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# Quantitative and qualitative social science: Toward a multilateral conceptualization for normative use

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Abstract

The philosophy of social science is today, from the perspective of the scientists themselves, dominated by the notions of *quantitative* and *qualitative* research. Social scientists make distinctions between a wide range of different aspects of research in terms of what is quantitative and qualitative. The purpose of this paper is to integrate these distinctions into a useful conceptualization. First, I set up criteria for usefulness. Second, I show that one overarching distinction between quantitative and qualitative research, that is, a *unilateral* conceptualization, is insufficient for optimizing usefulness. Third, I suggest a *multilateral* conceptualization with three overarching distinctions between (1) interpretive versus non-interpretive research, (2) fixing versus developing the assumptions that are operative in interpretation, and (3) elements of quantity versus quality. Finally, I use this conceptualization to define the terms ‘quantitative’ and ‘qualitative’, with a demarcation based on differing strategies for achieving interpretability.

### Acknowledgments

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## Introduction

During the 20<sup>th</sup> century, the philosophy of science has undergone tremendous changes. One of the most striking trends is that both science and the philosophy of science have become so highly specialized that there is today a profound gulf between them. Scientists have increasingly developed specialized methods within their limited fields of expertise, whereas philosophers of science have tended to specialize on technical methodological problems that are far removed from the reality of scientific practise. Although this gulf does persist today, there has been a clear trend in the adverse direction over the last four decades, sparked by Kuhn's work on scientific revolutions. Philosophers of science have begun to appreciate the historical and social aspects of science in addition to its purely logical aspects<sup>1</sup>. Social scientists have, on the other hand, become more aware of how paradigmatic assumptions and values shape their scientific inquiries, and they have started to discuss the nature and legitimacy of these assumptions and values, focusing on the notions of *quantitative* and *qualitative* research<sup>2</sup>.

The term quantitative research has become associated with the traditional ideal of modeling all scientific inquiry upon the experimental methods of the natural sciences, along with its *positivist*<sup>3</sup> philosophies of science and methodologies. The term qualitative research, on the other hand, has become loosely associated with a wealth of philosophies such as *hermeneutics*, *phenomenology*, *symbolic interactionism* and *ethnography*, and their corresponding methodologies, with the most general denominator of revolting against the positivist dominion. Proponents of qualitative research have traditionally claimed that there is some important difference between the phenomena investigated by social scientists and the phenomena investigated by natural scientists that makes the former unsuited for being treated like the latter. Consequently, qualitative research is still today frequently defined in negative terms – as non-quantitative research.

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<sup>1</sup> Kuhn's (1962) publication of *The Structure of Scientific Revolutions* was important, because it subverted ideas about scientific practise that were deeply ingrained among philosophers of science. Kuhn demonstrated that scientists often work by applying the tacit knowledge that they have acquired through imitating exemplary solutions to scientific problems, to new specialized problems, seldom following Positivist or Popperian rules for the rational application of methods. See Larvor (2001) for a discussion of the general trend.

<sup>2</sup> Some philosophers seem to associate this strongly with the Aristotelian notions of quantity and quality and therefore miss the core questions concerning quantitative and qualitative research (e.g. Hansson, 2004). Therefore, it is important to make it clear right from the beginning that *quantitative and qualitative properties and relations only play a peripheral role in this context*.

<sup>3</sup> When I speak of positivism in this general sense I refer to a broader tradition of positivist philosophies, including Comptes 19th century positivism as well as the *logical positivism* that was originated in the Vienna circle in the 1920s and its descendant *logical empiricism* that arose in Berlin in the 1930s.

The discussions about the nature and merits of quantitative and qualitative research that have occurred over the last three decades have caused an enormous turbulence in the social sciences. They have spawned lots of intense polemics, forcing scientists to recreate their research identities and to defend their academic credentials and affiliations<sup>4</sup>. But, today, social scientists generally view quantitative and qualitative research as complementary, rather than competing paradigms, and they tend to choose methods eclectically, to suit whatever research problem is at hand, without worrying about allegiance to paradigmatic assumptions and values. There are, in addition to this, two other things about the current situation that I want to emphasize. First, the distinction between quantitative and qualitative research is today deeply entrenched and widespread within the discourse of social scientists. Loads of books on quantitative and qualitative methods get published, students are taught to categorize research in terms of what is quantitative and qualitative, and many journals specialize on quantitative or qualitative research. Second, there is today utter confusion and disagreement about both the definition and the extension of the terms ‘quantitative’ and ‘qualitative’. The attempts of social scientists to explicate disparate aspects of research in terms of what is quantitative and qualitative, and to innovate new methods accordingly, has rendered an amorphous wealth of different distinctions between methodological and philosophical aspects of research without obvious connections to each other<sup>5</sup>. It is clear that many of these distinctions are of methodological importance; what is not clear is that they can be usefully integrated into one overarching distinction between quantitative and qualitative research.

The purpose of this paper is to integrate these distinctions between quantitative and qualitative research into one useful conceptualization, including definitions of ‘quantitative’ and ‘qualitative’ aspects of research. First, I will set up a starting point, specifying criteria for usefulness and grouping distinctions between quantitative and qualitative research that have potential methodological import. Second, I will show that there is no single overarching distinction between quantitative and qualitative research that can, by itself, make our conceptualization optimally useful. This is my negative thesis. Third, I will suggest the adoption of a conceptualization that retains three overarching distinctions – that is, a *multilateral* rather than *unilateral* conceptualization – and I will show how we can give useful definitions of quantitative and qualitative methods and research against the background of this

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<sup>4</sup> For example, Lincoln and Guba (1985) provokingly urged the abandonment of the traditional positivist paradigm – which was in fact a grotesquely caricatured straw opponent – in favor of a new emerging paradigm.

<sup>5</sup> See Bryman (1985), Allwood (1999), and Åsberg (2001) for discussions of different ways of distinguishing quantitative and qualitative research in terms of ontology, epistemology, methodology, concrete parts of the research process, or data, and of some of the confusions between them.

conceptualization. This is my positive thesis. Moreover, I will focus mostly on psychology, although I do believe that the two theses hold for the entire social sciences.

## Setting up a starting point

### *Criteria for usefulness*

Social scientists usually discuss and try to define the notions of quantitative and qualitative research in *descriptive* terms<sup>6</sup>. This is unfortunate, because a distinction between quantitative and qualitative research is not very useful in describing how scientists actually work. The problem is that an adequate description of science must take into account that the paradigms that scientists work in, that shape their research identities, are sociocultural movements as well as epistemic projects and that such movements cannot be efficiently categorized into crude and static dichotomies. Although it may have had some descriptive relevance when it first emerged, juxtaposing traditionalists and revolutionaries, the distinction between quantitative and qualitative research is clearly outmoded as a description of today's complex and perpetually changing web of paradigms. These paradigms partially intersect and permeate each other, having no more than obscure connections to the superordinate labels 'quantitative' and 'qualitative'<sup>7</sup>.

Fortunately, the distinction between quantitative and qualitative can also be, and is<sup>8</sup>, used *normatively*. It is of course perfectly possible that a distinction is useful for normative purposes, although useless for descriptive purposes, because principles for how research *should* be conducted cannot be derived from descriptions of how research *de facto is* conducted. First, the mere fact that some beliefs and values are shared by scientists within a specific paradigm does not lend them any inherent legitimacy<sup>9</sup>. If we want to tell scientists to conduct research in accordance with this paradigm, then we must at least insure ourselves that

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<sup>6</sup> Many social scientists seem to assume that there is some essence underlying what is quantitative and qualitative in research, and they try to pinpoint this alleged essence by describing what quantitative and qualitative researchers *actually do*. This is, as pointed out by Allwood (1999, p. 447), a type of reification of socially constructed terms, and therefore the descriptions end up fuzzy and even obscure, loosely associating the terms 'quantitative research' and 'qualitative research' with other equally vague terms. See Denzin and Lincoln (2005, ch. 1) and Bryman (2001, pp. 20-22) for examples from prominent methodological literature.

<sup>7</sup> This argument is developed more thoroughly by Allwood (1999, 2004). Some distinctions among contemporary paradigms are discussed in Denzin and Lincoln (2005, part 2).

<sup>8</sup> This normative usage is often quite implicit. For example, social scientists discuss and teach the concrete implementations of quantitative and qualitative methods with the underlying presupposition that these methods should be used, and they confer paradigmatic assumptions and values upon students in teaching them by example.

<sup>9</sup> In my subsequent discussions, I will simply take the valuing of knowledge about other people's minds as a presupposition for a philosophy of social science so that I can focus my attention on the plausibility of assumptions about how to acquire such knowledge.

these beliefs are plausible. Second, even if the beliefs and values of the paradigm are acceptable, there may still be something wrong with the way that these beliefs and values are implemented in the concrete methods of the paradigm. Even scientists who embrace the paradigmatic beliefs and values wholeheartedly, and who strive to conduct their research in accordance with these belief and values, may fail to be rational, in using methods that fail, according to the paradigmatic beliefs, to be conducive to the paradigmatic values.

For my negative thesis to be at all non-trivial it must be directed at normative rather than descriptive use. Descriptive use could however very well be interesting once we allow for multiple overarching distinctions, in setting forth the positive thesis. But, because I will set forth the positive thesis as a direct consequence of the negative thesis, my focus will remain on normative rather than descriptive use. Moreover, for a distinction between quantitative and qualitative research to be useful at all, descriptively or normatively, it is necessary to clarify the confusions that permeate its current use. In fact, considering the present state of confusion in the discourse on quantitative and qualitative research, clarification alone would be a significant achievement. I will however not stop at clarification; I will try to show how the distinctions between quantitative and qualitative aspects of research can be integrated into a normatively useful conceptualization. Therefore, I will treat clarification primarily as a precondition for normative usefulness.

The potential normative usefulness of a conceptualization of quantitative and qualitative aspects of research consists in *helping social scientists to decide what methods they should choose in any given research situation*. The *research situation*, for any given researcher, includes, but is not limited to, the problem or phenomenon under investigation, available empirical data from previous research, relevant theories with their relative degrees of corroboration, as well as practical constraints such as availability of time, financing, and participants. The normative usefulness of the conceptualization stems from its ability to differentiate and elucidate the methodological prescriptions, for different research situations, that are based on plausible philosophical reasoning. If the usage of a method in a given situation cannot be justified by such a methodological prescription then this usage is *forbidden*. If there are alternative methods that are not forbidden in a given situation, then the conceptualization should be complemented with descriptions of the philosophical assumptions that undergird the alternative methodological prescriptions and the arguments for and against these assumptions. In this way, the conceptualization can enable Popperian critical scientists to weigh the arguments on their own so that they can make a rational choice between different

methods<sup>10</sup>. For the Kuhnian normal scientist, who chooses method for sociopsychological reasons rather than rational considerations, the conceptualization will be normatively useful to the extent that it helps him to confine his choice to alternatives that are not forbidden. Thus, without investing the effort of ensuring the rationality of the choice, the scientist can still rest assured that his research has at least some legitimate philosophical basis, as long as he follows the simple rule of not making forbidden choices.

Now we need to implement these preliminary considerations into a method for judging the usefulness of alternative ways of constructing our conceptualization. We cannot hope to find *sufficient* conditions for usefulness, because the practical reality of social scientists may always set up unforeseen obstacles. But we can delineate *necessary* conditions for the conceptualization to be useful, or rather *optimally useful*, and we can set up criteria that must be satisfied in order for these conditions to obtain. This will prove to be just what we need to be able to sift through different conceptualizations. The criteria are as follows:

*Clarity.* If social scientists are to be able to choose among alternative methods with the aid of our conceptualization, it is necessary that the conceptualization provides them with clearly discernible alternatives. If the conceptualization is unclear then it is not possible to tell which alternatives different methods and philosophies represent and let alone to know what methods are prescribed by any given philosophy. Because confusions abound in the discussion of quantitative and qualitative research, we will have to clarify the central distinctions.

*Normativity.* If the researcher's choice of method from our conceptualization is to be legitimate, it is necessary that the conceptualization states how research should be conducted. To achieve this, we must be able to define quantitative and qualitative methods as the type of methods that the corresponding quantitative and qualitative philosophies prescribe. The most potentially fruitful way of defining the methods in terms of the philosophies that prescribe them is to let the prescriptions hold for all possible research situations within the relevant field of science, leaving room for disagreement between the philosophies. Splitting up social science into one qualitative and one quantitative field would oversimplify rather than clarify the discussions on quantitative and qualitative research, unless we have already discussed other candidates with more potential use and shown that the best residual possibility is to split the field in half.

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<sup>10</sup> I am extending Popper's (1959) concept of the critical scientist slightly in being open to the possibility of there being alternative methodological prescriptions that are incompatible although equally admissible. Popper's methodological rules are so general that the scientist is never in a position to choose between them.

I will call the distinction between the types of methods that are directly prescribed by quantitative and qualitative philosophy a *primary distinction* between quantitative and qualitative methods, and I will call the other distinctions in the conceptualization *secondary distinctions* between quantitative and qualitative research. Whereas the primary distinction defines quantitative and qualitative research, the function of the secondary distinctions is to pick out specific, methodologically relevant, characteristics that either type of research should have.

*Width.* If our conceptualization is to be optimally useful in aiding the scientist to choose methods, it must incorporate more or less all of the distinctions pertaining to quantitative and qualitative research that may contribute to its usefulness, that is, it must be *wide* enough to *cover* all of these distinctions. If the conceptualization could be coherently integrated around one overarching distinction between quantitative and qualitative research then it would constitute an extremely powerful heuristic device – social scientists would only have to make one superordinate choice between quantitative and qualitative philosophies or paradigms, and this choice would then justify them in using either a quantitative or a qualitative methodology throughout their research. But, this requires that the conceptualization connects the distinctions to each other, so that they can aid the scientist in making choices concerning the many different aspects of research that the distinctions address; arbitrarily assigning a label to the entire set of distinctions would be of miniscule methodological use.

