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The Use of Typology in Sociology*

Marco Di Gregorio[a], Zenia Simonella[b]

Abstract

This article presents an analysis of the manner in which typology is used, particularly in the field of sociology. Searching the Web of Science (WoS) database from 1990a random selection of 686 scientific articles was extracted from a total of 1173 in which the term *typology* appears. The authors then analysed the degree of conformity to the classic Aristotelian model and its variants, finding examples of terminological confusion as well as errors of a semantic or gnoseological nature. The results of the analysis show that the classic Aristotelian typology continues to be present in the scientific journals, even if an increasing tendency can be seen towards an "extensional" method of construction through the use of multivariate techniques of analysis. Almost half of the sample considered displays incorrect uses of the term, or errors where other conceptual objects (classifications, taxonomies, classes, types and taxa) are identified with typology. Such errors were found even in articles published in journals considered of high prestige. The authors conclude that typology, with the heuristic advantages it offers, continues to constitute an important tool for the social scientist and that criticism or distrust directed at it often derive from inadequate cognizance or from misguided attempts to equate the spheres of thought, of language and of reality.

Keywords: sociology, methodology, typology, classification, journal ranking.

* Although the idea, the overall framework, and the data collection were carried out by both authors, the following paragraph attribution can be made: Marco Di Gregorio: paragraphs 1, 3, 4; Zenia Simonella: paragraphs 2, 3, 5.

[a] University of Turin, Italy.
[b] University of Milano-Bicocca, Italy.

Corresponding author:
Marco Di Gregorio
E-mail: marco.digregorio@unito.it

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1. Introduction

> "Les mots cependant sont comme des monnaies très usées, à force de circuler de main en main; ils perdent leur relief étymologique" (Bloch, 1939).

The object of this work is to investigate the usage of typology in scientific language, looking more particularly at its use in English-language sociological articles published in academic journals, an analysis which to the best of our knowledge has not been conducted in the more recent methodological literature.

Since the birth of modern science, typology has been neglected or even denied the status of legitimate tools of knowledge. The diffusion of positivist, neopositivist and behaviourist schools of thought seems to have been accompanied by the obsessive search initially for laws, then hypotheses and finally theories to reinforce the status of sociology as a science, again to the detriment of the pre-assertory tools (Marradi, 1990, 2016, 2022).

However, the most cogent criticisms of typology originate not only from neopositivists and behaviourists who view their use as an obstacle to the construction of more powerful theoretical explanations (Braun, 2008; Tiryakian, 1968), proposing where necessary the use of such tools for orientation during the data gathering phase (cf. King et al., 1994), but also from anti-positivist writers for whom the search for elegant and all-embracing categorical schemes is certainly not the essence of an explanatory science (Collins, 1975), including scholars of the post-modern school of thought, for whom "typologies [are] to be too simplistic, limiting, and restrictive and unable adequately to illustrate the real-life complexities of pupil identities that were often multiple, fluid, and contradictory" (Swain, 2006, p. 355). Other criticisms and problems concerning conceptual structures, particularly typology, are summed up by Borgatta and Montgomery when they state that "typologies are not mutually exclusive and exhaustive, are treated as ends in themselves rather than as means to an end, are not parsimonious, are based on arbitrary and ad hoc criteria, are essentially static, rely on dichotomized rather than internally measured variables, yield types that are subject to reification, and are basically descriptive rather than explanatory or predictive" (2000, p. 3185). Nevertheless, the same authors acknowledge that for purposes of practical research a competent researcher is able to manage such problems and to derive benefits from the use of typologies.

Such difficulties have on occasion given rise to attitudes of circumspection in regard to typology and diminished the heuristic value of the pre-assertory activity which conversely is so often to be found in the classical scholars (such as Weber, Parsons, Merton et al.). Likewise, the scant attention given to the historical dimension – "historical amnesia" (Sorokin, 1956) or "presentist

attitude" (Elias, 1984; Hartog, 2003) – together with an increasing lack of semantic awareness, seem to have contributed to the birth of a certain confusion regarding the use of the term 'typology' in scientific as well as in general discourse (just listen to any conversation or consult any newspaper). Often, the terms 'classification', 'typology' and 'taxonomy', deprived of their specificity in relation to the number of *fundamenta divisionis* and to their manner of expression, end up being used as synonyms. It can also occur that 'typology' is used as a synonym for 'type', confusing the structure with the category and vice versa.

