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Beyond the quantitative and qualitative cleavage

Confluence of research operations in discourse analysis[1]

Zusammenfassung: Nachdem wir aufgezeigt haben, dass Diskursanalyse keine Disziplin für sich ist, sondern vielmehr ein Feld, das eine Reihe nationaler und disziplingebundener Wissenschaftstraditionen verbindet, unterbreiten wir den Vorschlag, die strikte Gegenüberstellung von qualitativen und quantitativen Ansätzen, nicht zuletzt angesichts der Vorteile von »mixed methods«, aufzugeben. Aus der Forschungspraxis wird ersichtlich, dass sich diese unterschiedlichen Ansätze nicht ausschließen müssen, sondern dass sie sich darüber hinaus auf gemeinsame Wissensmuster und Forschungsabläufe beziehen. Dabei versuchen wir zu zeigen, dass Erklären und Verstehen keine widersprüchlichen Zugangsweisen sind und dass wissenschaftliche Interpretation nicht unabhängig von erklärenden Vorgängen bestehen kann. Zudem basiert jedes wissenschaftliche Verfahren, ganz gleich ob qualitativ oder quantitativ, auf gemeinsamen Vorgehensweisen bei der Identifikation, der Beschreibung und der Analyse der zu erforschenden Einheiten. Obwohl die analytischen Paradigmen sich in ihren epistemologischen und methodologischen Annahmen unterscheiden, sind beide mit dem gleichen Problem konfrontiert: der Reduktion und Wiederherstellung von Komplexität. Abschließend zeigen wir auf, wie Fragen des Messens und der Kausalität in allen Bereichen wissenschaftlichen Denkens vorkommen, unabhängig davon, ob jeweils quantitativ oder qualitativ vorgegangen wird.

Schlagwörter: Diskursanalyse, quantitativ/qualitativ, mixed methods, Erklären, Interpretation, Forschungsablauf, Komplexität, Kausalität, Messung

Summary: Having shown that discourse analysis is not a discipline, but a field that lies at the confluence of a set of national and disciplinary traditions, we propose to abandon the sharp opposition between qualitative and quantitative approaches to the benefit of mixed methods. Not only does research show that there can be no mutual exclusion between different methodological approaches, but that all methods refer to a common pattern of knowledge involving shared research operations. We show that explanation and understanding are not contradictory processes and that scientific interpretation can not stand independently of some explanatory operation. Any scientific process, qualitative or quantitative, is based on a common ground mobilizing research operations for the identification of units, their description and their analysis. While the analytical paradigms differ on their epistemological and methodological assumptions, they are facing the same problem of reducing and restoring complexity. We conclude in showing how the issues of causality and measurement arise in all scientific reasoning, whatever their nature, qualitative or quantitative.

Keywords: Discourse analysis, quantitative/qualitative, mixed methods, explanation, interpretation, research operations, complexity, causality, measure

1   Der folgende Beitrag ist eine englische Fassung von Duchastel, J./Laberge, D. (2014) »Au delà de l'opposition quantitatif/qualitatif. Convergence des opérations de la recherche en analyse du discours«. In: CORELA –Cognition, Représentation, Langage. Mai 2014 (im Erscheinen).

1. Introduction

The world of social and language sciences is characterized by many cleavages: between understanding and explanation, between structural and phenomenological analysis, between different fields and disciplines related to the study of language, between different national and continental traditions, between qualitative and quantitative approaches. These oppositions often create new avenues of thought, but they become sterile when giving up important aspects of the analysis. We will ask ourselves how different approaches in discourse analysis deal with these oppositions, and eventually with their possible convergence. We will explore the capacity of mixed methods to overcome the opposition between qualitative and quantitative methods. We will see how interpretation and explanation are constitutive parts of the research process.

First, we will show how discourse analysis stands at an intersection of disciplines, traditions and approaches. We will then discuss the opposition between qualitative and quantitative methods and the mixed methods approach as a proposed solution. This will lead us to reconsider the distinction between explaining and understanding: we put forward the existence, in all sciences, of an hermeneutic arc that does not separate interpretation from explanation. Through the description of different states of the text in the process of discourse analysis, we will describe the necessary phases of reduction and restoration of complexity, whether the approach is quantitative or qualitative. We will illustrate the compatibility of these methods, showing that the concepts of causality and measurement can apply in either approach.

2. Oppositions and convergences in the field of discourse analysis

Discourse analysis stands at the confluence of various disciplines, traditions, and approaches. It arose from a dual need to overcome, in the humanities, the limited focus on content and, in the language sciences, the restricted structural approach to language. Discourse analysis introduced the need to consider language in its social context and apprehend content as it is materialized in linguistic forms and functions. Discourse analysis can be considered as a merger of two great traditions: the hermeneutical tradition of humanities and social sciences, based on the meaning of social practices and institutions, and the more functional and structural tradition of language sciences that focuses on the description of different aspects of language use. Within the context of this confluence, a third axis emerged, that of statistical and computer sciences, leading to the development of a tradition of computer-assisted discourse analysis. If one can hardly speak of discourse analysis as a discipline, it is because of this profusion of influences. They are produced by as many analytical practices as there are many disciplines and intersections between them.

