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CHAPTER

23 Correspondence Analysis and Bourdieu's Approach to Statistics: Using Correspondence Analysis within Field Theory 3

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Abstract

Chapter abstract

Since the mid-1970s, Bourdieu used multiple correspondence analysis (MCA) on a regular basis in order to construct fields and social spaces. After having been long neglected, this part of his work has spurred a new interest for some years. This chapter aims to highlight the very original and rich thought that lies behind Bourdieu's use of MCA, but which can lead to misunderstandings. The chapter emphasizes three main points: the specific (French) sociological tradition in which Bourdieu's statistical practices were rooted; the importance of the stage that consists in establishing the data to construct social spaces in an adequate way; and the dialectic relation between the thinking in terms of field and the use of MCA.

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IN the 1970s, at a time when the aim of formulating a "theory of fields" was increasingly explicit in his work, Bourdieu began to use multiple correspondence analysis (MCA) on a regular basis. This statistical technique is applied to large tables that provide information about a range of characteristics, in the form of quantitative variables, for a population of "statistical individuals." It produces graphs that, to put it simply, summarize these tables. Bourdieu used these to study the structure of fields and social spaces. His first use of the MCA method was in an article that constituted the first publication of certain chapters of *Distinction*. He used it again, and throughout his life, in a range of other publications (Bourdieu and de Saint-Martin 1978; 1988 [1984]; 1996 [1989]; 2008 [1999]; 2005 [2000]). In addition, some 20 articles using MCA

appeared in the journal "Actes de la recherché en sciences sociales" he edited that included visual representations of fields or social space.

These uses of MCA long remained unnoticed outside France, and the technique itself was not well known. It had been developed in the 1960s and 1970s by the French School for Data Analysis associated with Jean-Paul Benzécri, who was rather critical of the dominant statistical practices based on modeling (Van Meter and al. 1994). It is only in the past 15 years that MCA in general and its use by Bourdieu in particular have aroused genuine interest at the international level. The publications of Henry Rouanet and Brigitte Le Roux have clearly played a role here. The two French mathematicians have been active in familiarizing researchers in the social sciences with the "geometrical analysis of data" to which MCA is central (Le Roux and Rouanet 2004, 2010). They also countered the prejudice of statisticians by demonstrating that, on one hand, p. 513 Bourdieu's use of MCA—such as in *Distinction*—was based on a solid and inventive $\, \downarrow \,$ intuition concerning mathematical methods (Rouanet et al. 2000). On the other hand, they showed that the technique can compete with the best-known statistical techniques, in particular with regression analysis, which is generally granted (albeit too hastily) a monopoly over the tasks of "explanation" and "inference" (Rouanet et al. 2002). The increasingly widespread knowledge of Bourdieu's sociology is another factor in the growing prominence of MCA. In particular, since the beginning of the twenty-first century, researchers in various countries have attempted to reproduce the procedures that Bourdieu implemented for France in the construction of social space, the space of lifestyles, and the scope of authority. However, while the use of MCA has become more widespread and increasingly international in nature, it is perhaps less varied today than it was in France during Bourdieu's lifetime. Furthermore, the researchers who adopt this tool stress the difficulties of replicating the operations carried out by Bourdieu who, doubtless mistrusting purely methodological discourse, never really devoted an explicit text to presenting the MCA and the uses he made of it.²

This chapter reviews the use of MCA in the analysis of the fields, its meaning and the processes it implies, the construction of the data, and the interpretation of the graphic representations. The aim is to clarify some points in the legacy left by Bourdieu, but also to outline a perspective for the coming years. Interest in MCA and its use by Bourdieu has encountered a number of contradictory forms of resistance among sociologists. On one hand, those researchers who are the most skeptical when confronted with quantitative techniques sometimes see in MCA a new (and misleading) resort to statistical argument, a support—sophisticated but without any real demonstrative value—for the researcher's own a priori representation of the field being studied. On the other hand, the practitioners of competing statistical techniques have sometimes explicitly reduced MCA to a second-class tool, one much less capable than theirs of enabling sociology to attain the level of mathematization of disciplines like economics or, a fortiori, physics. As their practices are highly standardized, they can also pinpoint the liberties taken by the analysts of fields, for example when they construct statistical populations on principles other than that of the "representative sample," or when in the analysis of the findings they mobilize "qualitative" empirical materials, such as interviews; in these instances, numerous "quantitative" publications would be restricted to the exploitation of a database that is presumed to be self-sufficient.