After having illustrated what is meant by typology in the social sciences, this paper analyses 686 sociological articles published between 1990 and 2023 (July). The sample was selected randomly from 1173 articles, representing the total number with the term 'typology' appearing in the title, in the *abstract* and/or being indicated by the authors as a keyword. After having presented the results of the analysis, the article concludes with a reflection on the importance of the use of typology for the sociological discipline.

2. Typology in the social sciences

The term 'typology' derives from the Greek *τύπος*, meaning trace, imprint, model. The term 'type' can still be identified today in various words, even retaining its original meaning in for example 'typography'. In any case, over time the term 'type' has taken on a connotation more metaphorical than material, i.e. referring mainly to intangible referents (Marradi, 2022) such as human or character types. 'Typology' means literally 'discourse on the type', so strictly speaking the term should indicate the study of the type or of types.

In the social sciences, typology is a conceptual structure, together with classifications and taxonomies. Since they affirm nothing, they cannot be judged true or false, but must be evaluated on the basis of their utility. These conceptual structures are positioned at an intermediate level, between concepts and assertions. Indeed, at the initial level we find concepts, the fundamental units of thought, which show themselves to be problematic due to the lack of isomorphism with the referents which they seek to grasp. Indeed, as earlier maintained by Weber (1904), concepts organise and intellectually control reality, even if no "rigid joint" exists between the spheres of concepts and of referents (Marradi, 1994, 2022). At a higher level are placed assertions, which affirm or deny something regarding the referents of the concepts and which can be considered true or false. Combinations of assertions can give rise to more or less plausible explanations and to hypotheses, theories and laws.

In particular, among the conceptual structures, typology is the more complex, because it makes use of, articulates and combines two or more dimensions, criteria or, in the terminology of the classical Aristotelian doctrine, *fundamenta divisionis*. The greater the number of intersecting *fundamenta*, the more products they will generate, some of which may be lacking in theoretical interest or empirical embodiment. The *fundamenta* are not always made explicit by the researcher but can be reconstructed retroactively through an operation termed 'substruction', while when the typology comprises a large number of types, becoming so complex as to make use of this tool unmanageable, the operation of "reduction" is used (Lazarsfeld, 1937).

As in the case of classification, where a sole *fundamentum divisionis* is involved, for the typology the same criteria are likewise adopted: exhaustivity of the combined categories, mutual exclusivity and the impossibility of judging these structures on the basis of a criterion of truth / falsehood. Moreover, the same difficulties and possible artifices apply, such as the need felt by the researcher to attribute referents to each category, even when there is no empirical evidence.

Notable examples of typology have also been proposed, apart from by Aristotle, by his disciple Theophrastus, by Galen and by modern writers in various disciplines such as Jung, Fromm, Durkheim, Tönnies and Merton (Marradi, 2000, 2023).

A typology may also be constructed inductively, by organising sets of referents into a number of categories based on their similarities and differences with reference to one or more characteristics considered relevant for the purposes of the research. The same result can be attained by using techniques of statistical analysis such as *cluster analysis*, seeking to group "objects or events of a set into two or more subsets in order to maximise the resemblance between members of the same subset and the differences between members of differing subsets" (Marradi, 2023, p. 50, our translation), on the basis of a number of variables and consequently of *fundamenta divisionis*. Even if the researcher may be more or less conscious of the processes of discrimination based on the intersection and recombination of various *fundamenta* brought to bear when sophisticated techniques of standard research are used, the result may be properly termed a 'typology'. In this regard Marradi (2023) speaks of the construction of a typology "by extension", since the differentiation of types is obtained by organising the extension of the concept (the set of its referents) rather than by articulating its intension.

