ways. [59]

Less importantly, it will be seen as essentially a preliminary step to genuine empirical inquiry. Sometimes, this is the case. But more importantly, if we stop there, we are unnecessarily limiting our ability to work with genuine doubt and meaning within the empirical world. If we take reflective and conscious control of the genuine doubt process, however, then we can craft a version of an empirical inquiry into meaning that is authentically new. [60]

16 From "The adventure of the copper beeches." (DOYLE 1967/1889, Vol. II, p.115).

14. Perhaps when a man has a special knowledge and special powers like my own, it rather encourages him to seek a complex situation when a simpler one is at hand[17]

When we looked at genuine doubt earlier, we said that it was in contrast to less authentic forms of doubt. The architect of such inauthentic doubt, according to my dear friend PEIRCE, was none other than that giant of modern thought, Rene DESCARTES. In many ways, our vision of empirical inquiry is rooted in DESCARTES. Let us cogitate on this point for a bit. [61]

DESCARTES had a pretty good idea when he set up his Method of Doubt. As you may remember from your University days, Watson, DESCARTES set up a problem where he supposed that we should doubt anything of which we were not absolutely certain. From this move, DESCARTES was able to peel away our naive dependence on our senses, our tradition, and in fact everything but the fact that we were doubting! [62]

From this stance, he espoused the famed 'Cogito, ergo sum' which has served as the backdrop for all Modern philosophy. My dear friend PEIRCE challenged this Method in the most clever and novel way. DESCARTES' Method of Doubt is invalid, says Charles, because the doubt that it engenders is not genuine doubt! And so it becomes nothing more than a game rather than as a real tool for us to use in empirical inquiry. For that task, we need the real thing-genuine doubt. [63]

But I have pressed our friend's idea a bit further. Suppose we manipulate circumstances, as DESCARTES did, to engender doubt. But suppose we go further, and insist, along with PEIRCE, that we only consider resultant doubt if it is genuine doubt. Then, could we not refashion DESCARTES' fanciful search for a foundation for philosophy into an empirical research strategy? [64]

There must be any number of ways to manipulate circumstances to engender genuine doubt. If we think about it, we have already done so when we used strange and unusual metaphors to uncover hidden or subtle aspects of things or circumstances in the world of experience. In the following sections, I will lay out four more such strategic tools. I am sure that there must be many more waiting to be discovered. [65]

15. One's ideas must be as broad as Nature if they are to interpret Nature[18]

It is amazing how this Olympian view helps one's perspective of things. Like many good empiricists, I was quite taken with the Nominalist view of reality whilst I was alive. It is easy to believe that complicated things are nothing more than combinations of simple things; and that if we understand the simple things, we can build many complicated things. [66]

17 From "The adventure of the Abbey Grange" (DOYLE 1967/1897, Vol. II, p.498).

18 From "A study in scarlet" (DOYLE 1967/1881, Vol. I, p.179).

We might call this process the Factor model of inquiry. Big things are built from simple things, and the rules of building are factor rules. So we can isolate out factors, and see what their contributory roles are. [67]

This strategy works quite nicely for Swiss watches and other things that seem mechanical in nature, but there are many things in the empirical world that are more holistic and therefore do not seem to be composed of factors at all. [68]

Now that I can see a much bigger picture, I can see how many 'big' things in the world are real on their own terms as complex wholes. But you on earth cannot grasp their reality whole, because they are so complex. So, instead of breaking them up into composite factors, you can preserve their wholeness as best you can whilst looking at only part of the picture at any given time. For a lack of a better term, we can call this 'faceted' inquiry. I am aware that there is such a thing as 'facet' theory, but I am talking about something different. That is why I am using the uglier 'faceted' over the simpler 'facet'. Please bear with me, my dear Watson. It is always my fervent desire to be clear. [69]

What you once saw as factors, you can now see as perspectival facets of a Whole. As you turn the Whole, or turn yourselves in relation to the Whole, you get different views. Any given view will privilege some aspect of the Whole, while simultaneously concealing some other aspect. [70]

One immediate strategy for empirical qualitative research is to re-examine any number of studies that attempt to discover factors of a complex social phenomenon, and to re-interpret those factors as perspectival factors. What sorts of new understandings and insights can be gleaned from either re-examining the original data, collecting new data from this new perspective, or both? [71]