There are two different ways that an overarching distinction can cover a set of distinctions, connecting them in the normatively relevant way. The first one is if the overarching distinction can somehow *subsume* the other distinctions so that they are seen as specific aspects of the overarching distinction. For example, if we have several distinctions between quantitative and qualitative types of interpretation we could perhaps form an overarching distinction between what is common to quantitative and to qualitative types of interpretation. Because of the heterogeneity in our initial set of distinctions between quantitative and qualitative research, this is however not a viable strategy as long as we are confined to constructing a unilateral conceptualization. The second way to cover a set of distinctions with one overarching distinction is if we can somehow *reduce* these distinctions to the overarching distinction, without their being subsumed under it. For example, if we have a primary distinction between methods of type  $T_1$  and  $T_2$  and another distinction between methods of type  $T_3$  and  $T_4$ , and we can plausibly argue that methods of type  $T_1$  should be of the type  $T_3$  and that methods of type  $T_2$  should be of type  $T_4$  in the relevant field of research situations, then we have managed to construct a secondary distinction that is in an important sense

reducible to, although not subsumed under, the primary distinction. In the case of such reducibility, a prescription of methods of type  $T_1$  or  $T_2$  is in itself sufficient; we would not have to mention that the methods should be of type  $T_3$  or  $T_4$  once this is firmly established, because this would automatically follow from the initial prescription. We would say that a method is quantitative if and only if it is of type  $T_1$  and qualitative if and only if it is of type  $T_2$ , and that if it is quantitative then it should be of type  $T_3$  and if it is qualitative then it should be of type  $T_4$ . If we, on the other hand, manage to show that methods of type  $T_1$  should be of type  $T_3$  in some research situations and of type  $T_4$  in other research situations, within the relevant field, then we have shown that the distinction between  $T_3$  and  $T_4$  is not reducible to the distinction between  $T_1$  and  $T_2$ .

*Relevance.* Because our conceptualization is intended to be used by social scientists in their actual research situations, it must be sensitive to their reality, including the distinctions that they use in their practical endeavor. This means that it must be relevant to their discourse on quantitative and qualitative research. Thus, we will need some hinges to anchor our conceptualization in their discourse, and for this we will make use of the fact that there is a rich array of philosophies and methods that are considered by common consensus to be either quantitative or qualitative. For example, positivist philosophies, physiological measurement, standardized questionnaires with numerical scaling, experiments, and statistics are consensually quantitative, whereas phenomenology, hermeneutics, non-structured interviews, textual interpretation, case studies, and participant observation are consensually qualitative. To be relevant, our conceptualization must categorize consensually quantitative philosophies and methods as quantitative and consensually qualitative philosophies and methods as qualitative.

*Plausibility.* To be able to legitimately prescribe the use of any given method, we must, as I have mentioned, make sure that our methodological prescriptions rest on philosophical assumptions that have at least some plausibility; research that is based on naive and untenable philosophies is forbidden<sup>11</sup>. In order to show that a philosophy is acceptable, we must at least answer its most fundamental problems and sophisticate it so as to show how it can be made plausible. In such a process of refinement, philosophies are sometimes refuted altogether, and some of the differences between those that remain tend to dissolve. But it is also often the case that there are genuine differences, that may even appear irreconcilable, between those

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<sup>11</sup> It is of course often debatable whether a philosophy is plausible or not. But the argument in this paper only hinges upon my being able to show that two specific philosophies are implausible, and these philosophies are so grossly implausible that I believe that no one will have a problem accepting their implausibility. Hence, it will serve our purposes to leave the notion of plausibility relatively intuitive and informal.

philosophies that remain and that each of them has some apparent plausibility and sophisticated proponents as well as problems of its own.

Clarity and normativity are absolute requirements in the sense that they must be completely satisfied in order for our conceptualization to be useful. Neither relevance nor width is an absolute requirement in this sense. We could imagine distinctions between quantitative and qualitative research that are of some use although they are only partially relevant. But partial relevance will not concern us much, because it will prove to be no problem to construct conceptualizations that are clear, normative, and completely relevant. The crucial problem is instead *how to optimize width without grossly sacrificing plausibility or how to achieve plausibility without allowing unacceptable sacrifices in width*. My negative thesis is that we cannot have both satisfactory plausibility and width with a unilateral conceptualization. My positive thesis is that the multilateral conceptualization that I present, with three basic distinctions as well as definitions of quantitative and qualitative methods and research against the clarifying background of these basic distinctions, optimizes usefulness.

Furthermore, the clarification provided by a conceptualization of quantitative and qualitative research is a function of clarity and width; the more clear distinctions with clear interrelations that it includes, the more clarification it may be able to provide. If a conceptualization has clarity and satisfactory width and it satisfies the other criteria as well, then it will provide enough clarification to be useful. Hence, the multilateral conceptualization that constitutes my positive thesis will provide enough clarification to be useful by itself. But the discussions of flawed and inadequate conceptualizations, that serve to establish my negative thesis, will also contribute clarification over and above that provided by the positive thesis.

#### *An initial list of distinctions between quantitative and qualitative research*

In order to proceed, we need an initial list of distinctions that are firmly rooted in the discourse on quantitative and qualitative research to provide the raw material for the construction of potentially useful conceptualizations. I will compose this list out of distinctions between quantitative and qualitative *methods*, so that I can subsequently use these distinctions to extract relevant philosophical theses from the complex and heterogeneous philosophical traditions associated with quantitative and qualitative research. This does however not in itself sufficiently limit the amount of distinctions in our list, because social scientists have put forth innumerable different ways of distinguishing between quantitative and qualitative methods. Therefore, I will organize the distinctions into thematic groups,

without including all of the subtly different variations that are possible in each group. I will also selectively exclude groups of distinctions that are so disconnected from the other groups that their inclusion would make the negative thesis trivial and pointless<sup>12</sup>.

This list is a mere starting point. Some of these distinctions will in fact prove to be completely untenable; others will have to be modified for our conceptualization to better satisfy the criteria for usefulness. Moreover, for purposes of brevity, I will merely provide synoptic descriptions of the distinctions in the initial list. I will return to the distinctions and elaborate and discuss them to the extent that this proves relevant to my line of argument.

1. *Natural sciences (quantitative) versus social sciences (qualitative)*. Quantitative researchers treat human beings just like all other natural phenomena. They search for the underlying nature of human behavior and mental life, and the laws that govern it, and to this end they use methods that are modeled upon the natural sciences and a vocabulary from the natural sciences for description, prediction, and explanation. Qualitative researchers, on the other hand, treat human beings as rational agents rather than mere natural objects. They use methods that are specific to the social sciences in order to probe into the individuality of human beings as conditioned by culture and history, and they use a psychological vocabulary to describe and explain mental life and human action.
  - a. *Non-intentional descriptions versus intentional descriptions*. Quantitative researchers try to translate every type of mental state or event into a type of overt behavior or neurological state or event, whereas qualitative researchers describe mental states and events with a specific type of psychological terms, usually called *intentional* terms, such as ‘belief’, ‘desire’, and ‘intention’.
  - b. *Causal explanations versus reason-explanations*. Whereas quantitative researchers explain human behavior simply as a result of the laws of cause and effect, qualitative researchers construe human behaviors as purposeful *actions*, by describing the intentions that are expressed in the behaviors and thus attributing *reasons* to the acting agents.
  - c. *Nomological explanations versus understanding of the full uniqueness of individual instances*. Quantitative researchers search for causal laws, which are acultural and

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<sup>12</sup> For example, some social scientists have actually claimed that scientific methods are inherently realistic or anti-realistic, and deterministic or anti-deterministic, and that this is related to the quantitative-qualitative dichotomy. Such distinctions are, even *if* they are meaningful, far too disconnected from, and irrelevant to, other distinctions between quantitative and qualitative methods to be able to be covered by a useful distinction between quantitative and qualitative research.

- ahistorical, in order to explain events, whereas qualitative researchers try to understand events in their full cultural and historical uniqueness and to formulate descriptions that confer such understanding to other persons.
- d. *Explaining versus interpreting*<sup>13</sup>. Quantitative researchers try to explain anomalous and unfamiliar events in terms of familiar assumptions in a familiar language, whereas qualitative researchers try to explicate and question their own assumptions, or even to set them aside, in order to avoid constraining their interpretive processes by familiar conceptual categories.
  - e. *External versus internal relations between intentional terms*. Quantitative researchers must, if they use intentional terms, describe intentional states and events largely in isolation from each other, in order for nomological explanation to be possible, whereas qualitative researchers describe intentional states and events as being embedded within a holistic network.
  - f. *Group generalizations versus individual generalizations*. In order to determine the underlying nature of the phenomena of interest, quantitative researchers measure many instances and generalize statistically to the group of which the instances are representative, ignoring contingent variations between instances. Qualitative researchers must, on the other hand, generalize carefully within specific cultural boundaries, to be able to preserve the nuances of the intentional descriptions.
2. *Scientists as passive and detached (quantitative) versus active and involved (qualitative)*. Quantitative researchers delineate their problem and perform all conceptual analysis and theorizing about hypothetical solutions to the problem before the actual empirical inquiry. In this way, they try to devise a procedure for testing their hypotheses truly scientifically, without distortions from their own subjective involvement. Qualitative researchers are, on the other hand, active in their empirical inquiries by using their own subjectivity as an instrument, thus generating concepts and hypotheses and adapting the scientific procedure continuously.
    - a. *Elimination of the scientists' subjectivity versus usage of the scientists' subjectivity as an instrument*. Quantitative researchers try to eliminate their own expectations, errors, and bias, by using standardized instruments under experimentally controlled and intersubjectively repeatable conditions, whereas qualitative researchers use

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<sup>13</sup> We need both 1c and 1d to clarify the classical distinction between explanation and understanding, because there is an ambiguity in whether 'understanding' is used as a progressive or non-progressive verb. I will subsequently talk about *understanding as an end-state* and about *interpretive processes* that are instrumental to that end-state.

their own production of intentionality as an instrument for understanding and interpreting the mental states and events of other persons.

- b. *Fixation versus emergence of the concepts whose instances are investigated.* In quantitative research, the concepts whose instances will be investigated are fixed before the empirical inquiry so that the properties they denote can become operationalized, whereas the central concepts are generated inductively from data in qualitative research.
  - c. *Confirmatory versus exploratory research.* In quantitative research, the existence or amounts of different properties, or relations between different properties, are hypothesized before the empirical inquiry, whereas such hypotheses are generated during the empirical inquiry in qualitative research.
  - d. *Apersonal ethical interest in humanity versus ethical interest in individuals.* Quantitative researchers try to formulate true theories that can bring forth mankind rather than the single individuals that participate in the research, whereas qualitative researchers try to give a practical contribution to the lives of individuals and groups in concrete cultural and social settings.
3. *Assessment of quantity (quantitative) versus assessment of quality (qualitative).* Quantitative researchers perform all qualitative conceptual analysis before the empirical phase of the research, in order to set the stage for precise quantitative measurement of the properties and relations that are denoted by their concepts and hypotheses. They even try, for purposes of generalization, to quantify properties and relations that are not strictly quantitative. Qualitative researchers, on the other hand, try to describe qualitative properties and relations, such as intentional states and events, as accurately as possible, in order to generate and analyze concepts that denote those properties and relations.
- a. *Investigation of quantitative properties and relations versus investigation of qualitative properties and relations.* Quantitative properties, such as age, and quantitative relations, such as correlating with a coefficient of 0.5, vary in amount. Qualitative properties, such as being in a given intentional state, and qualitative relations, such as being the father of, are either present or not present.
  - b. *Measurement of quantities of instances that fall under concepts versus analysis of the quality of concepts.* In quantitative studies, all qualitative analysis of the concepts whose instances will be investigated is completed before the empirical inquiry, whereas qualitative analysis is present throughout qualitative studies.

- c. *Quantification of properties versus description of properties.* Whereas qualitative researchers try to describe the actual properties of individuals, such as intentional states and events, in their full complexity, quantitative researchers, in their quest for commonalities, measure the extent to which different individuals share properties.
4. *Numbers and statistics (quantitative) versus words and textual analysis (qualitative).* Quantitative researchers want their data to be in a numerical form so that they can use sophisticated statistical techniques for analyzing it. Although they prefer precise numerical data, they can also use less precise data, and they can recode data that is not originally numerical into a numerical, albeit imprecise, form. Qualitative researchers use data in the form of text instead, generally transcribed from the participants' reports of their own intentional states and events, and they have a rich array of techniques for analyzing such texts, for explicating assumptions that are concealed within them, and for interpreting meanings expressed in them.
- a. *Data on numerical scales versus data on categorical scales.* Nominal and ordinal data consist of classifications into categories. On the ordinal level, the categories can be arranged into a meaningful sequence, but there is still no numerical scale with constant differences between any two successive categories. Interval and ratio data do, on the other hand, have numerical scales with constant units.
  - b. *Numbers as data versus words as data.* The numbers that may be used as quantitative data include all numbers, from natural to irrational, that lack imaginary parts. When words are used as data in their original form they constitute qualitative data, but when they are recoded into numerical form they count as quantitative data.
  - c. *Statistical analysis versus textual analysis.* Quantitative researchers use standardized statistical procedures and rely heavily upon rules of thumb in the assessment of the results. Quantitative textual analyses, on the other hand, range from preserving the texts as close to the original as possible to heavily restructuring the texts or entirely replacing them with constructed expositions of their meaning.

### The failure of unilateral conceptualizations

#### *Locating the primary distinction to the first group of distinctions*

Distinctions within the fourth group can only, at most, be used as secondary distinctions between quantitative and qualitative methods. The reason for this is that no philosophy could plausibly prescribe that social scientists should use a specific type of data or data analysis and

that they *therefore* should conduct research with the characteristics that are described as quantitative or qualitative by the other distinctions.