Using the term in the most extensive sense of "discourse on the type", any grouping of "types" may be called a "typology". In sociology, this occurs often when dealing with considerations on *ideal types*, in the sense of the development of a set of concepts to which an exemplary character is attributed, independently

of their higher or lower empirical incidence (Cattarinussi, 2010; Weber, 1904). The extensive use of the term 'typology' for groupings of ideal types seems all the more legitimate when these emerge from the accentuation of the differences between possible referents of a concept in regard to more than one of its relevant characteristics. In these cases, it may be possible through the use of substruction to partially or wholly identify a typological schema determined by the intersection of a number of *fundamenta divisionis*. Examples include some of the methodological proposals for the use of analysis for ideal types in non-standard research (Stapley et al., 2022).

3. Method

In order to understand the manner in which sociologists have adopted and adopt the tool of typology, an analysis was conducted of 686 articles published between 1990 and July 2023.

The sample was extracted from among the total of articles in English indexed on Web of Science[1] (WoS) and classified by the *database* as relating to the discipline of sociology, where the term *typology* appeared in the title of the article and/or in the abstract and/or among the keywords specified by the authors (No. = 1173). More specifically, after having defined in a random but relevant manner the percentage of articles to be analysed in relation to the total population (between 50% and 60%), this number was divided by the number of years considered (1990-2023) in order to generate, where possible, the same quota of 25 articles per year. For the years from 1990 to 2002 and for the years 2004, 2006 and 2007, the total number of articles indexed is lower than the determined quota; thereby all the articles were considered except for two which were untraceable (in the years 1994 and 1995).

For each of the other dates the procedure followed was to extract the first 25 articles appearing on an appropriately ordered random list generated using the "random" function in Excel. On seven occasions untraceable articles were substituted, maintaining the random order previously established.

The analysis consisted of two phases. In the first, all the articles were read and categorised by a researcher who assigned a code to each article: (1) when the typology presented was considered to conform to the classic Aristotelian model, i.e. two or more intersecting *fundamenta divisionis*, with or without any

[1] We wanted to develop our piece of research with a long-term perspective and, therefore, instead of Scopus, we opted for Web of Science, which had a strong coverage going back to 1990. Furthermore, it shows more attention to humanities and social sciences in comparison to Scopus (e.g., Singh et al., 2021).

possible reduction of the number of types logically deriving from the combination; (0) in the opposite case or when clear errors were apparent in the use of the term *typology/typologies*; (9) when it was not possible to arrive unambiguously at the result of the analysis in one of the two cases previously described, or where the researcher did not feel certain about the decision. Together with the code, the researcher added a comment justifying his or her choice or explaining the difficulty in taking a decision, sometimes with quotations from the article.

Table 1. Distribution of articles for the years 1990-2023.

Year	Articles indexed on WoS	Cases	Year	Articles indexed on WoS	Cases	Year	Articles indexed on WoS	Cases
1990	1	1	2002	20	20	2014	44	25
1991	1	1	2003	28	25	2015	60	25
1992	15	15	2004	17	17	2016	51	25
1993	20	20	2005	28	25	2017	55	25
1994	12	11	2006	19	19	2018	55	25
1995	11	10	2007	21	21	2019	70	25
1996	19	19	2008	27	25	2020	76	25
1997	15	15	2009	43	25	2021	90	25
1998	24	24	2010	37	25	2022	91	25
1999	12	12	2011	42	25	2023 (31/07)	58	25
2000	21	21	2012	36	25			
2001	10	10	2013	44	25	Total	1173	686

In the second phase, the one researcher reviewed all the codes of the other and resolved any doubts through intersubjective evaluation. In the cases where the term *typology* is used in reference to a conceptual structure derived from a combination of a number of *fundamenta divisionis* through the application of multivariate statistical techniques (typically *cluster analysis* or *factor analysis*), the researcher assigned the article the code (2). When the article contained a grouping of ideal types, the researcher assigned the code (3), or (4) when this construction is not explicit but is clearly recognisable through the presence of multiple dimensions and by the manner in which the analysis is conducted. The researcher used the code (5) to identify cases where typology is confused with other conceptual structures, normally classification. Code (6) was assigned when a semantic confusion emerged between the terms 'type' and 'typology', i.e. when the two terms are used as synonyms. Code (7) was assigned where the semantic confusion was considered to be particularly serious, i.e. when typology is used to refer to another means of organising thought (for example typology as a model or as referring to any conceptual structure without distinction) or where gnoseological errors are committed (for example typology influencing reality, typology being measurable or being a tool of measurement, typology being confused with index, etc.).