Let me seek to allow a single example to suffice for this rather complex point. For decades, social scientists have been searching to discover the various 'causes' of juvenile delinquency. Try as they might, they have yet to come up with any rules or laws that will allow us to predict or control the presence or absence of juvenile delinquency in any truly scientific manner. No matter how many new factors we aggregate, we seem no closer to a genuine cause and effect understanding. But what if we sought to redefine these factors, not as absolute markers in reality, but as perspectives on the overall reality of juvenile delinquency. Therefore, for example, we might wish to turn away from studying the role of single parent households in the origins of juvenile delinquency, and turn instead to examining the various ways various sorts of single parent households view themselves, and how they view crime, discipline, school, and other related matters. By moving from artificial simplification to manageable complexification, we end up with a richer and more insightful view of a complex phenomenon. [72]

16. Let us hear the suspicions, I will look after the proofs[19]

Nothing is more sacrosanct in detection than the integrity of one's clues. If we cannot be sure that our clues are indeed accurate and well articulated, then we have no case. But sometimes we find ourselves with a case of tunnel vision when it comes to finding clues dealing with a complex, long-term matter. How can we make sure that we are not artificially restricting the domain of our inquiry? [73]

On this matter I have drawn council from some of our elder residents here in Heaven. Medieval logicians of language wrestled with the nature of language. But they did so by looking at some apparently strange examples. One of the more famous, as noted in contemporary times by ECO (1984), is the issue of 'latratus canis'. Does the barking of dogs constitute a language? [74]

Medieval logicians did not really take seriously the notion that the barking of dogs was indeed a language. But they did know that this example was on the very margins of the question. This sort of 'marginal' inquiry, where we use bizarre or trivial or even false or contradictory clues as exploratory devices for things we feel we know quite well via ordinary means of inquiry, can be just the tool to move beyond the ordinary into self-imposed genuine doubt and thereby new insights and understandings. [75]

We can see that this sort of method is fraught with peril at the outset, and its user must be constantly alert and aware not to slip into unconscious belief or error. But, if done well, this sort of inquiry can help us uncover aspects of 'ordinary' phenomena whose 'extraordinariness' have been masked by adherence to mainstream understandings. [76]

Let me illustrate with yet another simple example. I know that you, my dear Watson, are quite fond of hiphop music. I have seen you slinking around in impromptu rave clubs, grooving to the sounds of DJ This and DJ That. Could it be, my friend, that you are pursuing these margins of culture because you realize that they shape and mirror larger culture in rich and interesting ways? Do you feel compelled to explain hiphop in terms of the larger culture? Couldn't it be just as interesting to explain larger culture within the framework of hiphop culture, instead? [77]

17. My mind is like a racing engine, tearing itself to pieces because it is not connected up with the work for which it was built[20]

So far, we have been looking at ways to generate genuine doubt by taking different perspectives or by forcing ourselves to the margins of phenomena. But we can be even more radical. Consider, Watson, the degree to which the human mind abhors a vacuum of meaning. If we hear a claim, no matter how arcane or apparently arbitrary, the engine of genuine doubt will go to work and force us to

19 From "The adventure of the three students" (DOYLE 1967/1895, Vol. II, p.374).

20 From "The adventure of Wisteria Lodge" (DOYLE 1967/1890, Vol. II, p.238).

come up with some meaningful understanding. This will work, even if we realize at the outset that our links are pure arbitrary! [78]

This is the basis of what I have come to call the Method of Juxtaposition. Let me explain it with an illustration. Let us go back to our poor school principal caught between the Garden and the Prison metaphors. We can enhance our working model of the teacher from each of these metaphors. How is a teacher like a gardener? How is a teacher like a prison guard? [79]

These questions are empirical questions. They can only be answered by actually going out into the world of experience to see how gardeners actually operate, and how prison guards actually operate. [80]

Note however that we are using a different orientation toward intelligibility than we might otherwise use in an empirical study. If we are looking at gardeners and prison guards per se, then it is important to look at how these professional typically operate. In this way, we are emphasizing the notion of generalizability as a crucial aspect of rendering our inquiry as intelligible. [81]

But if we are using gardeners and prison guards to unearth hidden domains of meaning in another area, such as teaching, then we need only be concerned with how an exemplary gardener or an exemplary prison guard might lead us to some new insight. It is analogous to the case where we might turn to a critic for a careful reading of, say, Moby Dick, to help us understand that particular work better. It would not be particularly useful to attempt to understand what some generalized typical reader would make of Moby Dick, since that typical reader would not be as inherently insightful as the critic, at least for our purposes. [82]