As for the distinctions of the third group, we will have to make a minor adjustment to attain relevance, because consensually quantitative research does sometimes incorporate what these distinctions label as qualitative, especially with regards to 3a. A more relevant difference is that consensually qualitative research does, with its resistance toward quantification, *not* incorporate what the distinctions label as quantitative. But qualitative philosophy is only anti-quantificationist in so far as it prescribes the investigation of phenomena that can allegedly not be quantified, such as intentional states and events. In fact, numerical variables that denote, for example, frequencies of words and word forms and themes that are defined by their content are sometimes used in research that is otherwise consensually qualitative, because they can help to explicate presuppositions and meanings concealed within texts. Furthermore, it is clearly implausible that quantification per se is always inadmissible. Surely it is appropriate to say that a person is 30 years old and 180 centimeters tall – saying that he has a spatial extension and an age is trivial and pointless. Thus, we can neither derive our primary distinction from the third nor from the fourth group of distinctions.

The distinctions of the second group are worth elaborating in more detail. The quantitative sides of them are based on the philosophical thesis, rooted in logical empiricism<sup>14</sup> and Popperian falsificationism<sup>15</sup>, that the *context of discovery* must be sharply distinguished from the *context of justification*. In the context of discovery, there are no rules for conjuring hypotheses; any intuitions, hunches, wild speculations, or other outcomes of psychological processes are admissible. There are however strict rules about when to proceed with a hypothesis to the context of justification. First, scientists must make sure that the hypothesis in question is testable and that the testing of it would make for a contribution to science. Second, they must, in order to be able to set up tests for hypotheses about, for example, whether or to what extent people have any given properties, and about what relations hold between these different properties, fix their analysis of the concepts that denote these properties and relations. Third, they must construct an operationalization that states what observations would count as evidence for or against the presence of, or of a specific amount of, a property in a given person. For example, a psychologist could analyze the concept of self-esteem and conclude that it denotes the property of liking the self, whereby he could

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<sup>14</sup> Ayer's *Language, truth, and logic* (1936) is the central manifesto of logical empiricism.

<sup>15</sup> Popper (1959, see pp. 9-10).

operationalize it as the average agreement to questionnaire statements such as ‘I like myself’. Moreover, he could analyze the concept of pessimism, operationalize it, and then hypothesize a negative relation to self-esteem. He would then also have to state the population for which the hypothesis is conjectured to hold, so that he could find a sample of participants that is at least roughly representative, in relevant respects, of this population. This type of procedure is intended to yield scientific tests that are *objective*, in the sense that they are unaffected by the relationship between the scientist and the participant, and thereby also *intersubjective*, in the sense that they can be replicated by different scientists. In the context of justification, hypotheses can thus be given allegedly objective justification if they pass strict scientific tests. This notion of objectivity also incorporates experimentally eliminating or statistically controlling any other contingent variations, in addition to the subjectivity of the scientist, that may distort the measurement.

The qualitative sides of these distinctions are, on the other hand, rooted in the thesis of phenomenological and hermeneutical philosophies that a scientist must approach another person’s intentional states and events with a flexible conceptual framework. Although different qualitative philosophies prescribe different methods for retaining conceptual openness, they all agree that scientists should be open to the conceptual distinctions of the other and to the meanings and questions that emerge concerning their own conceptual categories as well as those of the other. Fixing the conceptual analysis before the actual research would, according to these philosophies, impose an artificial structure upon the psychological phenomena to be investigated, because these phenomena are in part constituted by the actual conceptual structures in which they are embedded, that is, by the conceptual structures of the research participants. Because these conceptual structures cannot be known a priori, the qualitative philosophy prescribes social scientists to let descriptive and explanatory concepts and hypotheses emerge posterior to the gathering and analysis of data<sup>16</sup>.

Now let us, for the time being, assume that this distinction between quantitative and qualitative philosophies is clear and plausible so that we can turn to the task of finding a useful primary distinction between quantitative and qualitative methods. The relevance requirement then propels immediate modification of the distinctions 2b and 2c. The problem is that scientists are, in consensually quantitative as well as qualitative research, often very

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<sup>16</sup> There is a variant of the qualitative philosophy, exemplified by *Grounded theory*, that also prescribes openness to new sources of data that are relevant to the concepts and hypotheses that emerge during research – in other words, it prescribes a tighter interplay between data gathering and analysis.

active in generating new concepts and hypotheses during the data analysis phase<sup>17</sup>. The crucial difference between quantitative and qualitative research must therefore apply exclusively to the phase of research in which data is gathered. But this does not seem quite right either. There is consensually qualitative research in which the scientists try to be as open as possible when they gather data, abstaining from explicitly formulating new concepts and hypotheses, and thus from imposing them upon the data, until the data analysis phase<sup>18</sup>. However, in consensually qualitative research, there is always an emergence of concepts and hypotheses with respect to the data gathering phase in a more specific sense. As distinction 2a suggests, the scientists themselves always use their own subjectivity as an active instrument in consensually qualitative data gathering. Whether they try to make sense of verbal or non-verbal behavior, individuals or texts, they must utilize their own concepts and hypotheses about the interrelations between different behavioral expressions, between different intentional states and events, and between intentional states and events and behavioral expressions, to be able to produce any data at all. These concepts and hypotheses must be continuously updated in a hermeneutical circle for the data gathering to be consensually qualitative. First, the qualitative researcher approaches an individual or a text with a set of *prejudices*<sup>19</sup>, including concepts and hypotheses, about him, her, or it, as a whole. This allows the researcher to make sense of fragments of behavior or text. Second, this new information propels the researcher to change his prejudices about the individual or text as a whole. Third, the researcher's new sense of the whole individual or text engenders reinterpretations of singular fragments of behavior or text, that in turn propel revisions in his sense of the whole individual or text, and so on.

This leaves us with two choices. We can define all methods of data gathering in which the researcher's subjectivity is in some sense an active instrument, although not necessarily through his modifying his own concepts, as qualitative; or we can constrain the category of qualitative data gathering to methods through which the researcher does adjust his own concepts hermeneutically. The former alternative would define highly structured interviews as

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<sup>17</sup> This is especially apparent in the widespread usage of *factor analytic techniques*. These techniques are statistical, hence consensually quantitative, and their aim is to find a way to account for as much of the statistical variance of the data as possible with as few superordinate variables as possible. To this end, they introduce new explanatory variables, extracted from the statistical variance, that are generally assumed to denote the phenomena that de facto underlie the manifest data.

<sup>18</sup> This type of research springs from the inductivist tradition, in which data is – in sharp contrast to Grounded theory – first gathered as openly as possible and then, *after* it has been gathered, it is analyzed inductively.

<sup>19</sup> The reason that I am using Gadamer's (1975, ch. 4:1) term 'prejudice' instead of speaking of Heideggerian '*fore-structures*' (see Schroeder, pp. 163-164) is simply that it is Gadamer's theory that I will find use for when I return, in my discussion of the qualitative philosophy, to the hermeneutical problem.

qualitative; the latter alternative would define them as quantitative. This choice is however unimportant, because neither of the distinctions can attain sufficient width. If we do start with a distinction between qualitative philosophy as prescribing scientists to use their subjectivity as an active instrument and quantitative philosophy as prescribing them to be passive in gathering data, then we are confronted with the problem of elucidating the rationales for these prescriptions. The fundamental problem is that these rationales are, and must be in order not to violate our criteria, derived from the distinctions of the first group. The qualitative rationale is that scientists should seek to interpret and understand the subjectivity of others and that this requires them to use their own subjectivity as an active instrument; the quantitative rationale is that scientists should produce testable hypotheses about nomological relations and non-intentional descriptions of mental life and behavior and that this enables, and requires, the data gathering to be free from interference from their subjectivity. An inversion of the arguments, that would say for example that the rationale for investigating human intentionality is that scientists should use their subjectivity as an active instrument, would render them both irrelevant and implausible. The exemplified argument would be implausible because scientists can legitimately use subjectivity as an active instrument without even acknowledging the use of intentional terms, for example in constructing non-intentional reports of behavior, and it would be irrelevant because actual qualitative philosophies reason the other way around.

The distinction 2d does however still show some initial promise of working as a primary distinction. After all, if we have an ethical interest in individuals then it seems appropriate to interact with them, treating them as whole human subjects rather than inanimate quantifiable objects. But, closer scrutiny reveals that this distinction is both irrelevant and too narrow to be able to encompass the distinctions of the first group. Consensually quantitative methods are frequently used to help individuals, for example in medicine and psychotherapy, or cultural groups, such as organizations. This seems entirely appropriate. For example, doctors need to measure blood pressures and EEGs quantitatively and they need experimental tests to develop cures for groups of people or to see if a given cure has an effect on an individual. Conversely, many phenomenologists view the investigation of people's intentional states and events as the means by which they can reveal the true nature of human intentionality. The distinction from differing ethical interests does in fact prove to be largely independent of the other distinctions between quantitative and qualitative research.

Thus, we are in a position to conclude that none of the distinctions of the second group are appropriate to use as a primary distinction between quantitative and qualitative research. Even

those distinctions that are not *prima facie* irrelevant and implausible fail to be wide enough to cover the first group of distinctions, and our conceptualization must, in order to be optimally useful, cover the distinctions of the first group, because these distinctions can undoubtedly contribute usefulness to the conceptualization. Therefore, I will now proceed to the first group of distinctions to find the *definientia* for our primary distinction between quantitative and qualitative methods.

### *Setting up a distinction between quantitative and qualitative research*

In the initial list of distinctions, I briefly mentioned the concept of intentional description. This concept is in fact pivotal to all of the distinctions of the first group. Intentional terms describe mental states and events as being directed at, or being about, the world, and thus as having *intentional contents* that are causally related to the world<sup>20</sup>. For example, Jake's belief that human beings are selfish is about human beings and its content is the result of causal interactions between Jake and the world, through which he has acquired beliefs about human beings and selfishness that imbue his words 'human being' and 'selfish' with meaning. Intentional descriptions of mental states and events are *intensional*, that is, an intentional description such as 'Jake believes that human beings are selfish' is not equivalent to, and cannot be substituted by, 'Jake believes that members of the species *Homo sapiens sapiens* are selfish' even though these descriptions are logically equivalent. The reason for this is that intentional states and events derive their individualities partly from their contents and that 'human being' and '*Homo sapiens sapiens*' may have different meanings for Jake in expressing different contents. Moreover, an intentional content is always in a specific *psychological mode* of directedness to the world, such as being believed, desired, feared, or intended, which is commonly called the *attitude* to the content<sup>21</sup>.

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<sup>20</sup> I am using Searle's (1983) lucid analysis of the concept of intentionality. But I will neither assume with Searle that intentionality is a real biological property of some mental states and events that makes them amenable to intentional description, nor with other philosophers (e.g. Dennett, 1981) that intentional description is merely a theoretical strategy for generating useful predictions that does not commit to the existence of empirically real intentional properties. The purpose of this move is simply to avoid ontological baggage that has no methodological implications that are relevant in this context. I will however, for brevity, still speak of intentional states and events. But with this I do not mean to imply that such states and events have some property that differentiate them from other mental states and events; I only intend to signal that I speak of them under their intentional descriptions. Thus, I am altogether eschewing the question about whether there are mental states and events, such as free-floating mood states, that cannot be legitimately described with intentional terms; I will only need to talk about those that can be described with intentional terms.

<sup>21</sup> The difference between Searle's concept of intentionality and the Russellian concept of *propositional attitude* is that intentional states and events need not be directed at entire propositions. A person may, for example, fear his mother, without his mother being a proposition. Because suchlike intentional states and events cannot be accounted for in propositional terms, although they are highly relevant to social science, Searle's broader concept of intentionality is preferable for the present purposes.

With this preliminary elaboration of the concept of intentional description, we can easily see that distinction 1a, between qualitative research as intentional social science and quantitative research as non-intentional social science, is, albeit important, not suited to define quantitative and qualitative methods. For starters, this distinction is irrelevant, because the usage of intentional terms pervades the social sciences at large, including consensually quantitative as well as qualitative research. The concept of non-intentional social science would in reality only encompass a tiny fraction of what is normally considered quantitative social science; it would be a better characterization of labels such as neuroscience and evolutionary psychology. Furthermore, a philosophy that prescribes a uniquely non-intentional social science is hardly plausible. Even if intentional phenomena can be fully accounted for in, and thus reduced to, neurophysiological terms, as some philosophers believe, we still need the intentional as well as non-intentional terms. First, intentional terms do today have an explanatory and predictive power that is far from being replaced by non-intentional terms. Banning all talk of beliefs, attitudes, intentions, fears and other intentional states and events would indeed deprive psychologists of many, if not most, of their most useful theories for making sense of human psychology. The notion that it *may* be possible to someday replace the function of useful intentional theories with non-intentional theories provides little consolidation. Second, intentional terms give psychologists access to a realm of human phenomena that can only be understood and described *qua intentional*<sup>22</sup>. Human beings identify and describe the constituents of their consciousness with intentional rather than non-intentional terms, and because this is in itself an aspect of their mental lives, we need intentional terms to describe their mental lives. Even if we would know the exact neurophysiological substrata of any mental state or event, this would not automatically make us understand the conscious experience of such a state or event<sup>23</sup>.

Intentional terms are, however, used not only to describe mental states and events, but also derivatively to describe behaviors. This leads us to distinction 1b, between quantitative social science as explaining causally and qualitative research as explaining by reasons. Reason-explanations describe human behaviors as *actions*, performed by rational agents, rather than mere physical movements. Actions differ from other behaviors in expressing the intentions of their agents. Thus, we must, in order to be able to construe a behavior as an action, attribute an intention to the agent, that is, we must use intentional terms. To be able to interpret the

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<sup>22</sup> Whereas my focus is on psychology, Fay (1996, p. 167) explicates the point in question in a way that is more directed at the social sciences at large.

<sup>23</sup> Searle (1992, ch. 5) puts this point elegantly in arguing that the first-person perspective is *causally* but not *ontologically* reducible to a third-person perspective.

intention that is expressed in a behavior, it is often also necessary to take into account the cultural and linguistic rules that agents use for their actions to have the intended effects on other persons. For example, a person's moving his hand up and down may be explained as an attempt to wave another person goodbye in a cultural community where this physical movement symbolizes a farewell. But, the fact that reason-explanations necessarily make use of intentional terms does not mean that the usage of intentional terms in an explanation automatically makes it a reason-explanation. Behaviors may, even when they have desired consequences, be caused by intentional events without this being intended by the agent, that is, they may be *unintentional*<sup>24</sup>. If we allow intentional terms in psychology, as I have argued that we should, then we must allow for unintentional as well as intentional behavior, and thereby we must also allow intentional description of causal factors. Hence, the distinction between reason-explanation and causal explanation is logically independent from the distinction between intentional and non-intentional description and must therefore be examined in its own right.