Thus, a classification from 1 to 7 was obtained, which can also be interpreted in an ordinal sense as a progressive departure from the use of the term in a manner compatible with the Aristotelian definition. Code 1 represents a complete correspondence with that definition, code 2 refers to typologies constructed "by extension" using standard techniques (Marradi, 2023), codes 3 and 4 a partial semantic expansion to include groupings of ideal types, even when the combination between two or more *fundamenta divisionis* is not clearly delineated, while codes 5 onwards represent actual errors, in increasing order of gravity.

It should be considered that the codification was based on an attentive reading of the articles by the researchers; this fact does not permit the formulation of any assertion regarding the various authors' awareness of the correct use of the term in line with the accepted criteria in the field of social research methodology. By this is meant that among the cases classified with code (2), referring to typology derived from multivariate analysis, or those classified with code (5), denoting the incorrect use of the term 'typology' to identify another mental structure appearing in the article, it cannot be excluded that there may be authors completely unaware of the correct use of the term who possibly consider "typology" as a synonym of "mental structure". In the same way, among the articles classified with codes 5 to 7 to indicate obvious errors, there may be authors who are familiar with the correct use of methodological lexicon but who have committed a typo.

Code (9) should be considered separately from this ordered classification, with the meaning of "not assessable" on the basis of a reference to typologies described in other texts or of a passing reference to the term with no further specification (4% of cases).

Table 2. Codification and distribution of cases based on the use of the term 'typology' in the 686 articles.

Code	Label	no.	%	cum.%
1	Classical typology	173	25%	15%
2	Typology derived from multivariate analysis	79	13%	38%
3	Classification of ideal types (explicit or clearly attributable to classical ideal types)	86	8%	46%
4	Classification of ideal types (non-explicit but where two or more "dimensions" are clearly identifiable)	55	6%	52%
5	Confusion between typology and other conceptual structures	198	29%	81%
6	Confusion between typology and type	61	9%	90%
7	Other serious confusion	43	6%	96%
9	Not assessable	30	4%	100%
	Total	686		

At the end of the operation of classification, for each article a detailed description of the reason why it was assigned a specific code is displayed in the dataset. Moreover, it was possible to associate the information on the prestige

of the journal in that year with each case, both in absolute terms (according to the SCImago Journal Rank index) and in relative terms (whether or not the journal was classified in the top quartile of the SJR in relation to the other journals in the same disciplinary area)[2].

4. Results: uses and abuses of typology

In this paragraph we present the results of the analysis of the data starting from the frequency distribution of the articles based on the use of the term 'typology'.

Figure 1. Frequency distribution of the articles based on the use of the term 'typology'. Percentage figures only for articles codified from 1 (classical typology) to 7 (other serious confusion).