Figure 1 represents the set of oppositions and similarities of the various traditions of discourse analysis as they emerged in the sixties. The diagram shows, at its center, discourse analysis as the crossing point of all these traditions. Therefore, it is not to be re-
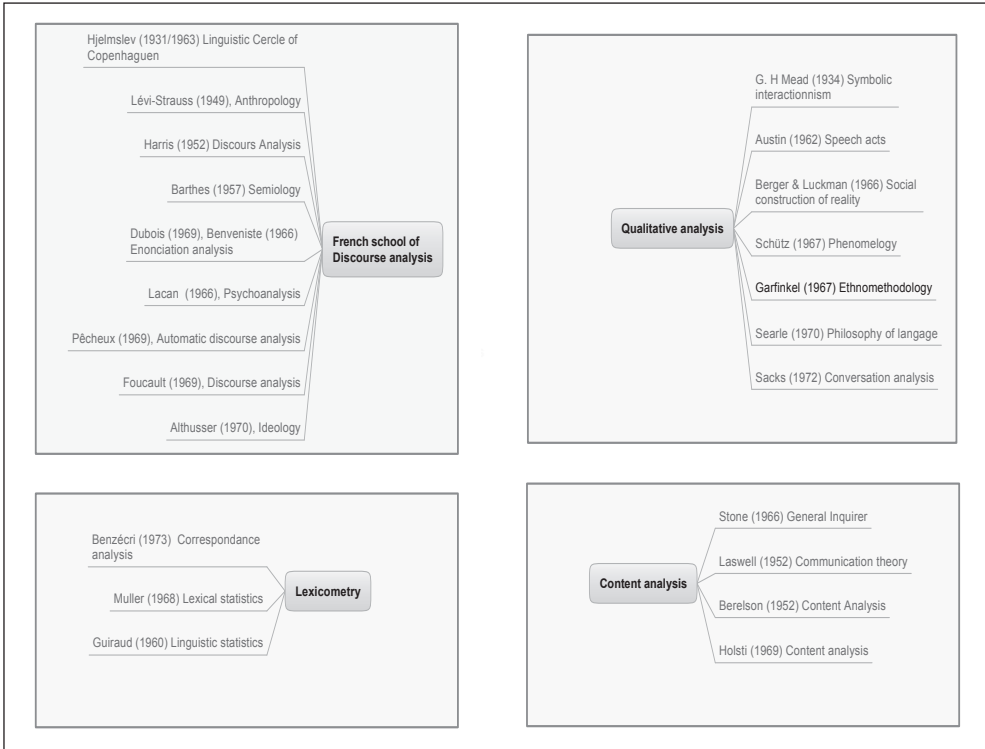
Figure 1: Confluences in Discourse analysis

garded as a discipline but as a field of research practices sharing a number of designs from several disciplines. This confluence is also marked by numerous exchanges between national traditions. The diagram can be read as a set of oppositions, from top to bottom, left to right, and along the diagonals. The first major opposition from top to bottom, distinguishes qualitative and quantitative approaches. It is possible to consider approaches at the top of the figure as belonging to »letters«, e.g., quality, while the bottom part refers to »numbers«, e.g., quantity (Pires 1982). The second major opposition can be read, from left to right, French versus Anglo-Saxon traditions, highlighting the relative preponderance of linguistic on the left and of social sciences on the right.

Figure 1 illustrates a space where each term is opposed to the other, either horizontally, vertically, or diagonally. At the top of the diagram, within the so-called qualitative perspective, the French School of discourse analysis and the Anglo-Saxon tradition of qualitative analysis form the first opposition. What distinguishes them most is that they belong to different disciplinary traditions. French discourse analysis is anchored in the distributional, functional and pragmatic linguistics, aiming to study language as it is used in the real world. It owes much to the structuralist tradition: understanding symbolic phenomena in their systemic dimension. It has gradually given attention to speech as a theoretical and an empirical object (Foucault 1969), and evolved into a form of text linguistics (Adam 1999; Rastier 2001).

On the other hand, the qualitative analysis has evolved from the bosom of symbolic interactionism and phenomenology, also under the influence of the philosophy of language and pragmatism. These traditions have a common interest in the intentional action manifested through speech acts. While the French tradition focuses on the linguistic aspects of situated speech, the American tradition is mostly interested in language as a vehicle for the social construction of reality. What particularly distinguishes the two traditions is the type of empirical speech that is favored. From the beginning, the French tradition was interested in institutional discourse, i.e., political or literary discourses. The American tradition was rather more inclined toward speech in everyday life, i.e., localized interlocutions or conversation.

On the bottom axis of the diagram, which represents the quantitative perspective, we can also contrast two different approaches. On one side, we have the French tradition of lexical analysis (lexicometry), and on the other the American tradition of content analysis. Both approaches share a common interest for the quantification and measurement of linguistic phenomena, but they can be distinguished by their disciplinary origin. While in France there is an interest in statistics applied to literary and political corpora, in America, it is the study of communication and propaganda that gave birth to a tradition of content analysis. While in both cases, there is a strong belief in the power of explanation with figures, the mathematical and statistical models greatly differ. On the one hand, complex statistical methods are applied to words in their ››»natural‹« existence, that is to say, without coding, on the other, relatively simple counts of coded units are produced. But in both cases, the access to meaning is through the numbers.