The distinction between reason-explanation and causal explanation, elaborated in the Wittgensteinian tradition, is rooted in the idea that the explanans and explanandum are logically related in reason-explanations although they are logically independent in causal explanations. Because causes and effects are distinct existences, related only as a contingent matter of fact, empirical inquiry is a prerequisite for causal explanation. But in a reason-explanation, the action that is to be explained is *defined* by the reasons that are cited to explain it. For example, to establish that a person is waving goodbye by raising his hand, it is necessary to establish that he has a desire to say goodbye and a belief that he will succeed in doing this by raising his hand. Conversely, if a person has a desire to wave goodbye, unthwarted by other desires, and he believes that raising his hand is, all things considered, the most efficient means of waving goodbye, it follows that he will wave goodbye unless he is prevented from doing so. Thus, to give a reason-explanation is to construe the behavior it explains as an action and to clarify the nature of this action. But this is a matter of conceptual analysis rather than empirical inquiry, consisting in the clarification of the rules that link reasons with actions.

However, Davidson<sup>25</sup> has shown that this Wittgensteinian account is ambiguous in not distinguishing between reasons *per se* and the actual psychological processes through which a person forms reasons. The actual cognitive and conative processes are causally rather than

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<sup>24</sup> See Searle (1983, pp. 101-102).

<sup>25</sup> Davidson (1963).

logically related to their effect, although *descriptions* of these processes in terms of beliefs and desires are logically related to *descriptions* of the effects in terms of actions. Such psychological processes do in fact often occur spontaneously or as the result of a routinization of reasoning processes, without requiring conscious deliberation, or without even being amenable to verbalization upon effort. Establishing causal relations between reasoning and behavior is therefore an intricate empirical matter<sup>26</sup>. But intentional descriptions of reasoning processes are nevertheless indispensable, according to Davidson, because they serve the explanatory function of providing *rationalizations* of behavior. A rationalization explains by incorporating the intentional descriptions of the reasoning processes and the behavior into a logical pattern that can help us to make sense of why a rational being would perform the action in question. Thereby, it also provides a kind of justification for the action it rationalizes. But, if we say that an agent performed an action *because* he had a reason that warrants the action then the ‘because’ calls out for analysis. According to Davidson, the ‘because’ must be understood as picking out the reason that describes the psychological process that actually caused the behavior, if the rationalization is to retain its explanatory power. For example, if we want to explain why a person committed a murder, then we must find the reason that best describes the psychological process that actually evoked his action. Choosing just any reason for which a person might commit a murder, or any reason that the person in question had when he committed the murder, will not explain why he de facto committed the murder<sup>27</sup>. Rationalizations that fail to describe causally connected events do not function as explanations. They may however still have other health-promoting psychological functions.

Although some philosophers worry that this Davidsonian account will lead to epiphenomenalism<sup>28</sup>, such caveats need not detain us here. The observations made so far are enough to conclude that the distinction between reason-explanation and causal explanation is too unclear for the present purposes. They suffice to leave scientists wondering what type of research would actually exemplify either side of the distinction. We can of course make a clear distinction between those causal explanations that include rationalization and those that are purely causal. But then we are yet again, *mutatis mutandis*, confronted with the problems

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<sup>26</sup> See Fay (1996, pp. 96-98).

<sup>27</sup> In fact, we cannot even use the term ‘murder’ successfully without presupposing that the agent had a reason for his behavior and that his forming this reason actually caused the behavior – without a reason, the behavior would be an accident, and without causal efficacy, it would be a mere attempted murder.

<sup>28</sup> See Maslin (2001, pp. 203-204).

of irrelevance and implausibility that propelled us to reject the distinction between intentional and non-intentional social science.

So now we have rejected the first two distinctions, within the first group of distinctions, on grounds of irrelevance, implausibility, and lack of clarity. I do however believe that there is a way to construct a normative distinction from the next two distinctions, 1c and 1d, that satisfies the requirements for clarity, relevance, and width. In the following section, I will elaborate this distinction, to show that both of its opposing philosophies are implausible. After this, I will revise the philosophies so as to make them more plausible, in order to show that this engenders a decrease in width. My ambition is neither to provide complete revisions of the philosophies nor to defend the revised products; it is to take into account some points that must *at least* be conceded, in order to provide revisions of the philosophies that are sufficient for concluding that there is a tradeoff between plausibility and width. Moreover, my discussion of the quantitative philosophy will be more extensive than my discussion of the qualitative philosophy simply because I begin with the quantitative philosophy – once key concepts and arguments have been analyzed, their analysis can be presupposed.

*Naive quantitative philosophy.* This philosophy is based on the assumption that all scientific statements, including statements about mental states and events, must be intersubjectively testable. For a statement about another person's mental life to qualify as scientific in this sense, we must be able to specify which observations of behavior, in which situations, that would constitute favorable and unfavorable evidence for it, that is, we must be able to *operationalize* it. In order to satisfy the demand for intersubjective testability, an operationalization must specify a nomological connection between the occurrence of a mental event in a specific situation and a set of behaviors – we must assume that if the mental event occurs in the specific situation then the behaviors will follow with an invariable regularity, no matter when or where the situation occurs nor by whom it is experimentally created. But to be able to infer the occurrence of the mental event from the occurrence of the behaviors, without committing the fallacy of affirming the consequent, we must also add the counterfactual conditional that if the mental event would not have occurred in the specific situation then the behaviors would not have occurred. These assumptions allow us to explain the occurrence of the behaviors in terms of the occurrence of the mental event in the given situation with a *deductive-nomological explanation*<sup>29</sup>. Such an explanation is formulated as a deductive argument. In the formulation of naive quantitative philosophy, the *explanans* consists of the

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<sup>29</sup> This type of explanatory model was first developed by the logical empiricist Hempel (1965).

premise that there is a law that events of the type E occur if and only if events of the type C, called *initial conditions*, occur, in conjunction with the premise that events of the type C did occur. From this, we can logically deduce the *explanandum*, namely that an event of the type E did occur. In the present context, the type C describes the occurrence of mental events and the situations in which they occur, and the type E describes the occurrence of human behaviors. Assume, for example, that we create an experimental situation by administering a questionnaire in a controlled setting and that we operationalize a specific belief as a set of answers to the questionnaire. Then we may explain any occurrence of those answers, in such an experimental setting, as a result of the occurrence of the belief in question. Furthermore, this analysis can be expanded so as to include probabilistic as well as deterministic laws. Probabilistic laws state that there is an invariant probability that a specific event will occur whenever a set of initial conditions obtain. Hence, they only allow us to infer that it is, if the probability is high and the behaviors did occur, probable that their occurrence can be explained in terms of the occurrence of the mental event. If explanation in terms of probabilistic laws is to be deductive as well then an additional premise, stating that the law did in fact produce its outcome in the situation in question, must be interjected into the argument.

It is important to note that our naive quantitative philosophy entails a rejection of logical positivism already at the stage of formulation. The logical positivists disallowed statements about unobservables in science, and therefore they had to *define* statements about mental states and events in terms of behavior; our naive quantitative philosophy allows scientific terms to denote mental states and events, with the assumption that the existence or non-existence of these unobservable states and events can be inferred from observable behaviors through scientific tests. Our naive quantitative philosophy is thereby based on logical empiricism<sup>30</sup> and Popperian falsificationism<sup>31</sup> rather than logical positivism.

*Critique of the naive quantitative philosophy.* The naive quantitative philosophy is based on the appealing assumption that we acquire knowledge of the mental lives of other persons through inference from their behavior. It is however fundamentally mistaken about *how* we we can legitimately make such inferences, because there simply are no nomological connections between the mental, as described with intentional terms, and behavior. There are at least two reasons, both rooted in the fact that intentional states and events derive their individualities partly from their contents, that there are no such nomological connections.

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<sup>30</sup> See Ayer (1936) and Hempel (1965).

<sup>31</sup> See Popper (1959, ch. 4).

The first reason is that our intentional descriptions entail a *holism of the mental* that makes it impossible to treat intentional states and events as isolated from each other. For starters, the way that any intentional state or event is expressed through the linguistic behavior of an individual will vary strongly with the presence of other intentional states and events, such as beliefs about how to communicate with, and affect, other persons and desires to communicate sincerely, to lie, or to conform to the social consensus. Conversely, the exact same behavior may result from different constellations of intentional states and events. Thus, the occurrence of the intentional event is in itself neither necessary nor sufficient for the occurrence of any set of behaviors. To infer intentional events from behaviors, we therefore need to attribute an underlying pattern of intentional states and events to the agent through the operation of a *theory of interpretation*<sup>32</sup>. For example, the theory that the agent has a set of beliefs that enable effective communication in English and that he has a desire to communicate intentional events sincerely, that is not overthrown by other desires, makes it possible for us to infer the occurrence of intentional events from his speech. Operationalizations must always, at least implicitly, incorporate some such theory of interpretation. Moreover, I will use the term *interpretive framework* to refer to an individual's full set of theories of interpretation, with all their adjustments to different persons and circumstances, encompassing implicit as well as explicit assumptions that may be operative in interpretation.

Even though our having interpretive frameworks does allow us to infer intentional events from behaviors, it does not do so by establishing nomological connections between intentional events and behavior. To appreciate the full depth of the problem lurking here, we need to take into account the fact that any intentional state or event presupposes the existence of, and gets its individuality partly from, other intentional states and events. For example, we may construe the belief that human beings are evil as presupposing a belief that human beings exist, an aversion toward some types of human action, a belief that human beings generally act in this way, a belief that the general behavior of a being corresponds to its nature, and so on. The individualities of these other intentional states and events do in turn also depend logically upon other intentional states and events, whose individualities in turn depend logically upon other intentional states and events, and so on. We end up with holistic network wherever we start. In fact, what makes intentional terms so enormously useful is partly that they describe the mental as a network of states of events that are logically related to each

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<sup>32</sup> I am using the expression 'theory of interpretation' to refer to a set of assumptions that operate *in* interpretive processes, to make sense of another agent's behavior; not to refer to an explicit philosophical theory *about* the use of such theories of interpretation.

other so as to form a coherent whole. But it comes at the price of sacrificing the nomological links to behavior, because even if we could describe the entire network, which we surely cannot, the description would certainly be too extensive to ever have more than one instance, rendering nomological treatment pointless. Therefore, we must rely on theories of interpretation to attribute a background of intentional states and events to the agent, with the concession that there are always alternative theories of interpretation that are coherent and that give equally satisfactory accounts of the agent's behavior. In this sense, there is *indeterminacy* in the interpretation of behavior in terms of intentional states and events, because the behavioral evidence is not in itself sufficient for determining what theory of interpretation is appropriate<sup>33</sup>.

The second reason that there are no nomological connections between the mental, under its intentional characterization, and behavior is that the *externalism of the mental* makes it impossible to treat intentional states and events as being isolated from the world. Because intentional states and events are *about* the world, their contents are partly the causal outcomes of interactions with the world. For example, the content of my belief that water is liquid is the result of my causal interactions with water, with other persons, and with chemistry books. Because both water in itself and our talk about water are relatively stable aspects of the world, the content of this belief is likely to remain quite stable. But the crux is that many of the intentional states and events that constitute our thinking also are about aspects of the world that are in constant flux. For example, sociocultural institutions and practices change constantly in interaction with the conceptual systems that are shared by linguistic communities. These conceptual systems not only describe, but also contribute to the constitution of, sociocultural institutions and practices, in the sense that such institutions and practices are identified and individuated partly with the intentional terms that are used collectively to describe them. Thus, the intentional states and events of individuals derive their contents partly from intentional descriptions that are shared by linguistic communities, and these descriptions change continuously. Old intentional terms undergo transitions of meaning or become outmoded and new intentional terms are innovated, whereby new sorts of intentional thought and activity become possible. As Fay<sup>34</sup> has pointed out, it is the

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<sup>33</sup> I am talking about Davidsonian (1991, pp. 214-215) indeterminacy. This indeterminacy, especially in conjunction with the possibility of postulating unconscious cognition and conation, is one of the main reasons to why it is so difficult for psychologists to agree on what goes on in people's minds. For example, psychologists can always find a basically Freudian or Rogerian way of attributing intentional states and events to an agent so as to explain his or her behaviors, even though Freudian and Rogerian theories of interpretation tend to contradict each other.

<sup>34</sup> Fay (1996, pp.159-166).

emergence of new collective concepts that makes the externalism of the mental an obstacle to searching for nomological links between the mental and behavior. The problem is that it is impossible to predict the innovation of a new concept – to do so, we would have to be able to say what such an innovation consists of, and if we could do this, then it would not be an innovation. Thus, we cannot predict what intentional terms we will need in our explanations of behavior. But if our explanatory terms change unpredictably, then they cannot be used to describe single events as instances of sequences of events that recur with perpetual regularity. Intentional generalizations are doomed to go out of date, by losing their confirmability and explanatory value, without us being able to predict when. Hence, it would not be meaningful to describe them as atemporal and ahistorical laws, let alone to use them to infer the mental from behavior in the way dictated by the naive quantitative philosophy. Just like the holistic description of the mental, the externalistic description of the mental comes at the price of sacrificing the nomological links to behavior. The benefit that makes the price worth paying in this case consists in the usefulness of describing mental states and events as inner representations of an outer world.