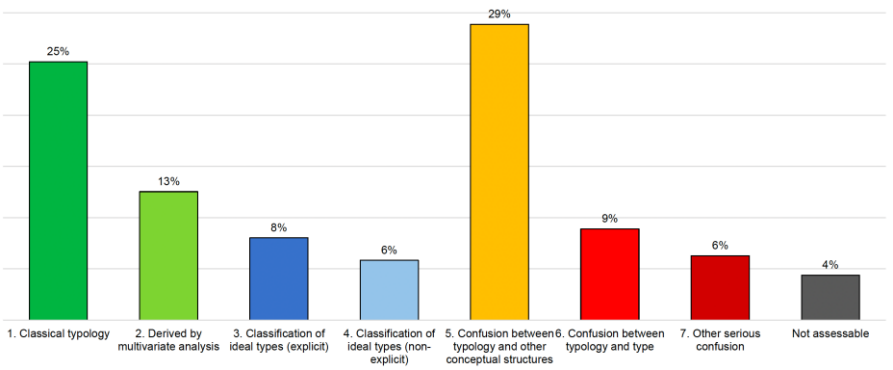


Fig. 1 shows that a quarter of the sample (25%) uses the classical typology of Aristotele, hence making use of two or more *fundamenta divisionis*: the term 'use' in this context means that the authors either construct a new typology, sometimes on the basis of previous studies, or they use and characterise a typology taken from the existing literature. If this fact is analysed in greater detail (fig.2) it emerges that more than half of the articles (57%) are constructed as typology 2*2, i.e. two *fundamenta* and four types or ideal types. The remainder articulate one or both the dimensions in a number of categories, proposing

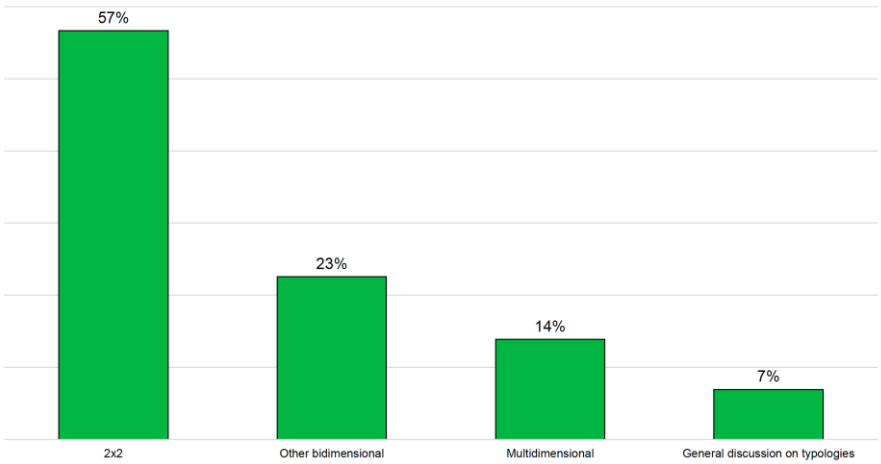
[2] We also performed an assessment to verify whether the articles in the sample underwent peer review. Our analysis showed that 72% of the articles are marked as peer-reviewed. The remaining 28% were published in journals currently recognized as peer-reviewed, but it was not possible to confirm whether this applied to the specific issues in which the articles appeared.

more than four types, possibly with a later reduction (23%), or combine a number of dimensions, making the typology highly elaborate and complex (14%). Only a small proportion (7%) cite typologies constructed by others in the theoretical section with a view to analysing them discursively. These cases relate either to typologies by classical authors (e.g. Parsons, Merton) and/or by authors relevant for the subdisciplines in question (such as Esping-Andersen, Lenski, Cohen, etc.).

Coming back to figure 1, in 13% of cases the term 'typology' is used "extensionally" to refer to the result of a multivariate analysis, typically *cluster analysis*, *factor analysis*, *latent class analysis*, or a combination of a number of other techniques. In 8% of cases the authors use the term 'typology' to refer to a set of ideal types. In 6% of cases the authors do not present a typological schema nor explicitly refer to ideal types, but it is possible to recognise a proper use of the term 'typology' through the operation of substruction.