Observing the figure along the vertical axis, it is possible to distinguish on the left an opposition between the French tradition of discourse analysis at the top and the lexical approach at the bottom. This opposition has gradually evolved from a ›dialogue of the deaf‹, during the sixties and seventies, to a mutual recognition in recent years, as computer-assisted discourse analysis systems began to impose their own legitimacy. Everything happens as if the requirements of formalization of computing procedures made statistics less daunting in the eyes of those primarily interested in the description of language functions. On the right side, in the American tradition, the same opposition existed between qualitative and quantitative methods. In both cases, the interest lies primarily in the meaning of discourses, but the qualitative tradition emphasizes the interpretive reading based on the coding of units, while content analysis is concerned, at least in its early stages, with the essentially quantitative count of units of speech. This opposition has also diminished over the years, and there aren't hardly any purely orthodox researchers left. As proof of this, one has only to look at mixed qualitative and quantitative features in computer assisted qualitative data analysis systems (CAQDAS).

Finally, on the diagonal axes of the diagram, we oppose, two by two, each tradition. It is clear that the opposition between lexical and qualitative analysis follows the same logic as that between the two approaches in quantitative and qualitative content analysis in the American tradition. But this opposition is not really present in the literature. The opposition that puts face to face discourse analysis and content analysis took shape in the

founding act of discourse analysis in France. We should remember that the French tradition of discourse analysis comes from the critique of the content analysis tradition (Haroche et al. 1971). It criticizes the ignorance of the linguistic substratum of discourse in this tradition, although some authors, such as Osgood (1959) have justified its whole importance.

Discourse analysis as a research practice has always had a syncretic character, each tradition drawing on several disciplinary and methodological sources. It follows that the oppositions described here have progressively moved toward a confluence of diverse perspectives. This is true of the reconciliation, in France, between the traditions of discourse analysis and of lexical analysis. A sign of this reapprochement is the growing place of the statistical analysis of textual dimensions, often referred to as „textometry". This is also true of the combination of qualitative and quantitative methods in content analysis in the anglo-saxon tradition. Similarly, French and American traditions of discourse analysis have grown closer in recent decades. That which originally distinguished them – the nature of discourse analyzed (in the first case, political and literary discourses and in the other, the everyday life discourses) and the disciplinary origin (for one, linguistic and for the other, pragmatic), – gradually converged. It is interesting to note that the authors of reference of the Anglo-Saxon tradition of critical discourse analysis (Fairclough 2007) or the school of social representations (Hall 2009) are the same as those of the French school: Barthes (1957), Althusser (1970), Foucault (1970) and Lévi-Strauss (1949). It is equally interesting to note that the analysis of ordinary knowledge and conversation has crossed the Atlantic in the other direction. It is out of the question to define a fictional unity of discourse analysis's domain, but it is certainly worth noting that the research practices in discourse analysis combine, rather than oppose, more and more disciplines, approaches, and methodologies.

3 . Mixed methods

The confluence of theoretical and methodological approaches in the current practices of discourse analysis involves the use of mixed methods. The idea of mixed methods fits into the broader project to overcome the opposition between qualitative and quantitative approaches, and to somehow combine the two methodologies. If the quantitative methods are relatively easy to define, it this is not the case for the qualitative ones. For example, the contrast between the upper left and upper right of Figure 1, indicates two different qualitative perspectives. Methods of discourse analysis aim to describe the forms and functions of language, in fact they take into account the qualitative aspects of speech. The latter refers more properly to the qualitative paradigm as such. But before going further in the characterization of quantitative and qualitative paradigms, we must insist on the fundamental difference between the two approaches. While the definition of the quantitative approach is quite simple, .e.g., the use of mathematical and statistical tools in order to describe, explain and predict phenomena through operationalized concepts as meas-

urable variables, the qualitative approach refers to a large number of research practices, such as those listed by Denzin and Lincoln (1994): case study, ethnography, participant observation, phenomenology, ethnomethodology, grounded theory, biographical method, action research, clinical research.

More profoundly, quantitative and qualitative paradigms differ on three levels: epistemological, analytical, and operational. The paradigmatic configurations can vary in different ways according to the ontological positions adopted by researchers, but they generally indicate common positions regarding the task they are given. For the moment, we will not develop further the ontological questions regarding the existence of reality and truth that lies upstream of epistemological positions. These postures, positivist, post-positivist, critical or constructivist give reality a more or less autonomous status. The same can be said about the regime of truth, the degree of relativity increasing, here, on the axis ranging from positivism to constructivism. These postures necessarily influence the various paradigmatic positions.