*Revision of the naive quantitative philosophy.* The problems with the naive quantitative philosophy are so severe that it cannot be saved from refutation without being altered, because all strategies of attempting to circumvent its problems fail. First, invoking probabilistic instead of deterministic laws does not help. The reason for this is that the probability with which any set of behaviors are associated with an intentional event still varies unpredictably with the presence of other intentional states and events. Second, the redescription of intentional states and events in a psychological vocabulary without intentional terms does make it possible to find laws, but this is not enough to circumvent the problems with the naive quantitative philosophy. For example, efforts to try to find evolutionary laws, cognitive mechanisms, or other internal psychological structures that underlie the production of intentionality are important. But, as I have already argued, non-intentional descriptions are complements, rather than replacements, of the intentional descriptions. Third, saying that the nomological connections hold *ceteris paribus* is pointless, because this would only move the contingent variations to the factors that are to be held constant. Setting up a *ceteris paribus* law would require us to be able to experimentally manipulate the presence or absence of one single intentional event, while somehow holding all other intentional states and events constant in spite of their relations to the event being manipulated. Even if such a procedure would be possible, practically and theoretically, it would surely make the *ceteris paribus* qualifier too extensive to ever have more than one instance. This does however not mean that

scientists should abstain from attempts at holding *singular* intentional states and events constant. Scientists do in fact make efficient use of techniques for, both experimentally and statistically, holding singular intentional states and events constant<sup>35</sup>. But the crucial point is that these techniques are useful by helping us to choose between different theories of interpretation; not by establishing nomological links between behavior and the mental.

The only viable option left for us now is to take the problems with the naive quantitative philosophy seriously and concede that all operationalizations presuppose theories of interpretation that must be tailored to fit specific cultural and historical settings. Even if an intentional generalization would cover the entirety of human history, it would still hold only as a contingent matter of fact; not as a law. Hence, the establishment of nomological connections between behavior and the mental cannot be a criterion for what is a useful theory of interpretation. But then we are immediately confronted with the following problem: *What is a useful theory of interpretation like and how is it constructed?* This is the central problem that a successful revision of the quantitative philosophy must provide an answer to. My strategy to accomplish this is to start from Davidson's ingenious argument from *radical interpretation*<sup>36</sup> and to elaborate some central features of his analysis.

In the thought experiment from radical interpretation, we are asked to imagine approaching a rational being without knowing anything about his or her language or intentional states and events. To be able to interpret the physical system constituted by this being as rational, it is necessary to interpret its behaviors as expressing intentionality, that is, as actions. To construe a behavior as an action, we must be able to specify the intentional states and events that it expresses, which, because of the holism of the mental, requires that we know a great deal about the intentional states and events of the agent. But the only way to acquire this knowledge is from correct interpretations of the agent's actions. Thus, knowledge of

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<sup>35</sup> Experimental techniques are used to directly manipulate the presence or absence of specific intentional states and events. A prominent example is that participant anonymity is used to prevent self-presentation needs from making reports of intentional states and events insincere. Statistical techniques, on the other hand, are used to hold measurements of the presence or absence of intentional states and events constant in the statistical analysis. To this end, psychologists have developed instruments that allegedly measure the presence and absence of intentional states labeled 'social desirability', 'self-deception', 'impression management', and so on.

<sup>36</sup> Davidson first presented this thought experiment, and the theory he derived from it, in three intersecting essays (Davidson, 1973, 1974, and 1975). A few years later, he developed this into a unified theory of thought, meaning, and action (Davidson, 1980) by combining decision theory and a slightly modified Tarskian theory of truth. In his most recent essays, he sought to unify the knowledge about other minds, which relies on radical interpretation, with knowledge about your own mind and about the external world, by demonstrating their interdependency (Davidson, 1991), and he extended this even further into the striking conclusion that radical interpretation is necessary not only for the interpretation of other creatures, but also for there to be any thought at all (Davidson, 1997). All of these essays illuminate the original thought experiment, and spell out its implications, from slightly different angles. The earlier essays focus more on the core problem of radical interpretation, which is relevant to my discussions here, although some of Davidson's most succinct and useful statements concerning this problem are found in the later essays.

intentional states and events requires interpretation and interpretation requires knowledge of intentional states and events; we seem to need the theory of interpretation before we can recognize evidence that supports it. Davidson's focus is however not on action in general, but on the special case of speech, which I will now turn to.

The theory of interpretation required for an interpreter's converting meaningless constellations of sounds into meaningful speech includes attributions of both intentionality and language. The reason that it is not sufficient to include language is that knowing what a person's words mean incorporates knowledge only of the intentional contents; not of the psychological attitudes to these contents. To infer the full intentional states and events of the agent, we must also be able to discern his or her attitudes to the sentences being uttered, such as holding a sentence to be true, wanting a sentence to be true, or preferring one sentence rather than another to be true. Davidson's crucial point is that we can recognize such attitudes without knowing what the sentences mean or what intentional states and events they express, so that we can use these recognitions as the evidential ground for developing a theory of interpretation. But to recognize a speaker's attitude to his sentences, we must know a lot about his intentional states and events *in general*. Therefore, Davidson's conclusion is that we start with a host of assumptions about the intentional states and events of the other and that we, with the evidential support of recognizing attitudes to sentences, manage to calculate the language of the other, thus rendering a full theory of interpretation.

The assumptions about other beings that we must start with, to be able to make use of information about their attitudes to their sentences, is that they are largely similar to us in their perceptions of, and reactions to, the world. We must be able to correlate the regularities we find in their behavior with objects and events in their environment, and, to do this, we must presuppose that they discriminate objects and events in basically the same way as we do and thereby also that they have beliefs about the world that are largely similar to ours. For example, I may take Jake's holding true of the sentence 'Es schneit' everytime that I perceive it to be snowing near him as evidence that his sentence means 'It is snowing' in my language, if I assume that he perceives the weather in basically the same way as I do. But, to classify Jake's reactions to the world, including his having different attitudes to his own sentences, I must also assume a basic similarity between him and me in the conative aspects of our intentional states and events. For example, if a lion appears and Jake runs to hide, I am naturally assuming not only that he perceives a lion, but also that he fears it and appraises it as dangerous and that he desires to avoid danger. In Davidson's succinct formulation:

We start by assuming that others have, in the basic and largest matters, beliefs and values similar to ours. We are bound to suppose someone we want to understand inhabits our world of macroscopic, more or less enduring, physical objects with familiar causal dispositions; that his world, like ours, contains people with minds and motives; and that he shares with us the desire to find warmth, love, security, and success, and the desire to avoid pain and distress. As we get to matters of detail, or to matters in one way or another less central to our thinking, we can more and more easily allow for differences between ourselves and others.

Davidson (1982 p.183)

As this quotation makes clear, Davidson does not deny that we can make sense of substantial disagreements between ourselves and other rational beings. What he is saying is rather that a disagreement only can be intelligible against a *background*<sup>37</sup> of largely tacit agreements that are too numerous and uninteresting to be noticed. For example, if I am to genuinely disagree with Jake over the general benevolence of human beings, we must share a great deal of beliefs about human beings in general, about their behavior, about benevolence, and so on; otherwise the disagreement is illusory, as we are talking about different things. The more basic agreements I can establish with Jake, the more precise and clear do my attributions of disagreement, as well as agreement, become. Thus, seeking agreement enables, rather than precludes, the appreciation of disagreement. This leads Davidson to the following methodological imperative: *Theories of interpretation should be constructed so that they optimize agreement between the interpreter and the being to be interpreted*<sup>38</sup>.

Some critics have worried that this methodology leads to overly self-centered interpretation. They claim that we can make sense of another being as very different from ourselves if we have a theory for how it differs from us and that we therefore should continually develop strategies for interpretation, other than optimizing similarity, that can help us to genuinely understand beings whose conditions of life differ greatly from ours<sup>39</sup>. These critics have brought forth an important point. But, I contend that their presumption that this point is inconsistent with Davidson's theory is misconceived. With a more careful analysis I intend to show that their point actually follows from Davidson's theory, making only small adjustments that elaborate rather than modify the basic theory.

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<sup>37</sup> Davidson's (e.g. 1974, p. 152) use of the term 'background' is very different from Searle's (1983, p. 143). What Searle means with *the Background* is a set of mental capacities that are preintentional conditions of intentionality. Davidson, on the other hand, uses the term background to refer an attribution of a set of intentional states and events to another being, performed for purposes of interpretation.

<sup>38</sup> This is my own paraphrase of Davidson (1973, p. 135). Davidson was never very clear about the difference between the kind of similarity assumptions that are necessary for interpretation to occur at all and those that are methodologically desirable merely because they enhance the process of interpretation. Some similarities are indeed necessary to postulate for the process of triangulation to get started and a postulated background of similarity is required for the attribution of content to the intentional states and events of another person, but this does not, as I will subsequently show, mean that the *optimization* of similarity is necessary for interpretation.

<sup>39</sup> See Fay (1996, pp. 105-110).

My analysis begins with a distinction between the *core* background and the *expansion* of this background. With the core background I mean those intentional states and events that it is necessary to attribute to the other, on the basis of similarity, before we can even begin to construct a theory of interpretation. This core forms the substratum for all our theories of interpretation. First, treating the being as rational, we must assume that it believes that it should do what is best for it and thereby that there are consequences that it desires and consequences that it wants to avoid. In assuming that it has rationales for its actions, we are also assuming that it connects its intentional states and events with logical principles. Second, in order to be able to correlate its behaviors with aspects of the world, we must assume that it has the same basic ontology as us so that it makes largely the same perceptual discriminations as we do. It is of course an intricate question to discern more precisely the contents of this core background. But I will not pursue it, because it is methodologically unimportant. The point is just that there is a core background of postulated agreement that we always must start from in order to construe a being as having intentionality and rationality; we are not in a position to choose different cores. The expansion of the core, which constitutes the rest of a theory of interpretation, can, on the other hand, be constructed in different ways to optimize intelligibility, because there are always alternative ways of satisfying the condition of general similarity. The methodologically interesting question, which I will turn to next, is how different constructions of the expansion can help us to make sense of different types of dissimilarities.

First, we have dissimilarities in intentional content. To understand the content of an intentional state or event of another being, it is sufficient to have an intentional state or event of your own that has the same content; the psychological attitudes need not be the same. But the attempt to find matching intentional contents will inevitably fail sometimes, because people derive many of their intentional states and events from very different aspects of the world; we live in different cultural and linguistic communities. Assume, for example, that a psychologist wants to assess, and compare, the extent to which people in different countries consider themselves to be happy with their own lives. Assume further that this psychologist has, due to his being immersed in a Western culture, a deeply ingrained presupposition that human beings seek happiness in states and events of the world, such as relationships, parenthood, accomplishments, and activities, and so on. Because of the inevitable contingency of worldly states and events, happiness is, on this conception, highly volatile, and it is maximal only in the case of intense, albeit temporary, euphoria and passion. There are however profound cultural differences in people's conception of happiness. In Eastern

cultures, happiness is often viewed as a stable inner sense of harmony that is ideally free from disruptions by worldly states and events<sup>40</sup>. The contents of the relevant intentional states and events of the persons who entertain this Eastern conception of happiness lack a good match among the contents of the intentional states and events of the psychologist in question. To be able to correctly interpret self-reports of happiness, this psychologist cannot simply assume that there is a similarity in intentional contents when there is not. Instead, he might start with the strategy of trying to explicate the content in question with other contents of his own intentional states and events that do have good matches among the contents of the intentional states and events of the other. In the current case, this would amount to reading or hearing descriptions of key terms that are closely related to 'happiness' in Eastern thinking – terms such as, for example, the Buddhist's 'dukkha', 'nirvana', and 'samadhi'. These descriptions would have to be couched in a familiar vocabulary with words that have similar intentional contents for the interpreter and the person being interpreted. To enhance intelligibility even more, the psychologist could also try to actually construct an intentional state or event of his own with a content that matches the intentional content underlying the Eastern conception of happiness, by immersing himself in, or reflecting upon, the Eastern way of life. Whichever strategy is employed, the psychologist must indeed try to optimize similarity between intentional contents in order to make sense of dissimilarity. But the point is that it is the interpreter's concepts that must be adapted so as to fit those of the other; not the other way around. Hence, the interpreter must be open to questioning his own presuppositions and developing his own conceptual resources, especially when encountering new cultures, in order to obtain empirically well-founded theories of interpretation.

A second type of dissimilarity is between different psychological attitudes to the same content. To be able to make sense of a psychological attitude to a specific content, without having this psychological attitude to the content in question, the interpreter must have some intentional state or event with a similar content and some intentional state or event with a similar psychological attitude. For example, I can make sense of Jake's desire for ice-cream without myself having a desire for ice-cream, provided that I do have some intentional state or event directed at ice-cream and that I do have desires to other things. With a core background of basic perceptual similarity and a background of similarity in intentional content, it is entirely possible to construct the expansion in such a way that the psychological attitudes of the other are construed as being generally different from our own, without sacrificing

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<sup>40</sup> I use the labels 'Western' and 'Eastern' here mainly for purposes of illustration. It is of course debatable to what extent these labels are helpful for making empirical generalizations in today's multicultural world.

intelligibility. It is especially important to be open to great dissimilarities in psychological attitudes to those intentional contents that are abstract cultural constructions from presumably similar sense perceptions of the world. Davidson's assertion that the optimization of similarity between your own intentional states and events and those of the other is integral to interpretation must therefore be amended; what is integral to interpretation is merely the optimization of similarity between intentional contents<sup>41</sup>.

A third type of dissimilarity is that between rationales. From the conclusion that we can construct the expansion of our theory of interpretation so that there is general dissimilarity in psychological attitudes, it follows a fortiori that we can construct it so that there is a general dissimilarity in rationales, that is, the interpreter need not have the rationales that he attributes to the other being. The reason for this is that there is at least two ways in which differences between rationales can be intelligible: the psychological attitudes to the intentional content of the rationale may be dissimilar and the logical principles that connect the intentional states and events may be, perhaps slightly, dissimilar<sup>42</sup>. For example, a psychologist can understand the rationales of neurotic persons without being neurotic himself. In fact, developing the ability to recognize, and apply adequate theories of interpretation to, diverse patterns of rationales, without having these rationales yourself, is a prerequisite for acquiring professional skill as a psychologist. But, although we can intelligibly attribute rationales that are largely different from our own to other beings, we cannot make sense of their being largely *irrational*. The only way that we are at all able to make sense of something as complex and dynamic as a network of intentional states and events is by postulating simplifying principles that describe it as being coherently integrated; the more inconsistency we would assume, the more complex and detailed would our theory of interpretation have to be in order for us to be able to make sense of behaviors as expressions of this network. Thus, we simply do not have the cognitive resources required to intelligibly describe a network of intentional states and events as largely inconsistent and thereby irrational<sup>43</sup>.