These criticisms have little regard for the considerable thought that lay behind Bourdieu's use of MCA. At an early date, Bourdieu attempted to develop a use for statistics in keeping with the relational (or structural) social science that he encouraged, and his use of MCA is part of this approach. MCA seemed to him to be much closer to a structuralist form of thought than the techniques imported from the experimental sciences, which aimed at measuring "specific effects" precisely by neutralizing "structural effects." His use of MCA is an integral part of his continuous reflection on the notion of field. Furthermore, it should be viewed as an attempt to escape from the two dominant positions around which, in an "all-or-nothing" perspective, discussion about statistics in the social sciences tends to be organized. Either statistical tools are considered to be all powerful, and it is assumed that the social sciences can (and should) follow the path

of L mathematical modeling similar to the natural sciences, or the specificity of the humanities should be borne in mind and the focus is on the poverty of statistical approaches in these disciplines. Bourdieu maintained that both of these antagonistic positions were open to criticism, and he endeavored to improve on them by building on a tradition that originated in sociology and that is perhaps rather specifically French.

Statistics and the Social Sciences

The history of correspondence analysis in the context of Bourdieu's relational sociology does not begin with the publication, in the mid-1970s, of the first MCAs in *Actes de la recherche en sciences sociales* (Desrosières 2008; de Saint-Martin 2014), nor even with the first uses, in the 1960s, of factorial analysis in the research in the Centre de Sociologie Européenne. The uses of MCA bear the stamp of the practices and thinking that Bourdieu developed as early as his surveys in Algeria—in which statisticians participated—an endeavor that was, from the outset, highly critical of the "statistical sociology" that Paul F. Lazarsfeld had developed in Columbia and which at the time was being set up, in Michael Pollak's words, as a "scientific multinational" (Pollak 1979).

Paul Lazarsfeld played an important role in the making of a form of "quantitative" sociology that today is well regarded at the international level (Christin and Ollion 2012). A mathematician by training, Lazarsfeld wished to promote "mathematical thinking," which alone, in his eyes, could ensure sociology the respect of the older sciences. In contrast with the researchers of ensuing generations, he did not entirely avoid so-called qualitative techniques, but he confined these to the exploratory stages of the research or reduced them to the status of "quasi-statistics." Lazarsfeld proposed highly standardized procedures. He believed that sociology should break with general questions originating in the social philosophy of the nineteenth century and content itself instead with providing answers to modest questions on the basis of questionnaire surveys analyzed with statistical tools—the main aim being to reveal relations between variables and to constructs scales or indices.

While Bourdieu did acknowledge "the important contribution which [he has] made to the rationalization of sociological practice" (1991 [1968]: 2), he accused Lazarsfeld, among other things, of having "set up as the norm of all scientific practice a methodology of resentment" (Bourdieu 2010 [1979]: 513). From the outset, he distanced himself from Lazarsfeld (Bourdieu 2008 [2004]: 72-75), if only by positing, as early as Travail et travailleurs en Algérie, the necessary complementarity of methods. This enabled him to develop affinities with sociologists in the United States who differed from Lazarsfeld, either because they judged the findings of his method to be poor, considering that it mimicked the natural sciences, or that it deprived sociology of its historical, theoretical, and critical dimensions (Cicourel 1964; Mills 1959; Sorokin 1956). But whereas the ethno-methodologists, for example, rejected all statistical methods en masse, Bourdieu began to compete p. 515 with Lazarsfeld on the same grounds as the latter—statistical sophistication. 4 (The mathematical model of the number of visitors to museums in L'Amour de l'art is the best example of this.) He never departed from this position of uniting approaches that to many appeared irreconcilable. The introduction to Homo Academicus, which deals with the question of objectivation by turning explicitly to the statistical operations carried out in the text, in particular the use of MCA in the academic sphere, demonstrates this. Here Bourdieu raises questions about the construction of statistical indicators—on which Lazarsfeld's (1958) frequently cited text about the transformation of concepts into indexes remains a reference—combined with considerations about categorization opened up by ethnomethodology, sometimes in a very explicit criticism of the same text by Lazarsfeld (Cicourel 1964: 14).