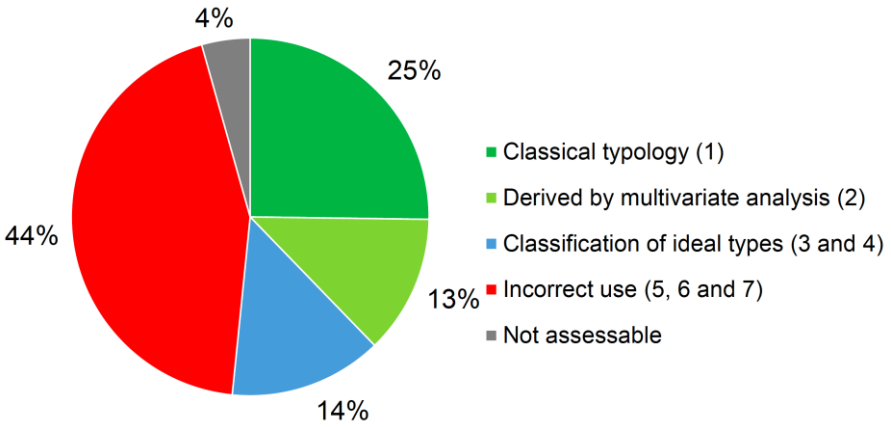
Moving on to the errors, a third of the sample (29%) displays an improper use of the term 'typology' in place of other conceptual structures. In almost all the cases, these are simple classifications. In 9% of cases the terms 'typology' and 'type' are used as synonyms. Most often 'typologies' is used as a synonym of 'types'; this occurs even in articles where the proposed typology is correctly constructed. In 6% of the articles serious errors of a semantic and / or gnoseological nature were encountered. For an overview of the most characteristic errors see table 4.

Figure 2. Frequency distribution of articles classified with code 1 ("classical typology") based on the number of dimensions of the typology illustrated (no. = 173).



In figure 3 are grouped the categories referring to the use of the term *typology* to indicate collections of ideal types (codes 3 and 4) and those in which its use is considered incorrect (5, 6 and 7). It thus emerges that the sample is divided approximately in halves, between those using typology correctly (52%) and those committing errors of various kinds, gnoseological and / or semantic (44%). Excluding the "not assessable" cases from the calculation, the number of errors rises to 46%.

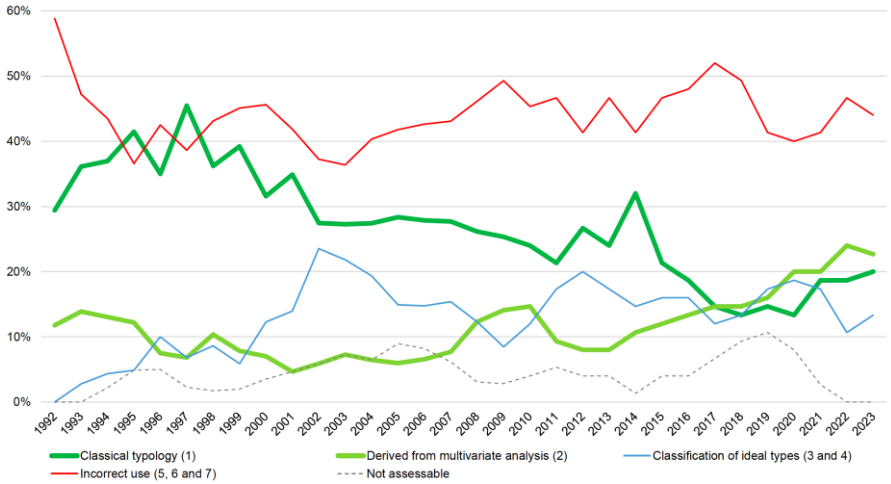
Figure 3. Frequency distribution of articles based on the use of the term typology: comparison between correct and incorrect uses.



Looking at the variations over time of the five groups thus assembled, a fact emerges which, interpreted from the perspective of the sociology of science, can help to assess the direction the discipline of sociology is taking. Use of the classical typology declines slowly over the course of time, accompanied by a corresponding increase, also gradual, in the use of techniques of multivariate analysis for the construction of types. This inversion appears in figure 4 starting from 2008, with a turning point between 2015 and 2017. In that period social scientists began resorting to "big data" in the social sciences and the intensification of the contamination of sociology with statistics and computer science considerably grew (Golder & Macy, 2014; Lazer et al., 2009; Mayer-Schönberger & Cukier, 2013; Molina e Garip, 2019; Simonella, 2020). This trend has facilitated the application of standard techniques for constructing typologies.

In view of the increasing attention to the prestige of the journals as shown by impact indicators, we took the SJR indicator (González-Pereira et al., 2010) into account.