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<sup>41</sup> From Davidson's (1991, p. 211) theory, two methodological principles, often referred to as *Principles of Charity*, follow. The *Principle of Correspondence* states that the other being should be interpreted as having largely true beliefs, and the *Principle of Coherence* states that the network of intentional states and events of the other should be interpreted as largely coherent. My conclusions entail that Davidson's Principle of Correspondence cannot be sustained, as long as it is construed as a methodological principle for interpretation – at least not on account of the arguments I have discussed here. The reason for this is that the expansion, which is the methodologically relevant part of the background, need not, and should not always, be constructed so that it optimizes similarity in belief.

<sup>42</sup> Davidson (1974, p. 150).

<sup>43</sup> This simple argument is, I believe, sufficient for concluding that we cannot interpret another person as being largely irrational, thus supporting the Principle of Coherence, although Davidson (1982) has provided a much more elaborate argumentation concerning irrationality.

*Naive qualitative philosophy.* According to this philosophy<sup>44</sup>, it is necessary to understand experience as it is *lived* from another person's first-person perspective, in its full complexity and temporal flow, in order to acquire knowledge about this person's mental life. To be able to understand a person's inner lived experience from his outward behavioral expressions, the interpreter must empathize profoundly enough with this person to understand what it would be like to be in his situation and re-enact his behavioral expressions. Forms of intelligibility that are based on a third-person perspective are rejected by this philosophy as rendering misunderstanding rather than knowledge. For example, to truly understand the experience that I have described as Jake's fearing spiders, it is not sufficient for me to intellectually combine my conceptions of fear and spiders; I must be able to understand what it is like to have this experience and what it is like to be in the situation in which it is expressed in the behaviors that I have taken as evidence for Jake's fearing spiders. For this to be possible, there must be a common nature behind the lived experiences of different human beings, so that I am capable of having the same types of lived experiences as Jake. I must also have, or have had, the same type of experience as the one I am trying to understand. If I have never feared a spider, I simply cannot understand what it is like to fear a spider<sup>45</sup>. If I lack the requisite experience, I may however attempt to put myself in situations that may elicit this lived experience so that I can understand it. In addition to this, there is an inevitable element of interpretation in coming to understand another person's lived experiences. In order to develop the ability to recognize the experiences of another person as being of the same type as your own experiences, it is, according to this philosophy, necessary to immerse yourself in how this person's behavioral expressions are elicited by concrete communicatory situations and underlying cultural and linguistic contexts and to move hermeneutically between your emerging intuitions of the organizing principles behind the behavioral expressions to the particular behavioral expressions in question.

The process of coming to understand the experiences of another person is, despite its interpretive element, largely intuitive and implicit. But it must be complemented with a

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<sup>44</sup> My description of this philosophy is based on aspects of the early hermeneutic theories of Dilthey and Schleiermacher, Husserlian phenomenological theory, and Collingwood's writings on historical interpretation. See Fay (1996, pp. 9-17, 136-141, & 169-172), Gadamer (1975, ch. 3 & 4:3), and Schroeder (2005, ch. 5 & 6).

<sup>45</sup> Phenomenologists believe that there are universal structures of consciousness. The early hermeneuticians, on the other hand, especially Dilthey, held that life in itself, or the spirit, has a structure of its own so that the same aspect of life expresses itself in different persons. What is essential for understanding another person is that it is the same aspect of consciousness or the same aspect of life that is expressed in both the interpreter and the person to be interpreted. Because the description 'fear of spider' may fail to conform to these actual structures, it is quite possible, according to these philosophies, that I do in fact understand Jake's experience without having feared spiders, perhaps as something like a fear of dangerous animate objects, and that it is thus only the description used in this example that is flawed.

process of explication before the work of the scientist can attain its purpose<sup>46</sup>. The task of social scientists is not only to understand the experiences of human beings, but also to construct descriptions that can be communicated to the scientific community, propagating the understanding of these experiences. To this end, social scientists cannot always rely on people's own descriptions of their mental states and events, because the first-person perspective only lends final authority on what lived experiences feel like; not on how they are appropriately described. Describing a personal experience requires, in addition to merely having the experience, an act of identification and linguistic judgment, in which the experience is ascribed to the self. Hence, a person may be unconscious about his having an experience or he may be unable to appropriately elucidate its identity and meaning in relation to other experiences and situations in which the experiences occur. It is therefore the task of social scientists to construct linguistic descriptions that are appropriately located in larger networks of linguistic meaning, so as to enable other interpreters to identify and understand the described experiences.

*Critique of the naive qualitative philosophy.* The naive qualitative philosophy is based on the uncontroversial assumption that it is necessary, in order to be able to acquire knowledge about other people's mental lives, to be sensitive to the experiences that are constitutive of their mental lives. But it seems to go too far in claiming that it is possible and desirable to indwell completely into another person's first-person perspective. The problem is that as soon as we begin to reflect upon experiences and make linguistic judgments about them, we are conceiving of them as connected with each other. Because of the holism of the mental, it is impossible to isolate one experience and ascribe it to a person. Therefore, the scientist would have to understand the person's entire lived experience to be able to describe a single experience. But it is impossible to replicate a totality of lived experience, even for one single person on different occasions, both because the lived experience is complex and dynamic and because different persons have different histories of being causally conditioned by the world. We are forced to the conclusion that *if* it is possible to have any knowledge of the lived experiences of other persons then this knowledge must be non-linguistic in nature; the linguistic descriptions are consequently, on this account, used only to stimulate other persons to develop non-linguistic understanding.

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<sup>46</sup> The early hermeneuticians were mainly concerned with the largely implicit process of coming to understand experiences in their full uniqueness and complexity, whereas the phenomenologists were mainly interested in explicating the experiences so as to reveal the underlying structures of consciousness.

The main problem with this conclusion is that linguistic descriptions do indeed contribute to our knowledge about other people's minds. Understanding human psychology incorporates not only understanding what psychological states and events feel like, but also understanding how they are causally related to each other and to the world, that is, it incorporates linguistic description, explanation, and prediction. Moreover, replicating the experiences that are to be understood may sometimes actually be an obstacle to description, explanation, and prediction, because the experiences may, from the first-person perspective, appear intermingled in intricate and highly confusing ways and the first-person interpretations of them may be distorted by mechanisms for self-protection. For example, what is essential in being able to coherently describe the behavior of a highly self-deceptive person, and to relate it to the world through explanation and prediction, is mastering a host of useful theories about human psychology from a third-person perspective; surely not being self-deceptive. In this sense, language enables a valuable distance from the lived experiences and a freedom from the constraints of the first-person perspective. Understanding what self-deception feels like would be an obstacle to interpretation unless the interpreter has changed substantially and attained a psychological distance to his or her past experiences. The attainment of such distance to an experience is in fact, according to the naive qualitative philosophy, necessary in order for the scientist to be able to accurately describe the experience in question. This makes the task of the social scientist absurdly difficult and time-consuming: he would have to first understand exactly what another person's experiences feel like, including what it feels like to interpret the experiences in the same way as does the person in question, and then he would have to somehow, over time, attain the requisite distance to the experiences in question, before being able to contribute to the scientific community. Thus, the concept of understanding professed by the naive qualitative philosophy seems to be both too strict, because it makes the conjoint task of understanding *and* communicating understanding absurdly difficult, and too exclusive, because it ignores aspects of understanding other than those pertaining to what lived experiences feel like.

*Revision of the naive qualitative philosophy.* Regardless of whether the kind of non-linguistic understanding postulated by the naive qualitative philosophy is possible or not, it is clear that the qualitative philosophy must be supplemented with a more appropriate account of the role of language in acquiring and communicating knowledge about other minds<sup>47</sup>. To

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<sup>47</sup> Granted, some philosophers may find the notion of non-linguistic knowledge about other minds obscure and unintelligible. But, as I have no ambition to provide *complete* revisions of the naive philosophies, I focus my attention on those problems that are most relevant to the task at hand. All I need here is the assumption that *some*

obtain this, I will investigate Gadamer's hermeneutic theory, which has been extremely influential in shaping the contemporary tradition of qualitative research. I will use Gadamer's theory to revise the qualitative philosophy, but I will also show that we can only accept part of its tenets in formulating a theory of *psychological* interpretation.

We have already seen that all interpretation of behavior as purposeful action presupposes that the interpreter uses a theory of interpretation and that there is always indeterminacy about what theory to use. In Gadamer's words, interpretation necessarily starts from a set of prejudices that are formed by our being embedded in concrete historically and culturally conditioned linguistic communities. From this, Gadamer concludes that it is impossible to escape your own historical finitude so as to enter into the point of view of others. Instead of the futile attempt to set prejudice aside in a Husserlian vein, an interpreter should, according to Gadamer, retain his openness by becoming aware of his prejudices and their being conditioned by tradition, and by constantly questioning them. The goal of a Gadamerian interpretive encounter is therefore always to transform your own perspective, by finding the right questions to ask yourself, that is, questions that have *significance* in relation to your own historical and cultural situation. According to Gadamer, a genuine experience always involves learning something new, by abandoning old prejudices and replacing them with better ones, and thereby widening your perspective so that you can see more historical and cultural possibilities. Genuine experience presupposes an attempt to suspend your own prejudiced claims of truth and instead trying to see how the point of view of the other can be true, so that this point of view is genuinely understood and integrated with your own perspective. Because hermeneutic interpretation aims at genuine experience, Gadamer draws the following conclusions about such interpretation:

When we try to understand a text, we do not try to transpose ourselves into the author's mind but, we try to transpose ourselves into the perspective within which he has formed his views. We try to understand how what he is saying could be right. If we want to understand, we will try to make his arguments even stronger [...] the goal of all understanding is agreement concerning the subject matter. [...] It is only when the attempt to accept what is said as true fails that we try to "understand" the text, psychologically or historically, as another's opinion. [...] Here again we see that understanding means, primarily, to understand the content of what is said, and only secondarily to isolate and understand another's meaning as such.

Gadamer (1975, pp.292-294)

Gadamer is thus led to the conclusion that psychological interpretation plays a mere secondary role in the development of understanding. It has an auxiliary function in facilitating genuine understanding, because our understanding of why a person has uttered something can

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of our understanding of other minds is linguistic in nature; I do not have to concede the stronger Gadamerian assumption that *all* understanding is essentially linguistic.

sometimes help us to understand what truth that utterance expresses. Gadamer even insists that intentional acts do not have any meaning in themselves; they only become meaningful when they are *applied* to the cultural and historical situation of a specific interpreter so that they can affect the perspective of the interpreter in question. Thus, the Gadamerian meaning of an act is not determined by the intentional states and events that originally caused it. Rather, it always emerges from the significance of the act to its interpreters, that is, from the act's propelling its interpreters to transform their perspectives. This allows the act to exercise its full power in effecting its interpreters, because new dimensions of meaning, that far exceed those originally intended by the actor, can be extracted endlessly, as the act is placed in new hermeneutical contexts.

There is no doubt that Gadamerian interpretation plays a prominent role in many interpretive contexts, especially in theological and legal hermeneutics<sup>48</sup>. But, as critics have noted, it is hardly an appropriate model for *all* types of interpretation<sup>49</sup>. Gadamer's theory does in fact prove to be particularly ill-suited for psychological interpretation. Let me demonstrate this with an example. Assume that two psychologists are interested in what psychological states and events underlie the expression of political attitudes and that they therefore ask their research participants questions about politics. On the Gadamerian account, the psychologists would be interested in the content of what it is said, that is, in the subject matter of politics, and in grasping how this content could be true, so that they can transform their own perspectives on politics. Now the psychologists may very well engage in Gadamerian interpretation of the participants, in being able to correctly understand and describe their political attitudes, and of each other, in fusing their perspectives on the psychology behind the behaviors in question. But, the task for these psychologists is of course not to develop their own political attitudes; it is to find generalities in the psychological states and events that underlie the expression of political attitudes and other behaviors that pertain to politics. Hence, the interpretation of the behaviors requires in addition another type of interpretation – an interpretation of the psychology behind the behavioral expressions in the concrete communicatory situations rather than the behavioral expressions per se. In this research situation, the primacy of these types of interpretation is reversed, so that the Gadamerian interpretation is the means and the psychological interpretation is the end.

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<sup>48</sup> Legal hermeneutics, in which old cases are applied to the current situation, and theological hermeneutics, in which old scriptures are continuously reinterpreted, were Gadamer's paradigmatic examples. Philosophical interpretation is however also largely Gadamerian. When philosophers try to interpret for example what Kant meant, they usually do this to understand what truth it may unveil; not to construct a biography.

<sup>49</sup> See Fay (1996, pp.147-151) and Schroeder (2005, pp.167-173).

Gadamer's crucial claim is of course that genuinely understanding the content of what is said incorporates seeing how it can be true, so that the distinction between meaning and truth is misleading. But if we take 'meaning' in Gadamer's sense then this is something utterly different from the 'content' in the crucial notion of intentional action. Although we can give a written document a meaning that is completely dissociated from the intentions with which it was written, construing a human behavior as a purposeful act requires us to take into account the actual intentional states and events that were expressed in it. Although the act can, because of the indeterminacy of translation, be correctly described in different ways in different languages, what delimits the possibilities for correct description is precisely the intentionality that gives the act its individuality. Moreover, what is significant in psychological interpretation is the psychology behind behaviors, and therefore, the openness of psychological interpretation must be specifically directed at the actual psychological states and events. Interpreting the psychology of an act openly always requires the matching of intentional contents, and thus, in this sense, translation in the Davidsonian way that I have already described. Furthermore, if we could not interpret other persons as having a specific psychological attitude to a specific content without our having the same attitude to the same content, then we would not be able to make any sense of their having intentional states and events that differ from our own. But, clearly, we can make other human beings and cultures intelligible in other ways than Gadamerian genuine understanding, so the distinction between content and attitude is legitimate.