But Bourdieu's relation to statistics must also be set in a rich and long-standing French tradition that has too often been obscured. At the same time, he revived it, updated it, and considerably enriched it. One of its

earliest manifestations was in the work of Auguste Comte, who had already been critical of the uncontrolled use of mathematics in the social sciences (Heilbron 1995: 220–224), although the tradition experienced its landmark moment during the interwar period, particularly with the Durkheimian school of sociologists, like Simiand and Halbwachs. The latter credited statistics with a unique power of objectivation; Halbwachs, for example, maintained that the development of statistics in the nineteenth century had played an originating role in scientific sociology, comparable to that of the telescope in the Copernican revolution (Halbwachs 1978 [1930]: 3). At the same time, the Durkheimian school started a highly critical analysis of the uses to which statistics were starting to be put in demography and, already, in economics.

Their distrust of "statistical abstraction" was part of a more general reservation concerning deductive methods. They contrasted these with a "positive," "objective" science, which respected "the very articulations of reality" (Simiand 1922: 29); here implementation was based on a principle of "conformity with the object," not "the mind of the operator" (Simiand, 1932: 14). In their opinion, "pure" demography and political economy were being engulfed by a purely logical rigor, which belonged to a priori reasoning and the statistical tools that it brought into play, but rarely to the social phenomena which it sought to understand. For example, they detected "statistical abstraction" in certain arguments *ceteris paribus*, in the aggregates constructed on the basis of drawing lots (they argued that social groups were not random groups), and in arithmetical criteria with no relationship to "real social divisions."

If Bourdieu in the 1960s revived aspects of Durkheim's venture, he did so in particular by pursuing this very specific relationship to statistics⁵ in a new context—one in which the United States played a growing role in the social sciences, and where statistical sociology, along with econometrics, was developing. He was very aware of the power of statistics to objectify, but he was also very aware of the risks to which they exposed researchers, in particular that of taking "the things of logic for the logic of things" ("the statistical abstraction" that the Durkheimian school warned against is, in one sense, merely a special form of what Pierre Bourdieu termed, more generally, "the scholastic bias"). The use of correspondences made by the theory of fields is inseparable from this interest in statistics, mingled with a concern for the risks involved.

The Construction of the Data

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The full use of the tools of MCA means, first, that once again the construction of data is of crucial importance in the statistical task. Two other students of Durkheim, Fauconnet and Mauss, noted how necessary it was to undertake a critical examination of the origin and principles of the constitution of the data in question each time one resorted to existing statistical resources. This examination was strictly comparable in intention, if not in form, to that demanded by historical or ethnographical documents (Fauconnet and Mauss 2005 [1901]). *Le Métier de sociologue*, for its part, reminded readers that the secondary use of data (on which a large number of statistical studies in the social sciences are based today) is never more than a second-best approach; "even the richest of data can never fully and adequately answer questions for which, and by which, they were not constructed" (Bourdieu and al. 1991 [1968]: 36).

The use of MCA to construct a field does presume, in most instances, the availability of primary data that can bring together all the relevant information (Hjellbrekke and Korsnes 2009; Rosenlund 2014). The space of lifestyles could not have been constructed with such a degree of refinement on the basis of an existing survey; it demanded a questionnaire conceived by the researchers and implying, at the drafting stage, a fairly advanced intuition of the principles structuring the space. The same stringency concerning primary data explains why the spread of MCA in the theory of fields went hand in hand, in sociology, with the prosopographic methods developed by historians, and which can, when the administration of questionnaires is impossible, provide a substitute (at least in the sense that they enable the collection of

information—not by the direct examination of surveys, but by the simultaneous use of different sources—information that is nowhere centralized in any existing source) (Charle 2001; Stone, 1971).

Whatever the means used, the data collection is a crucial preliminary stage in the use of MCA in the construction of a field. It represents a costly investment in time, which benefits from being organized jointly, but is also productive and creative. Bourdieu could even invite any researcher studying a field, quite independently of the MCA perspective,

to use this very simple and convenient instrument of construction of the object: the *chi-square-table of the pertinent properties of a set of agents or institutions*. If, for example, my task is to analyze various combat sports (wrestling, judo, aikido, boxing, etc.), or different institutions of higher learning, or different Parisian newspapers, I will enter each of these institutions on a line and I will create a new column each time I discover a property necessary to characterize one of them; [. . .] Then I will pick out redundancies and eliminate columns devoted to structurally or functionally equivalent traits so as to retain those traits—and only those traits—that are capable of discriminating between the different institutions and are thereby analytically relevant. (Bourdieu and Wacquant 1992: 230)