We are in the business of pushing forward the margins of meaning, and we are on safer grounds when we use exemplary guides to help us do so. If we are really brave, we can push out our juxtapositions into more and more arbitrary directions. For instance, I do not know how a teacher is like a sharecropper or a Buddhist monk, but I feel the tug of meaning and the nag of doubt when I raise this issue, and I suppose you feel that tug as well, Watson. And like all forms of empirical inquiry, it is finally a gamble. There is no guarantee that I will arrive upon any useful insight at all. But that is part of what makes the empirical hunt so much fun, isn't it? [83]

18. Possess our souls in patience and make as little noise as possible[21]

When I am unsure how to present my findings to a skeptical world, I often turn to homiletics. Like it or not, Watson, the art of composing research findings is grounded in the ancient art of preaching. [84]

21 From "The valley of fear" (DOYLE 1967/1888, Vol. I, p.514).

In my more playful moments, I can see how a typical qualitative research report is like a Catholic homily, and a typical quantitative report is like a Protestant sermon. With the homily, the priest is given a text to read and to interpret for the congregation. A good homily unpacks this 'given' text in terms of the human and spiritual needs of all involved. The sermon generally deals with thematic issues, and cites scripture in support in exactly the same way we cite other articles and research to support our empirical and theoretical claims. [85]

But no matter—there is a much more important issue here. As a clever chap named David BUTTRICK points out in his opus on homiletics, language "constitutes our world by *naming*, and confers identity in the world by *story*" (1987, p.11, italics his). The manipulation and clarification of identity through the use of language is a crucial area where meaning and culture interact. [86]

For years, there has been an implicit awareness of the importance of narrative and story in qualitative inquiry (POLKINGHORNE 1988; and RICHARDSON 1995, 2000 are two of the best examples in the social sciences). Part of that justification has dealt with the reintroduction and awareness of contemporary myth in today's world. Part of it has to do with a critical stance of sharing knowledge and awareness at a concrete level, as opposed to the building of abstract theory. Another side argues for the use of narrative as a 'depth' tool. [87]

But the thing that all of these, and related, approaches have in common is the notion of story as a 'laboratory' for identity. Identity is a meaning concept, and an empirical concept, and qualitative research that takes a narrative turn must walk carefully along these boundaries. [88]

In short, story is a way for quantitative research to organize certain findings in a more understandable way. Therefore, for quantitative research, story is a useful but ultimately limited tool. For qualitative research, however, story is part of the order we strive to find and communicate. A story is an enemy of chance—that is, if we can put details together to form a coherent story, then there is a pretty good likelihood that this order is not accidental. Story, then, is one part of our search for order in the realm of meaning. We do not have to reduce the order we find to truth claims. That is what we do when we argue that causality is the only form of order allowable in empirical inquiry. As a matter of fact, my dear Watson, causality is often the most trivial and least interesting form of order we might find in a given setting! [89]

19. What object is served by this circle of misery and violence and fear? It must tend to some end, or else our universe is ruled by chance, which is unthinkable. But what end? There is the great standing perennial problem to which human reason is as far from an answer as ever[22]

Now we get to the crux of the matter. Qualitative research is not just a disinterested application of a systematic empirical inquiry into meaning. It is also based on the consequences of this position as a new stance within inquiry. First of all, it is a mode of inquiry that takes meaning seriously, and on its own terms. It is not committed to reducing issues of meaning to abstraction, or formulation, or verification. While it sees that meaning and truth are often interdependent, one cannot be reduced to the other, and one is not subordinate to the other. [90]

20. On the contrary, Watson, you see everything. You fail, however, to reason from what you see. You are too timid in drawing your inferences[23]

I have asked Mr. PEIRCE to help me create two technical appendices to this paper, and he has graciously consented to do so. The first appendix lays out a model of the sign within the empirical world as a phenomenologically grounded form of reasoning that is irreducibly triadic in form. The second appendix shows how we can derive ten, and only ten, modes of reasoning that can exhaustively characterize any and all logic-in-practice in empirical inquiry, be it qualitative or quantitative in form. [91]

These appendices provide precise definitions and grounding for what we have discussed here. But I do not want these technical discussions to mask an important conclusion. Empirical inquiry is something we do as a community of inquirers. Whatever orientation toward inquiry we might prefer, we have to realize that it will be only as good as our beliefs. If we go into our research with a timid belief system, we will have timid findings. If we go in with reckless beliefs, then we will have reckless findings. [92]