So we find that Gadamer's theory fails, despite its popularity in psychology, to provide a plausible account of psychological interpretation. To be able to retain coherence within Gadamerian hermeneutics, we would have to dispense with the entire category of intentional action. This is clearly an intolerable consequence, because the concept of intentional action is the very core of psychological interpretation. But this does not prevent us from establishing that psychologists interpret from perspectives that are conditioned by their historical and cultural limitations and that they extract what is significant for their being able to question and transform their personal perspectives and scientific theories. Assuming that some understanding is linguistic, we also derive the conclusion that psychologists understand from their own unique perspectives, but that their own perspectives can be expanded so that they in some sense encompass, or account for, the relevant perspectives of the other.

*Residual differences.* Our revisions of the quantitative and qualitative philosophies have led to the dissolution of the distinctions 1c and 1d. We have seen that the quantitative philosopher must, acknowledging the legitimate use of intentional terms, admit of non-

nomological generalizations and that the qualitative philosopher must admit that social scientists understand objects of interpretation from their own historical and cultural vantage point. We have also seen that the distinction between explaining and interpreting is unclear, because an act of interpretation may very well also be an act of explaining and vice versa.

Granted that it is impossible to take an entire network of intentional states and events fully into account with a theory of interpretation, there may nevertheless be a difference in whether the network of the other is treated holistically or not, that is, we can treat the relations between the intentional terms either as external or as internal to their meaning. I will only note that this distinction, 1e, is too irrelevant and implausible to be interesting. Even though different intentional states and events must be assessed independently from each other in consensually quantitative research, this does not mean that their meanings are, or should be, described as independent from their interrelations in such research. When we are describing the meaning of a term that denotes an intentional state or event, it is important, in consensually quantitative as well as qualitative research, to take into account those interrelations with other intentional states and events that are especially relevant. In fact, advanced statistical techniques<sup>50</sup> can be effectively used for constructing holistic models, in which the intentional terms that describe the components of the model derive their individualities partly from the interrelations of the components. We could of course say that qualitative researchers do, in contrast to quantitative researchers, take the interrelations into account *in their empirical assessment* of the quality of intentional states and events, but this would only take us back to the second group of distinctions.

Another distinction between different types of interpretation can be constructed from 1f, that is, from whether the group or the individual is the unit of analysis. Quantitative researchers often do engage in an activity that I will call *prototype-interpretation*, in which they conceive of a fictional prototype individual, corresponding to the average of the group, whose intentionality they interpret. This is to be contrasted with *individual-interpretation* of real individuals. Individual-interpretation *within* data gathering can however be combined with prototype-interpretation *after* the data gathering, so the important distinction must be that between research that incorporates any individual-interpretation at all and research that does not incorporate any individual-interpretation. The problem with this distinction is that we cannot connect it to the distinctions of the second group so as to attain sufficient width. We can, for example, not set up the rule that a scientist who is planning to engage in individual-

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<sup>50</sup> I am referring to the powerful techniques of *Structural Equation Modeling*, which have revolutionized statistical analysis over the last decades.

interpretation should use his subjectivity as an instrument in gathering data<sup>51</sup>, because the individual-interpretation may occur exclusively in the data analysis.

There is, however, a way to cover almost all of the distinctions of the first and second initial groups with one single overarching distinction if we make use of terms that were introduced in the discussion of quantitative philosophy. We can subsume the nuances between different types of interpretation in different phases of research under the distinction *between fixing the interpretive framework prior to the research and developing<sup>52</sup> it during the research*. This distinction not only subsumes a wealth of distinctions between different types of interpretation; it also provides a rich fertilizing ground for setting up methodological rules. But, even setting aside the question of plausibility, we still have not achieved maximal width and clarity. First, to make the account of the two first initial groups of distinctions clearer and more complete, we need the overarching distinction between interpretive and non-interpretive research; the distinction between different types of interpretation applies only to interpretive research. Second, we cannot reduce the distinctions of the last two of the initial groups of distinctions to matters of interpretation. Fixing the interpretive framework certainly means that you *can* measure quantities and use statistics, but not that you *must* or *should* do it, and the assessment and analysis of quantities can certainly, as I have already mentioned, be useful in developing the interpretive framework. Hence, we need at least a third distinction, between those aspects of research that involve the assessment and analysis of quantities and those that involve the assessment and analysis of qualities.

All attempts, with at least some degree of initial promise, to optimize the criteria for usefulness with one single overarching distinction have failed. This leads us to the anticipated conclusion that there is not one single distinction between quantitative and qualitative research that we can stuff our entire conceptualization into if it is to be optimally useful. Instead of singling out one set of distinctions that can be accounted for by a single overarching distinction, and thereby neglecting other potentially useful distinctions, I suggest that we should retain all of the three overarching distinctions that I mentioned in the previous paragraph as the basis of our conceptualization. Therefore, I will elaborate these distinctions and show how they can combine into a multilateral conceptualization so as to optimize usefulness.

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<sup>51</sup> The best example of this is *Q-methodology* (see Brown, 1996), in which all of the interpretive work, of individuals and prototypes, occurs after the data has been gathered.

<sup>52</sup> Notice that we cannot say that the interpretive framework *emerges* or that it is *generated*, because this would require a background, other than the framework itself, against which this would take place. The changes in the interpretive framework take place only against the background of the framework itself, and so the framework as a whole is developed, although new *parts* of it may emerge or become generated.

## A multilateral conceptualization

Before setting forth this conceptualization, I need to clarify the relationship between interpretation and understanding in research. In fact, we must first distinguish between two distinct interpretive processes that are frequently conflated, namely the *interpretive implementation*, which I will simply call the interpretation, and the *interpretive preparation*, which often precedes interpretation. Interpretation is in itself implicit and direct. For example, the interpretation of a linguistic expression in a familiar language is typically immediate and effortless. But, if we are not already in possession of a theory of interpretation that is in the actual case conducive to interpretation, then we must go through a phase of interpretive preparation in which the interpretive framework is, often with arduous effort, adjusted so as to yield interpretation. Understanding is the result of adequate interpretation. In psychological interpretation, the interpretation is adequate if it gives the interpreter an accurate idea about which intentional states and events underlie the interpreted behavior; in Gadamerian interpretation, it is adequate if it negates previous experience so as to widen the interpreter's perspective on the world. Furthermore, with these distinctions, the hermeneutical circle can be efficiently described as a movement between interpretation and interpretive preparation that has the goal of enhancing the adequacy of the interpretation and thereby deepening understanding. Let us now proceed to the triadic conceptualization that I propose.

### *The triad of quantitative and qualitative research*

1. *Interpretive versus non-interpretive research.* In interpretive research, social scientists seek to describe, explain, and predict behaviors as being caused by the mental states and events of a rational and conscious agent and thus as having meaning to the agent. This incorporates, but is not limited to, the usage of intentional terms. In non-interpretive social science, on the other hand, the scientists construe behavior as being caused by neurophysiological processes, evolutionary mechanisms, and other factors that do not derive their identities from the first-person consciousness of the agent. The great bulk of contemporary social science, consensually qualitative and quantitative alike, is interpretive, and certainly most of the discussions concerning quantitative and qualitative research concern what types of interpretation to use; not whether interpretive or non-interpretive research is legitimate or not. Assuming that both interpretive and non-interpretive research is indeed legitimate, this distinction does not

*in itself* have any methodological import. Its function is thus, in the present context, clarificatory rather than methodological. The methodological points that can be extracted from the present discussion pertain to the different interpretive endeavors that our next distinction will elucidate.

2. *Fixing versus developing the interpretive framework.* That the interpretive framework is fixed means that all interpretive preparation is performed before the empirical phase of the research. Methods that incorporate the fixation of the interpretive framework can be used to *test* hypotheses, to *generate* hypotheses, or to *describe* the occurrence of mental states and events. The generation of scientific hypotheses can be further subdivided into whether the concepts that are used in their formulation are fixed from the beginning or generated without affecting the interpretive framework. Moreover, the testing and the generation of hypotheses, as well as the description of mental states and events, can be applied to *individuals, groups, or prototypes*<sup>53</sup>. All of these classifications pertain also to research in which the interpretive framework is, for purposes of interpretive preparation, developed during the empirical phase of the research<sup>54</sup>. But we also have, in addition to this, a number of variations in the development of the interpretive framework. First, the development of the interpretive framework may occur during the stage of *data gathering*, during the stage of *data analysis*, or during *both*. Second, the alteration of the interpretive framework may be *implicit, explicit, or both*. During the data gathering phase, the scientist may for example implicitly and automatically develop his interpretive framework in an interview situation as he struggles to understand the respondent, or he may explicitly form and test hypotheses about what specific behavioral expressions mean to an individual or to a group of individuals. During the data analysis phase, he may for example scrutinize a set of data to get acquainted with it and to let hypotheses emerge intuitively, or he may generate interpretive hypotheses and perform subsequent changes in his interpretive framework upon explicit reflection. In addition to this, the

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<sup>53</sup> Prototype interpretation differs from the interpretation of groups in averaging the group into one fictional prototype individual instead of focusing on proportions of the group that behave, or that are hypothesized to behave, similarly. For example, regular polls, in which it is demonstrated that such and such a percentage of the respondents believe or feel so and so are descriptions of the mental states and events of groups. To generate descriptions or hypotheses that are less straightforward, it is however very helpful to use prototype interpretation.

<sup>54</sup> If a hypothesis is to be tested, it is essential that the parts of the interpretive framework that are used in the formulation of the hypothesis remain fixed; otherwise a new hypothesis would have been generated. For example, if I want to test for a hypothesized relationship between happiness and self-esteem, but I change my conception of happiness during the research, then I have generated rather than tested a hypothesis. However, if the hypothesis only concerns the relationship between two instruments then I may change my conception about what the instruments measure without giving up my theoretical endeavor of hypothesis-testing.

distinction between individual interpretation on the one hand and prototype or group interpretation on the other hand applies here to whether the developed interpretive assumptions concern the interpretation of individuals, groups, or prototypes, as well as to the interpretation per se. Furthermore, all of the distinctions that are subsumed under the fixation versus development of the interpretive framework can be applied to restricted parts of the interpretive framework, such as hypothesis-relevant assumptions, as well as to the framework in its totality.

3. *Elements of quantity and quality in research.* Contrary to the previous distinctions, this distinction is applicable only to specific aspects of a research project and not to the project as a whole. Research projects typically have diverse combinations of elements of quantity and quality. A first element of quantity is the quantitative measurement of properties and relations, that is, the assessment of the amount of units of measurement that fall under the concept that denotes a specific property or relation. This yields numerical data that may be on either qualitative or quantitative scales. Thus, a second element of quantity is quantitative data, that is, data on interval and ratio scales. A third element of quantity is the statistical analysis of numerical data (including qualitative data). A first element of quality is the kind of linguistic analysis of the content of a concept that is aimed at describing the quality of what the concept denotes. This pertains to concepts that denote both quantitative and qualitative properties and relations. Thus, we have a second element of quality in the assessment of qualitative properties and relations. We also have a third element of quality in qualitative data, that is, data on ordinal and nominal scales, because ordinal data may result from quantitative measurements. A fourth element of quality, which pertains directly to interpretation, is the search for meanings in, and thereby the quality of, textual data.

#### *Satisfying the criteria for optimal usefulness*

These three overarching distinctions together cover almost our entire set of initial distinctions. The first distinction covers the remnants from 1a, 1b, and 1c; the second distinction the remnants from 1d, 1e, 1f, 2a, 2b, and 2c<sup>55</sup>. The third distinction covers the entire third and fourth groups of initial distinctions. The single omission is the distinction 2d, which is largely independent of the other distinctions<sup>56</sup>. Our conceptualization also

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<sup>55</sup> It is however only covered if we understand it as applying to interpretation.

<sup>56</sup> This suggests that we should complement the conceptualization with an overarching distinction pertaining to ethical incentives for research. This suggestion is however too peripheral to the central issues in this paper for

contributes clarification, both because its constituent distinctions are clear and because of its great width and consequent organizational power. In order to dissolve prevalent confusions, it is especially important to distinguish between research being just interpretive and research being actively interpretive in the sense of featuring interpretive preparation during the empirical phase, as well as to differentiate the many different senses in which we can speak of quantity and quality. Our conceptualization can also be used normatively. But it does not, without intolerable sacrifices of plausibility, allow us to use a dichotomy of overarching philosophies for a superordinate methodological choice. Sophisticated quantitative and qualitative philosophers alike must accept the legitimacy of both interpretive and non-interpretive research, of both the fixation and development of the interpretive assumptions in some respective research situations, and of both elements of quantity and quality which pervade practically all research. Instead, we must attempt to set up more specific methodological rules, resting on plausible philosophical foundations, about what types of interpretive methods, with what elements of quantity and quality, to use in what types of research situations. This leaves room for sophisticated disagreements about specific research situations, and thus for Popperian critical scientists to choose rationally between different methodological prescriptions in specific situations. Finally, our conceptualization also seems so far to be coherent with, and a fortiori relevant to, the discourse of scientists; it clearly does not violate the consensus of scientists after the relevant confusions have been dispelled. But, I am yet to show what to do with the terms ‘quantitative’ and ‘qualitative’.

*What should we do with the terms ‘quantitative’ and ‘qualitative’?*

The terms ‘quantitative’ and ‘qualitative’ would be superfluous if applied arbitrarily to a singular distinction between different types of methods *or* philosophies, because such distinctions can be stated more clearly without the connotary baggage of these terms. I have however already shown that we can integrate common distinctions between quantitative and qualitative methods under three superordinate distinctions and that we can connect them to philosophical assumptions by way of methodological prescriptions. The problem left is to show how to effectually apply the terms ‘quantitative’ and ‘qualitative’ to this conceptualization, so that something new and useful is added.