We will instead concentrate on the analytical and operational plans characterizing both qualitative and quantitative paradigms. These form a series of oppositions that should be thoroughly discussed. But the goal here is to give an overview of the main debates between the two viewpoints. At the epistemological level, three questions arise. The first question regards the viewpoint of the observer: while the quantitative approach adopts a positivist perspective, advocating a measure of distance between the observer and the data and procedural objectivity, the qualitative approach promotes empathy and subjectivity. The second question concerns the capacity for generalization. Quantitative scientists aim at formulating general and universal propositions while the qualitative scientists insist on uniqueness and context. The third question is about the value of truth. Quantitative researchers put forward procedures' validity and observers' neutrality. The qualitative researchers prefer the ideas of transferability and credibility to those of validity and axiological commitment to neutrality.

In analytical terms, quantitative methods proceed to the reduction of complexity while qualitative methods favor its full apprehension. Quantitative oriented scientists promote a deductive approach, at least in the confirmatory phase, while the qualitative researchers support induction or abduction. Moreover, the quantitative analysts encourage width (thin analysis) rather than depth (thick analysis) that characterizes the qualitative approach. Finally, in terms of operations, quantitative research work on variables as qualitative research is more interested in intentional actions. Quantitative research favors measurement rather than focus on qualitative processes. Consequently, quantitative researchers seek confirmatory statistical tests when qualitative researchers employ exploratory procedures. In summary, the purpose of quantitative methods would be causal explanation and that of qualitative methods the understanding of meaning.

The use of mixed methods can be explained by the relative weakening of the paradigmatic oppositions between quantitative and qualitative methods, and the adoption of a more pragmatic attitude. Aware of the variable nature of the data and of their actual availability, researchers have come to use materials or analytical approaches that have previously tended to be opposed. These changes are mostly based on pragmatic arguments: »It

works!« A review of practices in the area of mixed methods shows that there are essentially three arguments to justify these combinations. A first argument can be described as functional. It consists of simply juxtaposing the use of various types of methods according to the needs of the research project and the nature of the data. The choice is up to the researcher to establish the sequence of qualitative and quantitative methods and their relative importance (QUAN > qual, QUAL > quan, QUAN = QUAL) as part of the research process. The second argument is more substantive. It justifies the hybridization of methods according to the nature of data. For example, discourse analysis and content analysis are applied to phenomena including aspects of both qualitative and quantitative nature. The third argument is epistemological. The use of mixed methods is legitimated by the idea of triangulation. Triangulation is seen as a way to increase confidence in the research results. However, we must recognize that the use of the term »triangulation« is mostly metaphorical (Kelle 2001) and does not formally ensure a greater validity, except in the form of convergence or confirmation of findings. In sum, the use of mixed methods only proves that there should not be mutually exclusive types of methods. It seems however insufficient to reduce the issue of mixed methods to their sole effectiveness without trying to understand the implications of epistemological, analytical, and operational oppositions characterizing both qualitative and quantitative paradigms on these new forms of empirical approaches.

4. Explaining and understanding

What can be drawn from the above? On the one hand, we have established that the practice of discourse analysis is at the confluence of several disciplines, themselves, relying on more or less quantitative or qualitative, phenomenological or structural, linguistic or sociological approaches. While each tradition has established itself on epistemological, theoretical, and methodological oppositions with other traditions, we can nevertheless observe a certain convergence in the use of methods as well as the mitigation of previous fractures. On the other hand, the fundamental opposition between qualitative and quantitative methods seems to dissolve in the pragmatic choice of mixed methods. This pragmatism often avoids examination of ontological and epistemological foundations of this practice. This is why we have to question the possible reconciliation of these two so strongly opposed paradigms.

To elucidate this question, it is useful to return to the starting point of the distinction between natural science and humanities as established by Dilthey in the late 19th century. This distinction was built on the contrast between explaining and understanding. According to this view, the natural sciences were entirely dedicated to the identification of causal relationships between phenomenas, while the humanities sought to uncover the meaning of historically situated experiences. It is this design that better differentiates the paradigmatic opposition between quantitative and qualitative methods. But instead, we will rather rely on the assumption of Ricoeur (1981, p. 161) that

»it seems possible to situate explanation and interpretation along a unique her-
meneutical arc and to integrate the opposed attitudes of explanation and under-
standing within an overall conception of reading as the recovery of meaning.«

In fact, Ricoeur defines a hermeneutical arc, from explanation to understanding, that is
to say that the interpretation unfolds in a set of objective procedures for observation, de-
scription, and analysis resulting in the understanding of the research object. Hermeneu-
tics cannot be reduced to the immediate interpretation of the observed reality, as might be
the case for everyday knowledge. In scientific knowledge, the interpretation is necessarily
supported by the mediation of operations that can be named explanatory procedures.

This assumption allows us to reject two common conceptions of interpretation. The first
comes from within the qualitative paradigm where interpretation is often seen as an her-
meneutical comment. One textbook defines qualitative analysis as

»a deliberate and rigorous representation and conscious transposition of the ›self
- other – world‹ system, in order to make a new exploration in the particular per-
spective of the humanities and social sciences, which strive to bring out the sense
rendering it understandable.« (Our translation, Paillé/Mucchielli 2008, p. 24)

The researchers set out to reveal the meaning of speech in context. In fact, they are mostly
interested in the referential function of discourse. But should we not consider that the es-
sence of discourse analysis is to highlight the various linguistic and paralinguistic aspects
of speech whose disclosure is necessary for an overall understanding? Interpretation can
not stand on its own and it requires the work of description and explanation.