p. 517 The construction of this chi-square-table is an important stage in the analysis of a field, not least because of the questions that are necessarily posed. The creation of "columns" leads us in particular to consider which properties are effective in the field. For example, when one is interested in the world of economics, should one take into consideration trade union functions or well-known religious affiliations? (Lebaron 1997: 6). The construction of the table also obliges us to set out and specify notions imported from analyses concerning other fields. In the case of spaces of cultural production, for example, we have to find the indicators of "symbolic capital" that peers valorize and struggle over (to a greater or lesser extent, depending on the field being examined) to their temporal advantage, and which is usually not objectively visible. The preparation of the table also gives rise to the question of the field's spatial boundaries and forces us to formulate a position on the sub-spaces, which could be ignored until the researcher is confronted with the need to define a population empirically; for example, in the case of the "cinematographic field" in France, there are television films, experimental films, pornographic cinema, and so on (Duval 2006).

As many researchers engage in the secondary analysis of data, the data construction process may paradoxically appear to be flawed. This is one of the origins of the suspicion sometimes associated with correspondence analysis: the structures revealed by MCA are said to be of low demonstrative value because they necessarily bear the stamp of the subjective choices made by the researcher during the data construction phase. In fact, in geometrical terms, MCA marks only a change of reference point; it provides only a "summary" of the table submitted to it. It therefore cannot show anything other than the information inserted in the table prior to the analysis. Its findings, however, are not a mere restitution of the choices made in the construction of the data. In fact, MCA has a certain power of disclosure, even for the researcher who developed the table—for example, by revealing distances or, inversely, proximities between individuals and forms that are not, or not exactly, those which one might expect. Thus, MCA can remind us that two individuals or two groups, which the commonplace logic of "small differences" leads us to perceive as competitors, or even adversaries, opposed in all ways, have almost the same structural properties, or that two resources which a priori appear to be mutually exclusive tend to be distributed in the same way in the population under consideration.

Furthermore, the researcher who assembles the "data" required for the construction of a field is in a better position than anyone else to know just how decisive and delicate is the choice of population and variables. The researcher has to make multiple decisions before retaining or excluding a specific property or group. Some of these decisions refer to questions that cannot be fully answered by the theory of fields. It is not

possible to make better informed choices about the choice of the population and the variables in relation to a sort of ideal selection since fields cannot be considered analogous to a pack of playing cards, given that the number of players and the value of the cards, instead of being fixed by convention, are themselves an issue (Bourdieu and Wacquant 1992: 108). It is permissible to think that for a given field there are different possible selections, both convergent and complementary (Verger 1991: 14), and that the researcher is faced with two types of decision. Some speak for themselves, as if under the effect of the objectivity of the field p. 518 (e.g., 🖟 it would not be reasonable to construct the field of journalism without including CNN). Others are less obvious, but it is possible, when implementing the MCA technique, to evaluate the effects they are likely to produce on the findings of the analysis.

This practice of MCA contrasts with an approach that consists in formulating hypotheses that are "tested" by confronting them with data from preexisting sources, which are presumed (somewhat hastily) to be outside any hypothesis, and, in any event, free from any mark of the researcher's subjectivity. But the argument which asserts that the findings of an MCA only show the data which have been submitted to statistical analysis is merely a reminder of an elementary truth, valid for all statistical techniques: "la statistique ne saurait révéler d'autres rapports que ceux qu'on lui fait chercher" (Bourdieu and al. 1963: 10).

The Durkheimian school had already noted that all statistical work tended to be circular in nature, and while they maintained that statistics were an unrivaled contribution to the knowledge of social groups, they also believed, paradoxically, that their implementation presumed prior knowledge of the groups themselves—otherwise groups might be constituted on arbitrary criteria, without "a sufficient correspondence with reality (or) objective basis" (Simiand 1922: 33–34). The statistical construction of a field brings us back to this same circularity, and while Maurice Halbwachs spoke of a "vicious circle" (Halbwachs 1938: 332), Bourdieu, referring to the statistical construction of fields, spoke of "circular logic" ("the data produced to validate a proposed model are a product of the data construction implied in that model"; Bourdieu 1996 [1989]: 132) or "a sort of hermeneutic circle" ("to construct the field, one must identify the forms of specific capital that operate within it, and to construct the forms of specific capital one must know the specific logic of the field"; Bourdieu and Wacquant 1992: 108).