I have always tried to walk the tightrope between these two poles. For me, this is a much more important distinction than choice of method, or even choice of questions to ask. Do not expect verification if you are looking for understanding. Do not expect understandings to flow from verifications. And most importantly, do not expect anything, even the questions you ask, to take the place of stating what it is you believe when you begin your inquiry. [93]

Learn to examine your own beliefs, Watson. They will often surprise you. But do not be too eager to either toss them aside too soon out of the fear of being wrong, or to cling to them out of a fear of abandoning what is right. As long as

22 From "The cardboard box" (DOYLE 1967/1888, Vol. II, p.208).

23 From "The adventure of the blue carbuncle" (DOYLE 1967/1887, Vol. I, p.453).

you can live with genuine doubt long enough to find something new, you should be all right. [94]

It is easier to know it than to explain why I know it.[24]

Appendix 1: Sign vs. Fact in the Empirical World

1) An inquiry into meaning deals with phenomena not as facts per se, but as signs.

2) A fact is a phenomenon whose meaning is based on its verifiable characteristics. For instance, if we say that a particular phenomenon is a leaf (for example), then we are saying that everything which we collectively agree pertains to any leaf pertains to this phenomenon, and that everything which we collectively agree does not pertain to any leaf does not pertain to this phenomenon as well. We further stipulate that "collectively agree" is an operation that is driven by the known set of empirically observable and verifiable characteristics of the phenomenon in question.

3) When we say "Is this phenomenon truly a leaf?" or more usually, "Is some claim about the world true, given, among other things, that this phenomenon is truly a leaf?" then we are performing a type of empirical inquiry that is based on the verification or falsification of a claim about the empirical world. Note that, in order to do this, we have to settle the issue of "What is a leaf?" beforehand. This settling not only publicly identifies our particular phenomenon as a leaf, but it determines, within the scope of the inquiry, just exactly what a leaf means. This process is known as operationalization.

4) If we say, instead, "What does it mean that there is a leaf here as a manifest phenomenon?" then we are no longer looking to verify anything factual about what we have agreed is a leaf. Instead, we are treating the leaf as a sign.

5) A sign is a qualitatively different phenomenon from a fact. This is true, even in this case where the phenomenon is physically the same thing. That is, the given leaf, treated as a fact, is qualitatively different than the same leaf, treated as a sign.

6) Within the domain of signs that serve as the basis for empirical inquiry by human beings (importantly noted to be only a small subset of all actual and/or potential signs), these signs within this domain have both logical and phenomenological characteristics.

7) Logically, all signs have a necessarily triadic nature. A sign, which is manifest to the inquirer, stands for some object, which is not manifest to the inquirer, and thereby brings about a consequence that is qualitatively different than the consequent that the object would have brought about, had the object itself been manifest. This can be reduced to the following equation:

24 From "A study in scarlet" (DOYLE 1967/1881, Vol. I, p.164).

If (Object), by (Sign), then (Interpretant);

where the Interpretant is the mediated consequent. Note that the Sign is manifest, the Object is not manifest, and the Interpretant may or may not be manifest.

8) Phenomenologically, the sign process describes the resolution of doubt within the empirical world. When we take a manifest phenomenon as a Sign, then we are shifting our awareness away from it per se and toward its as yet unknown or unspecified link to some absent Object.

9) It is, in principle, possible to state that there are a finite number of true claims that we need to make to describe a leaf "factually" since there are in principle a finite number of verifiable agreements concerning the definitive nature of a leaf. To state this another way, we can say that there is a limit to the verifiable claims we need to prove in order to demonstrate that we have, necessarily and without the possibility of error, truly a leaf. That is, at some point in time we will have specified and discovered everything there is to truly know about a leaf, and at that time we will know it without error or falsehood. This end point is both in the future and the result of the activity of a community of inquirers. Therefore, logically, it is the reasonable goal of any operationally driven inquiry to know its target in an error-free and definitive way. However, since there is no way for us to be sure that we really have an error-free understanding, there is no way for us to know that we have finally arrived at this definitive state of affairs. All we will have is a growing confidence, as time goes on, that we are more and more likely to be right since our verifiable agreements remain unfalsified. The essence of this mode of inquiry, then, is convergent.