The interpretative process's second conception is restricted to the interpretation of
results. In quantitative or qualitative frameworks, the work of interpretation is often lim-
ited in establishing the meaning of the results generated by research operations. It then
maintains the illusion that these operations are absolutely objective until meaning is as-
signed to the results they produce. Such a point of view ignores the importance of inter-
pretive acts that mark each stage of the research process. The projection of a theoretical
framework, the identification of analytical dimensions, the choice of values lent to re-
search objects are all housed in the same interpretive acts within objectification proced-
ures.

What then is interpretation? In the broadest sense, there is a tendency to confuse this
concept with that of understanding or appropriating, for ourselves, the meaning of an ac-
tion, an intention, or a thought. The researcher would then be asked to develop his em-
pathic abilities, which could give him access to the consciousness of the observed subject.
It is true that, at the end of every project, the researcher arrives at a global interpretation
of the observed phenomenon that is somehow detached from observation, description,
and analytical procedures. This holistic interpretation can be seen as an appropriation for
ourselves of the object, the global comprehension of the phenomenon (Duchastel/
Laberge 1999a). But in the context of a scientific process, interpretation must be seen as

the continuous confrontation of the researcher with discursive materiality (Conein et al. 1981) or language materiality (Paveau 2012). For several authors, we find this strong intuition that access to meaning can not dodge the discursive materiality. Pêcheux, and later on Paveau (2012) and Molino (1989), insisted that only the very materiality of speech could render analysis possible. Similarly, Ricoeur (1981, p. 149) speaks of *»the eclipse of the circumstantial world by the quasi-world of texts«* as a condition for reading and interpreting. In sum, hermeneutics as the art of interpretation should be based on a set of procedures for the description, exploration, and analysis of material units of discourse

The intuition behind the project of discourse analysis was, from the outset, to go beyond content analysis and take into account the linguistic dimension of speech. Speech was not to be reduced to its purely linguistic dimensions – lexical or semantic. The hypothesis was to find various traces of discourse functions, such as those developed by Jakobson (1963), in the material fabric of language. This is the case with statement analysis that seeks the inscription of speaker and audience in the thread of discourse. The same is true with the study of markers of argumentation. According to Gee (2011), discourse analysis is about the study of speech on three levels: the analysis of the information it conveys (saying), that of action it raises (doing) and of identity it formulates (being). Each of these dimensions is identifiable only through linguistic forms that make them intelligible. The interpretation must rely on certain classes of observation units and the description of their properties. This process is objectifying as well as interpretative.

If this is true, a restrictive approach of interpretation can not be sustained. Interpretation cannot be limited to the final act of the research process when making sense of results. Rather, interpretation should be present at the very beginning of the research process. Interpretation is part of every research procedures, and all procedures rely on interpretation. This means that explanatory procedures and interpretation go hand in hand and do not oppose each other, as the quarrel of paradigms would suggest. Rather than designing two general paradigms defined by their purpose, explaining or understanding, it is more productive to integrate both actions within a single process. No science can do without a proper pre-comprehension of the object. There is always a knowledge frame, more or less theoretical, which predetermines the grasping of reality. What is sought is to increase this preliminary understanding. Explanation is most often thought of as establishing a relationship between two phenomena. But, it also has a semantic sense. Kaplan (1964) has defined interpretation as a semantical explanation, thus explaining the meaning of a statement. In both cases, the goal is to better understand. The various procedures for observation, description, and analysis of objects are designed to enhance understanding by distancing the object from the subject and by linking the object with the cognitive frameworks at play.

However, we must consider the asymmetry of both processes of explanation and interpretation. While explanatory procedures can be controlled to a certain point, the act of interpretation, even if it is well framed, remains difficult to define. The cognitive capacities of the researcher, semantic, emotional, or cultural, will result in some uncertainty of interpretation. However, it is easier to control the micro level of the interpretive process in various descriptive and analytical procedures than in the overall understanding of a

phenomenon. That is why we distinguish »local interpretations« that can be thought of, if not perfectly controlled, at all stages of the research process and »global interpretations« that bring meaning to the complexity of the object at the expense of an assured mastery of the cognitive processes at work (Duchastel/Laberge 1999a).

5. The problem of complexity

One of the most fundamental criticisms addressed to the quantitative paradigm is its reductive approach to the problem of complexity. On the other hand, the comprehensive paradigm is based on the idea that the full complexity of any phenomena must be preserved. It shows strong resistance to any reduction that may dissipate meaning. Instead, an empathic approach is advocated. But is it possible to grasp an object without reducing its complexity and describing it? Qualitative methods are not exempt from this requirement as they shall, themselves, proceed to the identification of units of varying size (words, textual segments, sentences, paragraphs) to which they affix referential or factual categories. Yet, proponents of the qualitative paradigm insist on the whole rather than the parts.