The MCA is not a magic wand. The structure of a field can only emerge from a set of data specially constructed for this end, and with prior reference to the concept of field. Thus, the efficient agents in a field being those who concentrate its efficient properties, the choice of population and the selection of the variables are interdependent operations. The criteria guiding the definition of the statistical population are the respective weights of the individuals in the field (Bourdieu 2005 [2000]: 99). It is not a question, as is the case in many statistical studies, of constituting a representative sample on the basis of a parent population in which all the individuals have the same probability of being chosen. Defining the population already involves implementing the theory of fields, which explains Bourdieu's tendency to stress the "highly theoretical" nature of the statistical tasks often considered to be subordinate or routine (Bourdieu and de Saint-Martin 1978: 8). The approach implies a fairly systematic reassessment of statistical habits that are always likely to reassert themselves or return to the fore. What Bourdieu called "a structural approach to statistics" demands constant vigilance.

The Visualization of Fields

The analysis of fields pays particular attention to the graphs that the analysis of the correspondences produces. There again we see a concern shared with the Durkheimian \$\psi\$ school of sociologists, who tended to prefer "graphic statistics" to statistics using numbers and tables, because the graphics seemed to them to be "simpler and more instructive" (Halbwachs and Sauvy 2005: 374). In this connection, Michel Gollac (2005) relates Bourdieu's interest in correspondence analysis, particularly its graphic and geometric dimensions, to his general concern in countering the feeling of unreality inherent in scientific discourse.

First, what the theory of fields sought in MCA was the ability of statistics to give concrete shape to phenomena or structures that were almost imperceptible in everyday life, but which were fundamental to scientific construction. Durkheim found in the suicide rate and its regularities, which were imperceptible to the naked eye, the expression of a "social element" that constituted both the justification and the key tool for a sociological analysis (Durkheim 1979 [1897]: 41–57; Baudelot and Establet 1990). The use of MCA in the theory of fields brings to mind this pioneering work in statistics. The most spectacular contribution of MCA's graphical representations is indeed to help us identify the "hidden structures" constituted by fields. Comparable in some respects to a "geographical map" (Bourdieu 2010 [1979]: 165), they enable the visualization of structures that are never totally visible in daily social life. They also show, very succinctly, relationships between properties and groups that are complex and difficult to express in words (Gollac 2005: 59). They help create awareness of the system of relationships linking the variables, which often make it difficult to evaluate the specific effects of any single variable (Champagne 2002: 277–326).

The graphical representations are an invitation to analyze the interrelations among the field's inhabitants. The distance from the origin of the axes to the points representing a statistical individual (itself constituted by the modalities of the active qualitative variables) is a visual representation of a distance from the average. The rarest properties tend to be located at the extremities of the axes, and to be highly instrumental in the formation of the latter, reminding us—perhaps in the absence of any evaluation—of the distinctive value assigned to them by sociology. The position of the modality associated with a piece of music, for example, in the graphical representations in *Distinction*, can be interpreted in relation to other modalities of the same variable distributed throughout the whole space (the center of the axes is the weighted barycenter of the modalities of a same variable) or in relation to the modalities of the other variables that are located nearby and that refer to tastes with which, as a result of the coherency of the habitus, preference for this piece of music tends to present a certain "family resemblance." Combinations of modalities also enable the construction of ideal types of major families of taste, and *Homo Academicus* uses MCA to construct "the choice of the individual most saturated with the typical properties"—by identifying, for example, Claude Lévi-Strauss as "an example of the constructed class of 'great masters'" in the academic field for the period examined in the survey (Bourdieu 1988 [1984]: 283).

MCA identifies the factors or synthetic axes that express the most powerful principles structuring the data. In the analysis of fields, these factors often refer to the volume, structure, or relative age of the capital. Individuals and properties are distributed in the space structured by these axes, forming opposing poles with respect to some factors and being closer together with respect to others, and which, depending on the situation, be may be fairly separate from one another or linked by *continuums* of positions. These distributions in statistical space lead us to consider the various principles of ranking that organize the field, and the degree to which they are antagonistic or to which they duplicate one another. In the first factorial plane, which is usually organized around an axis referring to the volume of capital and the other to its structure, the cloud of dots tends to take a few typical shapes. The dots may form clusters scattered in different corners of the space. They may also form a triangular shape or a parabola. The first case leads us to question the inclusion in the same field of sub–groups of individuals who perhaps only allow themselves to be represented by distinct clusters because they have very little in common. The second configuration may

be the indication of a chiasmatic structure, which, on the contrary, a parabolic distribution would tend to call into question. Over and above these considerations concerning the shape of the clouds and the structure of the spaces, one is led to consider the degree of a field's relative autonomy.