10) If our empirical inquiry focuses on the roles and actions of signs, however, then we have a different state of affairs. There is no limit, in principle, to the ways that a given phenomenon can operate as a sign. In fact, in principle, it is possible for a given phenomenon to be a Sign of any and all Objects, past, present, or future, real, or imaginary. Every act of signification, in fact, enriches our understanding of the phenomenon, its operation as a sign, its object, and the realm of potential consequences. Therefore, we can never have the definitive meaning of any phenomenon, even in principle. Given that there is no possible definitive meaning for any phenomenon, the act of signification is therefore inherently divergent. But given that all acts of signification follow the same triadic logical structure, any act of signification can, in principle, be understood as working within the logical dimensions of said model. Therefore, even though all inquiry based on meaning is inherently divergent, it is also objectively specifiable. The claim that meaning is private, idiosyncratic, and necessarily subjective is false. Therefore, a community of objective inquirers can perform an inquiry into meaning that is objective, and yet is qualitatively distinct from an inquiry of verification.

11) Inquiries based on facts and inquiries based on signs can interact, and their findings can be interdependent, since they can involve the exact same phenomena in a manifest way, but they cannot be reduced to each other.

12) Inquiries based on facts seek to expand truth claims, while inquiries based on signs seek to enhance understanding. These goals cannot be reduced to each other, either.

Appendix 2: The Ten Classes of Signs and their Relation to Empirical Reasoning

1) In (2.233-2.264) PEIRCE lays out the basic argument that there are ten, and only ten, classes of signs. That argument will be summarized here, using however the simplified language of SHANK and CUNNINGHAM (1996). These ten classes will be shown to be the infrastructure for the ten, and only ten, logics in practice for empirical inquiry.

2) A phenomenon is manifestly a Sign in one of three ways. If it is first and foremost a phenomenon, and only potentially a sign, then it is a Tone. If it is manifestly a sign, but a sign focusing on its nature as this one particular phenomenon, then it is a Token. If it is manifestly a sign, such that it points not just to one particular object but to a class of objects, then it is a Type.

3) A Sign can stand for its Object in three ways. It can be an Icon, and Index, or a Symbol. An icon stands for an object by resembling or imitating the object in some way. An index is a sign that has been made in some way by the object. A symbol is a sign that stands for its object by virtue of some rule, law, or habit of convention.

4) A Sign can mediate one of three types of consequences. If the sign leads to the possibility of some consequence only, then it is an Open sign. If the sign leads to a specific consequence, then it is a Singular sign. If the sign leads to a general class of consequences, then it is a General sign.

5) While there are 27 mathematical combinations of these properties, only 10 of them are logically feasible. No Tone can be Singular or General, since a tone is by definition only possible. Furthermore, no tone can be Indexical or Symbolic for the same reason. Therefore, the only allowable tone is the Open Iconic Tone. There can be an Open Iconic Token and an Open Iconic Type. Similarly, there is an Open Indexical Token and an Open Indexical Type. While a Token can be Iconic or Indexical, it cannot be Symbolic. Therefore, the last Open sign is the Open Symbolic Type. Since a Singular sign actually links to the phenomenon, it cannot be Iconic. Therefore, there is a Singular Indexical Token, a Singular Symbolic Token, and a Singular Symbolic Type. Finally, a General sign by definition has to be both symbolic and a type, so the last class is the General Symbolic Type. Peirce demonstrates in his piece that the process is a monotonic descending function.

6) In order, the ten classes are:

- Open Iconic Tone
- Open Iconic Token
- Open Iconic Type
- Open Indexical Token
- Open Indexical Type
- Open Symbolic Type
- Singular Indexical Token
- Singular Indexical Type
- Singular Symbolic Type
- General Symbolic Type

7) Phenomenologically, these signs show up as the consequence of reasoning about the world of experience in the following ways:

- Open Iconic Tone—hunch
- Open Iconic Token—omen
- Open Iconic Type—metaphor
- Open Indexical Token—clue
- Open Indexical Type—pattern
- Open Symbolic Type—explanation
- Singular Indexical Token—fact
- Singular Indexical Type—hypothesis
- Singular Symbolic Type—theory
- General Symbolic Type—demonstration

8) In terms of reasoning: The first six types, which involve open signs, are the result of abductive reasoning; the next three types, which involve singular signs, are the result of inductive reasoning; and the last type, which involves general signs, is the result of deductive reasoning. Systematic groupings can be made to create "families" of similar inference patterns. For instance, the difference between a metaphor and a theory can be examined by looking at both the systematic differences between Open and Singular signs, as well as the systematic differences between Iconic and Symbolic signs. Other groupings are left as an exercise for the reader.

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Citation

Shank, Gary (2001). It's Logic in Practice, My Dear Watson: An Imaginary Memoir from Beyond the Grave [94 paragraphs]. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*], *2*(1), Art. 9, http://nbn-resolving.de/urn:nbn:de:0114-fqs010191.