The question may be ill defined. It is rather more appropriate to distinguish between systematic reduction of complexity and oversimplification. Admittedly, the distinction between in-depth analysis (thick) and wide analysis (thin) remains relevant and it is understandable that the first type embraces more complexity. But in all cases, reducing the phenomenon under study is unavoidable. It is not possible to grasp an object in its totality, if not intuitively. Thus we need to temporarily neglect some of its components to retain only a few. Ricoeur (1986) explains that discourse analysis can be only done through the mediation of the text. This methodical act of concealing the complexity of the social conditions of discourse, allows the proper identification of textual materiality, and the observation of its properties and relationships. Such mixed interpretative and explanatory procedures will progressively lead to a more comprehensive understanding at the very end of the research process.

We see the process of understanding as a spiral formed by overlapping circles each having a point of origin based on a prior understanding of the object and an endpoint defined as the enriched understanding of the same object. Between these two points, there is a set of operations of construction, description, and analysis involving both explanation and interpretation procedures. These procedures are formed by the identification of dimensions and units, the description of units based on conceptual dimensions, and the exploration of their relationship. All these operations can be performed only on a well-defined materiality. This materiality is that of the text and the text is the main trace of the speech situation. The text is thus some reduction of the situated discourse. It is not possible to carry out the analysis without the use of a textual support, in contrast to mundane understanding in everyday life.

The transformation of the text over the course of research will show how a dual process of reduction and recovery of complexity operates. Figure 2 shows the various stages
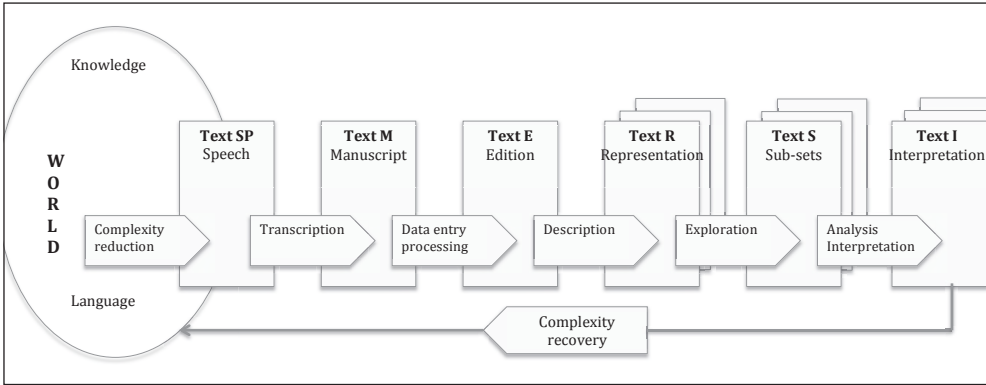
Figure 2: Transformation of the text

in the transformation of the text with each specific methodical operations of discourse analysis. The initial form of the text is speech itself. It consists of the raw material on which we will perform various research operations. The »speech« text is the starting point, a complex object produced within a socio-historical, cultural, cognitive and linguistic context, and a specific communication situation. The first transformation is to establish a »manuscript« text. Initially, we may have a spoken or written speech, already in the form of a text. In the case of written speech, we then must select and authenticate a version of the speech that will become a text »outside of the world«, in the words of Ricoeur. In the case of oral discourse, we first proceed to its transcription. Oral discourse includes a set of prosodic and contextual features that can be recorded in a more or less developed format using established conventions. The »manuscript« text is an object both different and less complex than the original, in the sense that the conditions and context of its production and enunciation are no more present otherwise than within the text itself.

The next transformation will produce an »edited« text. Whatever the characterization of the manuscripts, transcripts of oral, in paper or computerized format, standardization and normalization work must be done in order to make the various elements of a corpus comparable. Information about the conditions of production of speech and of enunciation (speaker, support, place, time, etc.) must define each document of a corpus. We get a new »edited« text which will be subsequently the object of description, exploration and analysis. In summary, the »manuscript« text is a derivation of the original discourse whose version has been established by authentication or transcription and the edited text is, in turn, the result of standardization and indexation according to a system of rules and descriptive categories. It is on the basis of this »edited« text that the work of description, exploration, and analysis can be further performed.

Which actions should then be performed on this textual material? We can define two universal research operations whatever the approach. The first task is to establish the observation units: What is to be observed? The second task consists of the description of these units based on one or more systems of categories: How is it to be observed? Obser-

vation units can be represented as a set of nested elements, from the global corpus to the sub-corpora, to the collection of texts that constitute each of them, to the various parts of each text, and finally to the middle- and micro-level text units. Each nesting level of units may be described into a system of categories. The corpus itself and its subsets are indexed with a metadata system. Every text component (section, paragraph, verbal exchanges, etc.) can be marked. Finally, speech units (textual segments, turns of speech, sentences, words) are coded depending on the research target (e.g., morphosyntactic, semantic, pragmatic, enunciative, argumentative coding). Thus, the descriptive system unfolds at three levels: The corpus is described by meta-categories, the parts of text are described by structural variables, and the speech units are described by a variety of properties associated with the research design. Arguably, the »edited« text is actually transformed into a series of »representations«, in the sense that the text is now enriched with descriptions, and in some way, a form of complexity is partially restored. It represents, however, multiple images of the original text, but in no way corresponds fully to the context of its utterance.