Within the space, our attention may be drawn to sub-fields. The first correspondence analysis in *La Noblesse d'État*, which focuses on the space of the institutions in higher education, valorizes a sub-space—the world specific to the *grandes écoles*, which gives rise to a second statistical analysis. Performed on a more homogeneous population, it reveals differences that at the outset were less visible or were obscured (Bourdieu 1996 [1989]: 154–161). These microcosms may be sub-fields that invoke the slightly "fractal" or "nested" nature of the fields and which reproduce the broader field that includes the whole range. They may also be located at the intersection of various fields. The "class specific analysis" (Le Roux and Rouanet 2010: 64–67) that has developed in recent years in the context of the geometric analysis of data is a tool that helps explore these different hypotheses.

Without making a comprehensive inventory here of the geometrical properties of the correspondences exploited by the theory of fields, mention must be made of the contribution of "post-factorial analyses" with respect to the homology between fields and the relation between positions and position-taking. Distinction constructs lifestyle spaces without involving, among the active variables, any of the properties (level of education, age, income, socio-professional category, etc.) likely to determine the position in social space or in a social class. These variables only intervene in the second phase, when they are projected as additional elements onto the lifestyles space; for example, "commercial employers" tend to constitute a cloud of points concentrated in the region in which the "bourgeois" lifestyle had been identified. More generally, when the representation of the dominant class structure is superimposed on the space of dominant taste, they correspond very closely. These facts reinforce not only the hypotheses relating to the share that lifestyle occupies in class membership, but also the homology linking the spaces of cultural production and the spaces shaped by their priority "consumers" (Rouanet et al. 2000). Subsequently, many analyses have employed a similar approach. In Homo Academicus, once the space of academic positions has been constructed, the informed reader is invited to project onto the graph the positions adopted by academics in May 1968. In the study of the field of housing policy (Bourdieu 2005 [2000]: 89–125), once p. 521 this field has been constructed, it appears that supporters and opponents of reform tend 4 to be recruited at opposite poles of the space. Similarly, it has even been argued that the principle of the positions taken by writers under the Occupation depended considerably on their positions in the literary world, or that the positions adopted by economists in the economic climate of strikes in 1995 in France could be predicted on the basis of their positions in the field of academic discourse concerning the economy (Lebaron 1997; Sapiro 2014 [1996]: 565-566).

While it is important to highlight the contribution of correspondence analysis to the analysis of fields, it is equally important to point out its limits. The statistical approach can help, for example, to establish relations of homology, but it does not really explain the mechanisms through which these relations are implemented. This point brings us back to the long-standing distinction between correlations revealed by statistics and the questions of causality that concern the statistical sciences, and which may require resort to other methods. Similarly, while MCA helps us think through the autonomy of a field, it is not certain that it genuinely enables its measurement, at least in numerical form.

The Limits of Mathematization

In fact, the use of correspondence analysis in the context of the theory of fields implies a set of methodological requirements that, once again, remind us of the Durkheimian school. The findings of MCA, and their graphics, can in no way be reified. When confronted with them, researchers should be reminded of the difficulties encountered in the construction of data, the compromises that had to be resolved, for example, because of the material or social impossibility of getting information about a specific indicator which would, ideally, have been required. It must be borne in mind, in the case of Dirkx's (1999) MCA of the field of publishing in France, that the relevant biographical information could not be systematically assembled, as the publishers were reluctant to disclose this. In their prosopographical research, historians have to deal with the unevenness of the sources available to provide information about the various spheres of people's lives; wealth or heritage, recorded for tax purposes, are often better known than family genealogies and connections (Stone 1971: 59). In a survey by questionnaire, the respondents do not all provide the various types of information that the sociologist considers relevant with the same facility or reliability (Champagne 2002: 300).