The etymology of the terms ‘quantitative’ and ‘qualitative’ suggests that we should apply them to the third distinction, between elements of quantity and quality in research. To be able

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me to pursue it here.

to say that any research is qualitative *or* quantitative, we would then have to say that all research that has any element of quantity is quantitative and that all other research is qualitative. However, the lack of connection to the distinctions that pertain to the fundamental interpretive goals of research is troubling, because we would expect a distinction between quantitative and qualitative research to be both more important and more relevant to the scientific discourse than simply having to do with quantity and lack of quantity. It seems strange, for example, to call a study that is aimed at deep-probing interpretation of the qualities of concepts that denote mental states and events quantitative just because it involves a minor part of counting the frequency of linguistic expressions – a study in which the assessment of quantities is a mere means of determining qualities. Clearly, the distinction between quantitative and qualitative research would be much more useful if we could specify some types of quantity and quality that are especially relevant to interpretation. A classification according to such a scheme would say much more of methodological interest about what kind of research is being conducted.

It would certainly make sense to say that interpretive research is qualitative and that non-interpretive research is quantitative, because mental states and events appear in consciousness as qualitative whereas many of the biological properties of the body that underlie the mental states and events can be measured quantitatively. Many mental states and events, such as sensations and emotions, have *qualia*, that is, a characteristic way they feel. Some intentional states and events, such as beliefs and thoughts, may not have qualia in the same sense as emotions and sensations, but they are still qualitative in the sense of being identified by the quality of their content and of the attitude to the content. With non-interpretive assessment of the neurophysiological properties that are assumed to underlie mental life we can, on the other hand, go beyond the qualitative facts that a person has neurons, dendrites, axons, and so on to quantitative facts, such as the neurons' firing with such and such frequency, that are more interesting in figuring out human psychology. In addition, the usage of the distinction between interpretive and non-interpretive research as a distinction between qualitative and quantitative research would even provide us with overarching quantitative and qualitative philosophies. The naive quantitative philosophy (which is of course only naive when it is assumed to be applicable to interpretive research) could be applied solely to non-interpretive research, and the revised qualitative philosophy could be applied solely to interpretive research. Then there would be no disagreement between the two philosophies and thus no superordinate choice between them – only different fields of application and a choice as to what field to work in. The main problem with this usage of the terms 'quantitative' and

‘qualitative’ is that it is so irrelevant that it would require a thorough revision of the scientific jargon. The discussions of quantitative and qualitative research revolve mainly around different ways of doing interpretive research, and it is the appropriateness of modeling methods of interpretation upon non-interpretive methods that is in focus rather than interpretive versus non-interpretive research per se.

The second distinction of our conceptualization, between fixing and developing the interpretive framework, does indeed provide us with a way of differentiating quantitative and qualitative strategies of interpretation, linking fixation to quantity and development to quality. The rationale for calling the development of the interpretive framework qualitative is that the very purpose of this process is for the interpreter to grasp the qualities of the contents of the intentional states and events of another person, thereby grasping the qualities of the intentional states and events themselves. If the scientist does not already understand the contents of those intentional states and events of the other person that are especially relevant to his inquiry then he cannot interpret the behaviors of the other person as expressions of these intentional states and events. To be able to interpret the behaviors in terms of these specific intentional states and events, the scientist would have to adjust his interpretive framework, so as to obtain new intentional states and events, in the Davidsonian vein that I have described. This is the qualitative strategy of achieving interpretability. If followed strictly and exclusively it would only allow us to make inductive generalizations that cover the individuals that we have investigated. In order to make statistical inferences to uninvestigated populations, we also need the quantitative strategy of achieving interpretability. This means starting from an intentional state or event that we do already understand, although it has not been demonstrated that the other person in fact has this state or event, and then attempting to measure quantitatively the degree to which the person has the intentional state or event in question. This can be understood intuitively as measuring the extent to which the person’s actual intentional states and events are similar to an idealized intentional state or event<sup>57</sup>. For example, a psychologist could try to qualitatively understand another person’s actual attitudes to politics, or he could try to quantitatively assess the degree to which the person’s actual attitudes to politics are similar to conservatism. The quantitative

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<sup>57</sup> In questionnaire research, it is often assumed that this similarity pertains solely to the psychological attitude. For example, self-esteem is construed as the degree to which the content of the self-concept is esteemed. But, although it may be true that everyone has a self-concept, the content of it may vary because of its depending on relations to other intentional states and events as well as relations to the world for its identity. Thus, it is very likely, in such cases, that the similarity in content as well as the strength of the attitude affects the measurement.

strategy works fine with a fixed interpretive framework, although it does not *require* the fixation of any specific part of the framework unless a hypothesis is being tested<sup>58</sup>.

This distinction does provide us with a dichotomous split of the entire domain of strategies for achieving interpretability. We can think of the quantitative approach as an abstract, rationalizing, and idealizing calculation performed mainly for predictive and explanatory purposes, whereas the qualitative approach is more concrete, empiristic, and descriptive<sup>59</sup>. Because of the indeterminacy of intentional ascription, there is however always an essential rationalizing element in the use of intentional terms, which makes the qualitative strategy an ideal that can only be imperfectly fulfilled. An actual instantiation of the qualitative interpretability strategy is therefore always more or less qualitative, in the sense of building more or less elaborate and descriptively thorough theories of interpretation. The more qualitative it is, the greater is the potential for descriptive accuracy, and the greater is the sacrifice of generalizability.

The distinction between quantitative and qualitative interpretability strategies does accord very well with the scientific discourse and it seems to nail down the core difference between what is considered quantitative and what is considered qualitative in interpretive research. It is also methodologically important, because it specifies two fundamentally different ways of doing interpretive social science – one in which the scientists search for quantities and one in which they search for qualities. But, assuming that both of them are indeed legitimate, there is still no superordinate choice between the philosophies behind each way of doing social science; the choice between quantitative and qualitative research is instead tailored by the research situation. This conclusion accords remarkably well with the common conception that quantitative and qualitative social sciences are two different but complementary ways of doing research. Hence, this distinction does indeed give us very useful applications of the terms ‘quantitative’ and ‘qualitative’. But it does not replace the three distinctions that I have already endorsed. We still need these distinctions to set up methodological rules and to clarify the discussions of quantitative and qualitative research, providing a background for our definitions of ‘quantitative’ and ‘qualitative’.

Before we proceed to the definitions, we need to extend our distinction so that it encompasses non-interpretive as well as interpretive research, in order for it to be entirely relevant to the discourse of social scientists. What we have done so far is to zoom in on the

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<sup>58</sup> What is required is that there is some fixed idea at the start about what, for example, political conservatism is, so that an instrument can be constructed to measure it. The scientist’s conception of what the instrument de facto measures may very well change during the process of research.

<sup>59</sup> I borrow this characterization from Dennett’s (1981) discussions of his theory of intentional systems.

dividing line between quantitative and qualitative research. Now all we need to do is to place non-interpretive research, in addition to quantitative interpretive research, on the quantitative side of this dividing line.

Using the term *interpretability strategy* for a type of strategy with which a person is made interpretable, we thus derive the following definitions of ‘quantitative’ and ‘qualitative’:

- *An interpretability strategy is qualitative* if and only if it consists in the interpreter’s trying to developing his interpretive framework in such a way that he can understand the qualities of the mental states and events of the research participants.
- *An interpretability strategy is quantitative* if and only if it consists in the interpreter’s trying to measure the similarity between an idealized mental state or event and the actual mental states and events of the participants.
- *A method is used qualitatively* if and only if it incorporates or is part of the implementation of a qualitative interpretability strategy.
- *A method is used quantitatively* if and only if it incorporates or is part of the implementation of a quantitative interpretability strategy or it is used in non-interpretive research.
- *A method is qualitative* if and only if it can only be used qualitatively.
- *A method is quantitative* if and only if it can only be used quantitatively.

Let me provide some examples of the consequences of these definitions. According to our definitions, neurophysiological measurement is a quantitative method and hermeneutical interpretation is a qualitative method. Statistics and quantification at large is, on the other hand, not inherently quantitative, because it can be used qualitatively<sup>60</sup>. Also, the questionnaire is not in itself quantitative. But traditional questionnaire methods, with which the answers are graded on fixed numerical scales, are quantitative, and the extent to which an interpretability strategy can be qualitative by way of a questionnaire is quite limited. Confirmatory methods, including experiments, are quantitative, by virtue of not being usable in qualitative interpretation, but exploratory methods are neither quantitative nor qualitative. Moreover, the interview is not in itself qualitative, despite its potential to provide the foundation for highly qualitative interpretability strategies and despite most types of interview being qualitative. Grounded theory and phenomenological description are, on the other hand, examples of inherently qualitative methods.

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<sup>60</sup> Once again, Q-methodology (see Brown, 1996) provides an excellent example.

Finally, these definitions provide the conceptual apparatus also for classifying entire research projects as quantitative, qualitative, or *mixed*. Mixed research projects use both quantitative and qualitative interpretability strategies, whereas quantitative and qualitative research projects use only their respective type of strategy.

## Conclusion

We have seen that it is impossible to pin down one single essence within the discussions of quantitative and qualitative social science. Which aspects we focus on is to a great extent determined by what we find useful. Focusing on methodological use for scientists, I have shown that one overarching distinction is insufficient for the construction of an optimally useful conceptualization. The idea that it is at all possible to find one single distinction corresponding to the essence of the differences between quantitative and qualitative research is, as we have seen, rooted in a crude dichotomy between two naive philosophies. As soon as we start to revise these philosophies, the dichotomy virtually falls apart into pieces. After revision, the differences between the two sides are more a matter of differential emphasis than irreconcilable epistemological disagreement. Moreover, modifying the raw data constituted by the initial list of distinctions would only help us to break down, rather than restore, the dichotomy. The initial groups of distinctions are too central to the discussion of quantitative and qualitative research to be neglected, and adding more distinctions would just make it harder to fit everything into the dichotomy.

It seems obvious now that the confusions and the polemics in the discourse on quantitative and qualitative social science are largely rooted in the type of destructive dualistic thinking that Fay has forcefully described:

Much social thought consists of oppositional categories [...] The same dualistic thinking mars metatheories in the philosophy of social science: atomism vs. holism; cause vs. meaning; interpretive social science vs. causal social science; historicism vs. nomologicalism; narrative constructionism vs. narrative realism. Such thinking promotes an “either – or” mentality in which one category precludes its supposed opposite. But many categories are fluid and open. Often one side of a dichotomy depends on and invokes the other – in which case the dichotomy is subverted. Frequently an entity can be in both categories; or one category gradually slides over into its supposed opposite; or binary alternatives rest on fallacious presuppositions which mistakenly restrict the range of possible choices.

Fay (1996, p.241)

To avoid such dualistic thinking, while still making use of the many distinctions between quantitative and qualitative aspects of research, I developed a multilateral conceptualization, removing the focus from paradigmatic philosophies to specific methodological prescriptions in specific situations. Thereby, I hope that I have been able to provide a powerful clarification of the discourse on quantitative and qualitative research. Furthermore, even though my discussions are centred on psychology, and especially interpretive psychology, I have taken the entire social sciences into account in drawing my conclusions and setting up my definitions.

I must admit though that the puzzle is far from being completed. I have not actually set forth the methodological prescriptions that the social scientists are supposed to follow, although some of them can be derived from my discussions – that would require distinctions between different types of research situations in addition to those between different types of methods. Also, some of my discussions rely heavily on intuition, because taking too many technical details into account would have obstructed me from pursuing my purpose. I do however hope that this essay provides the major pieces of the puzzle and that it shows how the puzzle can be completed. But, I must issue a warning: Because of the complexities of the practical reality of social scientists, it is not obvious that the labels ‘quantitative’ and ‘qualitative’ can be used effectively in a philosophy of social science (my conceptualization could still be used, but without these terms). Perhaps the confusions and connotations pertaining to these labels are simply too deeply ingrained to get rid off. What I have shown concerning these terms is how we can *try* to use them in a potentially very effective way.

Finally, I hope that this essay also underscores a more profound point concerning the use of philosophical reflection for providing guidance to scientists. The dualistic thinking in the debate on quantitative and qualitative research has led some social scientists to the Feyerabendian<sup>61</sup> conclusion that scientists should free themselves from the straitjackets imposed by normative philosophies of science. My crucial point is that *it is not the philosophical reflection and the resulting methodological rules that are enemies to science; it is the dualistic thinking!* Science is always based upon philosophical presuppositions, whether they are derived from a normative philosophy of science or not, and philosophical reflection is essential for explicating, criticizing, revising, and justifying these presuppositions. The problem is that philosophical systems have historically often provided methodological rules with exaggerated claims of generality, provoking Feyerabendian responses<sup>62</sup>. But, by embracing methodological plurality and adaptation to research situations, we can, as I have shown, avoid anarchy without excluding normal science and creativity from the picture, while still making sure that the epistemic endeavors of scientists are justified. We can, for example, account for in what kinds of situations, and why, the violation of traditional methodological rules is useful. I do not mean to imply that a normative conceptualization of this sort can, or should, cover all possible research situations, nor that it should *enforce* the rules and

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<sup>61</sup> Feyerabend (1975) concluded, upon reviewing some key episodes in the history of science, that the tricks that scientists use to save their theories, in violation of methodological rules such as those set forth by Popper, are in fact necessary for the progress of science.

<sup>62</sup> Feyerabend’s critique was primarily directed at positivism and falsificationism, but it can easily be extended to the naive quantitative and qualitative philosophies, which also fail mainly due to their exaggerated claims of generality.

mechanically control scientists in the way that Feyerabend opposes. Philosophical reflection, and the resulting methodological rules, should be more like rules of thumb that provide *guidance* to scientists; due to the excruciating complexity of the reality of scientific practise there may always be relevant factors that are not taken into account, rightfully propelling the scientist to lean on intuition.

At any rate, the discourse on quantitative and qualitative social science is not simply a bunch of confusions that must be weeded out; it is a vitalizing injection into the entire field of social science that provides one of the major avenues for bridging the gap between science and the philosophy of science. Bridging this gap is ultimately the greatest task for philosophers of science in the 21<sup>st</sup> century. Our current challenge is thus to steer the discourse on quantitative and qualitative research onto more fruitful paths, beyond dualistic thinking, so that it can contribute to the maturation of both social science and the philosophy of social science.

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