All text descriptions can be sorted and compiled. They may or may not be the subject of counts, crossovers, comparisons based on various segments established on the basis of metadata or structural variables. Each data mining operations described will result in the production of many new texts in the form of comments or numerical results. Each of these sub-texts will only be a distant image of the original text. It is the accumulation of these images which will allow further exploration of the original speech and lead to the interpretation of the data, producing a new transformation of the text in the form of »interpretation«. The interpretation of the results can be partial or global, depending on whether we choose to interpret the empirical data produced by different sets of explorations or we attempt to give an overall sense of the whole data. Global interpretation will then mobilize much more than methodological devices. Theoretical and socio-historical knowledge are needed to restore the full complexity of discourse in action. The final form of the text is a new text, the »interpretation« text taking the form of an article or monograph aiming at the increased understanding of the phenomenon being studied.

This more or less metaphorical representation of a succession of states of the text goes to show that speech can only be grasped in the form of its textual materiality which must be later subjected to methodical operations. From this point of view, it does not seem appropriate to distinguish between quantitative and qualitative methods. On the epistemological level, it is not productive to oppose complexity and simplicity. We have seen that understanding and explanation should form an hermeneutical arc. Any methodological approach necessarily implies a reduction of the object allowing some objectification of data. As we saw earlier, this process involves both operations of explanation and interpretation. These operations ultimately lead to the formulation of interpretative hypotheses that allow for the appropriation of the object for ourselves, that is to say, its understanding.

6. Causality and measurement in discourse analysis

We have tried so far to show how discourse analysis is, as its name suggests, a practice that focuses on the discursive materiality and implements systematic operations, both explanatory and interpretative. We have challenged the strict opposition between the qualitative and quantitative paradigms while recognizing the existence of distinctive practices concerned with quantitative or qualitative aspects of phenomena. The paradigmatic opposition between qualitative and quantitative approaches emphasizes two distinct criteria. As we have pointed out, the quantitative approach would favor measurement and causal explanation, and the qualitative approach would rather choose the global understanding of phenomena. To be convinced of the compatibility of the two approaches, it is useful to examine the presence of causal reasoning in the practice of discourse analysis and the relevance of measuring as an operation favoring at the same time reduction and restoration of complexity. We will attempt to illustrate how causal explanation and measurement have their place in the qualitative approach.

With regard to causation, we refer to Tacq's proposal (2010) that causal reasoning is present in both quantitative and qualitative research. He gives an overview of different theories of causality in the social sciences to stress the idea of an experimental logic present in both approaches. He starts from the premise that in science, the causal relationship is rarely apprehended directly, but rather is considered in an indirect way, a sort of encirclement process. Thus, science most often uses probabilistic or statistical approaches to examine the necessary and sufficient conditions explaining a phenomenon, without being able to establish a direct causal link between phenomena. To support his conception of experimental logic, Tacq relies on the INUS model *(Insufficient but Necessary part of a set, which is Unnecessary but Sufficient for the Result,* Mackie 1974), which bases the nature of reasoning on all the conditions making possible the occurrence of an event.

According to the INUS model, an event may be the product of a necessary condition but insufficient in general, while being sufficient although not necessary under the circumstances. Tacq gives the following example: Experts may say that fire is the result of a short circuit. The cause can not be declared necessary because other factors could cause fire. It can not be declared sufficient since other conditions may contribute to the spread of fire. All we can say is that, combined with the short circuit, there is a set of positive or negative conditions that are sufficient without being necessary to trigger the fire. It is a counterfactual argument that questions the possibility of the occurrence of an event in the absence of an identified causal factor. The perspective is that of a causal field rather than a logical causation. According to the author, this type of reasoning is widely used in experimental research. But it is surely the kind of logic that is applied in qualitative research.

To support his thesis, Tacq responds to the main arguments that aim at distinguishing qualitative and quantitative approaches. The first argument pertains to the measurement scales, nominal, ordinal, interval and metric. The first two levels, nominal and ordinal, would characterize the qualitative approach, allowing limited mathematical operations, thus excluding the causal logic implied by quantitative models. While mathematical ope-

rations vary depending on the nature of the variables, it does not follow that the causal logic is *de facto* excluded. The second argument is based on the difference in sample size between the qualitative and quantitative approaches. In extreme cases, qualitative studies will apply to a single case, making causal analysis improbable. Tacq notes that there are few objective criteria for determining the minimum sample size and even the analysis of a single case can make sense, provided it is placed in relation with other single-case studies. The analysis of complex necessary and sufficient conditions is still possible by the counterfactual examination of these conditions. The third argument regards the possibility of statistical tests. Obviously, the power of statistical tests varies greatly depending on the sample size. However, there are a variety of tests that have been produced to validate the results of small samples, and comparison of data with data obtained in other studies is, in itself, a kind of test, even if not statistical. The last argument pertains to the difference between thin and thick analysis. Again, there is no doubt that in-depth analysis multiplies the dimensions of the object that can be observed, while the analysis in width multiplies the number of individuals observed for a limited number of dimensions. This should not, however, change the argument, especially as there is no reason not to combine qualitative and quantitative procedures at various stages of the research process.