Apart from the effect of the difficulties encountered in the construction of data, the commentary on MCA findings must include considerations such as the difference between "empirical individuals" and "epistemic individuals" (Bourdieu 1988 [1984]: 21–35). The operation through which one designates the dots forming the cloud of individuals by real names does have its limits, the "statistical individual" always being simply a "profile" defined uniquely by the modalities of the active variables with which the individual is associated; these cannot include the totality of the potential properties of which the empirical individual is the bearer. For the same reason, it is difficult to be overly precise in commenting on the relative positions of two individuals on a graphic. The 🖟 distance separating them undoubtedly provides an indication as to the relations of the empirical individuals, but the inclusion of a secondary property, excluded for one reason or another from the active variables, would suffice to modify it slightly. It is not, therefore, a rhetorical precaution to insist that MCA is not a "crystal ball" (Bourdieu 2010 [1979]: 120).

When used with reference to the theory of fields, MCA is a concrete representation which as such cannot be ignored. "Objectivation . . . does imply the risk of objectivism" (Bourdieu and de Saint-Martin 1978: 5). MCA only reveals the structure of the relations between the agents studied as a result of a scientific construction which the social agents cannot accomplish. The social agents have specific and only partially informed perspectives. In these circumstances, the use of extracts from interviews in the commentary of an MCA provides information that is not included in the statistical material constituting the MCA itself, but is necessary to understand it. While the statistical construction of the bureaucratic field is not unlike the benchmarking process that a young civil servant undertakes, it is more precise and more systematic and begins, moreover, by interviewing several informants (Bourdieu 2005 [2000]: 99). Similarly, while the rigorous construction of the "avant-garde fields" shares some characteristics of the "impressions" drawn up by the "specialists in art," it does not allow for the exclusion of an artistic movement on the basis of a "somewhat subjective principle" which the latter does accept (Verger 1991: 3).

Commentary on the findings of an MCA implies a critical reflection on the processes that enabled us to obtain them. The distances in the graphics, and the structuring principles revealed, are signs of the difficulties encountered in the construction of the data and of the decisions, never totally exempt from the arbitrary, which, for instance, marked the coding of the variables. The differences that the graphics reveal are partly the outcome of coding decisions, which, by separating (or aggregating) two modalities, either allow or disallow the expression of a source of differentiation. The findings are also the outcome of statistical habits and requirements that are difficult (if not impossible) to neutralize.

In particular, the statistical approach does restrict us to a static perspective. MCA shows something resembling a cross-section. The chi-square table gives an indication of the properties shown by the statistical individuals *at a specific date*, and the graphs give the distribution of capital at this same date. But this distribution is a "state of the distribution of the specific capital which has been accumulated in the course of previous struggles" (Bourdieu 1993 [1984]: 73). The spaces that MCA enables us to see are, from this point of view, imperfect representations of fields, which are not static structures but historical products of "space-time" (Bourdieu 2008 [1999]: 19). The organization of the taste of the dominant classes in France, for example, between the poles "artist's taste" and "bourgeois taste" is the result of a historical process that reached a high point in the nineteenth century; in the context of the industrial revolution and the decline of the aristocracy, the relationship between "artists" and the "bourgeoisie," characterized by complicity and antagonism, began to become structural. In a way, the ideal tool to show these space-times is not a tool enabling an objective look at distributions at a given point in time, but a dynamic tool that would reconstitute, in the cloud of individuals, \$\(\sigma \) for example, entities which, while constantly being renewed, would be open to coming closer, splitting up, and so on.

There are, therefore, affinities between correspondence analysis and the theory of fields, but there are also discrepancies that undoubtedly cannot be totally resolved by statistical refinements. It may be that fields cannot always be totally modeled mathematically. We must not commit the error that Cicourel alleged Lazarsfeld had made when he stated that any, or almost any, sociological concept could be measured statistically. When sociologists or statisticians construct a variable, they are almost always preceded in the categorization process by the social agents themselves. But the categories of everyday life are rarely of the same type as those the statistician constructs. The latter present a series of formal properties that Cicourel lists: for a qualitative variable, for example, each individual in the population studied must belong to one and only one modality. Categorization in everyday life depends on other rationales; an individual's membership in a particular category may change depending on the situation; it may also be challenged in daily struggles or may be used strategically by the social agents themselves. These remarks are valid even for attributes that statisticians normally regard as not being open to question, such as attribution to an age group or a person's sex (Cicourel 1964).