The author comes to the conclusion that if we use the counterfactual and conditional approach of INUS's model and the method of difference at the base of the experimental approach as formulated by John Stuart Mill, there is no principled difference between quantitative and qualitative methods in terms of causal reasoning.

We will conclude by showing that the use of measurement is not inconsistent with a qualitative approach. If one refers to the qualitative paradigm, measurement is conceived as a distortion of the research object and would constitute a misleading and unnecessary analysis, precisely because it reduces complexity. However, measurement is one of the research operations that allows at the same time a reduction of the dimensions under study and possibly the production of another order of complexity. We retain the definition proposed by Kaplan (1964, p. 177): »Measurement, in the most general terms, can be regarded as the assignment of numbers to objects, (or events or situations) in accord with some rule.« The properties of the object and their measurability do not exist independently of a theory. The qualitative or quantitative representation of an object depends on the choice of a system of symbolic representation. In the words of Kaplan, »quantities are of qualities and a measured quality *has* just the magnitude expressed in its measure« (1964, p. 207). In sum, measure can be applied at various levels of construction of the object. First, it can be applied to any object with an independent material existence, regardless of its nature, size and complexity, such as individuals, world objects, texts, statements, events. Second, it can be applied to segments or properties of these objects not directly accessible to observation, but arising from research work. Third, the measure may even extend to intangible objects that exist through the work of the mind. This last kind of objects might be a social production (success, wealth, popularity. etc. ...) or the product of disciplinary knowledge (anomie, social relativism, creativity, etc. ...).

To resume our earlier discussion, the measuring may indeed appear to be a reduction of information. In the different phases leading to measurement, only certain attributes

are deemed relevant to the process. It implies that we waiver the diversity of concrete manifestations, physical or imagined, of one's research object. This work of abstraction is present in both qualitative and quantitative approaches. It is reflected in the operations of description and categorization of the chosen units. Categorization consists in a double reduction of the object by identifying a particular aspect of the object and allocating an abstract value that can represent it. Giving values to units and their properties follows previous work of reduction and abstraction of the object's dimensions. In return, measurement may also help restore complexity. It can indeed be a powerful heuristic strategy to rebuild complex representations of aspects or attributes postulated in theory. For example, the construction of indices to represent a concept by adding and weighting indicators leads to the emergence of a form of complexity non-apparent at the starting point. In the same fashion, multidimensional statistical analysis produces information that was not there from the start.

Discourse analysis is a good example for the use of measurement as part of a mixed methods approach. The different operations of description and analysis of discourse data show that measurement can contribute both to the abstraction of specific dimensions of the object and to the restoration of complexity. Analysis relies on the capacity to identify series of discrete speech units (words, semantically meaningful phrases, broader textual segments, etc.) and to determine a system of categorization (semantic, sociological, argumentative, pragmatic, enunciative, etc.). The researcher remains free to determine if he will take into account only the units, whatever the type, or if he is interested in their properties. Counting these objects will only give a partial view of the whole. For example, we could learn about the proportion of nouns belonging to a semantic class, the dominant premises of an argument, the relative importance of certain enunciative markers in a political speech, the frequency of speech turns in a conversation, etc. Thus one can speak of a reductive reading manifested both by a certain selection of aspects of the text and its representation in a measurement system. But it is also possible to speak of a more complex representation of the text by the multiplication of observations and accumulated elements measured. The accumulation of observations and measurements can lead to the construction of indices or increase the size of the analysis. Measurement is then one of the operations available in discourse analysis. It is not inherently incompatible with the qualitative approach.

7. Conclusion

We have shown that discourse analysis is not a discipline but a research practice that is at the confluence of a set of disciplinary and national traditions. The rich heritage of disciplinary, theoretical and methodological knowledge explains the privileged position of discourse analysis. The very purpose of discourse analysis predisposes it to stay at the frontier of different methodological approaches which might be called mixed methods. We have shown that the paradigmatic oppositions between qualitative and quantitative approaches, although strongly advocated in the body of scientific literature, have become

obsolete in the pragmatic use of mixed methods. We went beyond this pragmatic attitude to defend the thesis that there is indeed a common background in all methodologies, whatever their paradigmatic affiliation. We have shown that we can not explain without interpreting at the same time, and that the very identification of research units and operations of description and analysis combines, at all times, explanation and interpretation. We further stated that scientific knowledge can not proceed without applying some reduction procedures, but that the combination of these procedures can lead to a restoration of the complexity of the object. We ended by showing that the logic of causality and measurement, seemingly opposed to the qualitative paradigm, applies to both qualitative and quantitative approaches.

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