Bourdieu was far from opposed to these points. His sociology, and in particular his theory of fields, leaves a great deal of leeway to symbolic struggles over categorization. However, to the ethno-methodological perspective he adds the observation that there is a differential in the power that social agents can exert in these struggles. Some fields are essentially spaces of competition for saying what one is and what other people are. The outcome necessarily introduces a gap between this dimension of the field, which implies imprecision or uncertainty, and the logic of statistical tools, which leads to the elimination of imprecision and uncertainty. At times Bourdieu suggested that a tentative solution to this question could be found in the resort to "fuzzy logic," which could be imported into correspondence analyses (Gallejo 1982). However, he did not materialize this intuition, which still remains to be explored.

ConclusionFor Bourdieu, the sociology of fields was not limited to the use of multiple correspondence analysis. His use of statistics did involve other methods. However, he did invest heavily in the technique. In the context of the theory of fields, its implementation appeared to him to be a very useful tool for constructing "models." Bourdieu did explicitly use the word "models" when referring to the spaces constructed by correspondence analysis (for example, Bourdieu 1996 [1989]: 133–142). He thus used a term that is very popular with quantitative analysts in the social sciences. However, he differed from the latter as well. On one hand, in keeping with a distinction that he had formulated at a very early date, his ambition was to construct models which aimed at "knowledge of real principles" in social mechanisms and not "a simple reproduction of the most apparent \$\(\phi\) properties" (Bourdieu and al. 1991 [1968]: 52). On the other hand, he showed himself to be extremely vigilant concerning the biases, in particular those of objectivist and scholastic origins, to which statistical tools expose researchers.

In his use of MCA, Bourdieu revived a tradition of which the Durkheimian school of sociology in particular had been a leading proponent in France, but which had been relatively neglected. It was a challenge to the traditional arguments between researchers who insisted unilaterally on the power of statistics and those who, on the contrary, saw only their limitations. This position played a part in the interest among scholars in Bourdieu's use of MCA, but it also explained its reception. It is undoubtedly because Bourdieu's use of MCA appeared to be out of line with the usual concepts and dominant norms that it long remained either somewhat ignored or (in France, at least) criticized; the breaches in convention which it effected (in deliberate and thoughtful manner) were alleged to be "mistaken." Over the past 15 years, the interest observed in MCA and the ways Bourdieu used it have changed, but this perhaps makes it even more necessary to have a clear understanding of Bourdieu's position. Where methods and theories are concerned, intellectual habits and orthodoxies are indeed powerful. It would be regrettable if a period characterized by ignorance were followed by another in which Bourdieu's innovative use of statistics was in some way integrated into an orthodoxy against which it was in part constructed.

Translated from French by Kristin Couper

Notes

- See, for various examples, Bennett et al. (2009); Blasius and Mühlichen (2010); Cvetičanin and Popescu (2011); Ekelund and Börjesson (2002); Hjellbrekke and Korsnes (2009); Majima and Savage (2007); Meuleman and Savage (2013); Pereira (2005); Purhonen and Wright (2013); Prieur et al. (2008); Roose et al. (2012); Rosenlund (2000, 2009); Savage and Gayo (2011); Warde et al. (2007).
- 2. The closest he gets to doing so is in a note in the English edition of *Homo Academicus* (Bourdieu 1988 [1984]: 69–72) and the "Prologue" to one of the first articles using MCA (Bourdieu and de Saint-Martin 1978: 3–8).
- 3. It certainly can be considered that these attempts, which focused on surveys about students (Éliard 2012: 33), photography (Bourdieu 1990 [1965]: 195–196), and museums (Bourdieu, Darbel, and Schnapper 1997 [1969]: 11), were not very conclusive (Le Roux and Lebaron 2013).
- 4. On these points, see Lenoir (1997) regarding Maurice Halbwachs.
- 5. The fact that Halbwachs has been almost forgotten (Martin 1999) shows that this relationship to statistics was doubtless perceived to be too "literary" in the eyes of researchers in the sciences.
- 6. "Statistics cannot reveal any relationships other than those which have been requested" (author's translation).
- 7. For examples, see Zarca (1979); Verger (1988); Champagne (2002).
- 8. While there does not seem to be any analysis of a field based on panel data, the commentary on an MCA's findings can attempt to reintroduce a temporal dimension (Bourdieu 2008 [1999]: 19). Some articles do engage in comparisons with the previous data from the field, sometimes by carrying out MCAs on the same field at different points in time (Lenoir 1992; Denord and al. 2011; Roselund 2009, 2014).

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