Figure 4. Percentage frequency distribution by 3-yearly moving average of articles based on the use of the term 'typology'.



Based on the journal in which it was published and the year of publication, for each article the corresponding SJR index value was assigned. Where this was lacking for the year in question, it was entered as missing data, which is why the total in table 3 is 553 and not 686. For the year 2023, where the updated value was not available at the time of data collection, the value for 2022 was used. For each category the average and the standard deviation were calculated. The average for the sample is 1 (min. = 0.10 and max. = 6.22) and this facilitates comparison: the higher the value is placed over 1 the higher is the prestige of the publication compared to the others included in the sample. The analysis shows that articles published in journals considered more prestigious display a slightly more correct use of typology, while errors are more likely to be found in less prestigious journals. However, contrary to expectation, the difference is hardly remarkable. Furthermore, the standard deviation is fairly high in all the categories (especially codes 3 and 4) but declines somewhat for the categories referring to errors and to articles classified as not assessable (i.e. showing reduced variability among the journals considered).

The comparison between the prestigious journals and the others can be further scrutinised by taking into account the position of each journal in the general classification which SCImago publishes each year, differentiated by disciplinary sector, as well as the SJR index value. In figure 5, this information is revealed by comparison between journals which for the year of publication were placed in a higher position in the classification (first quartile, or Q1, totalling 378 articles) and the others, published in journals with a lower ranking

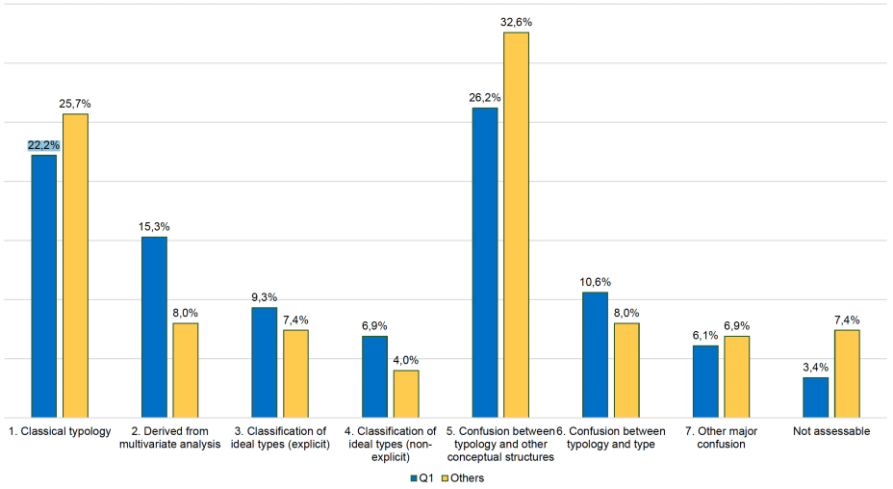
(175 articles). It emerges very clearly that proportionally, the prestigious journals contain more articles in which the typology derives from standard procedures (almost double in comparison to the others). On the other hand, the less prestigious journals contain a slightly higher proportion of articles showing "classical" typologies. Turning to the errors, it appears that in the articles in prestigious journals there is less confusion between typology and other conceptual structures (26% against 33%) but that a greater proportion of errors due to the confusion between typology and type or category are found (11% against 8%).

Table 3. The SJR index average and standard deviation by category of use of the term 'typology'.

	No.	Average*	Standard deviation
1. Classic typology	129	0.99	0.71
2. Derived by multivariate analysis	72	1.13	0.74
3. Classification of ideal types (explicit)	48	1.18	1.11
4. Classification of ideal types (non-explicit)	33	1.30	1.09
5. Confusion between typology and other conceptual structures	156	0.92	0.74
6. Confusion between typology and type	54	0.91	0.51
7. Other serious confusion	35	1.00	0.72
Not assessable	26	0.74	0.50
Total	553	1.01	0.77

* The cells in the "Average" column are color-coded along a gradient from red (high values) to blue (low values).

Figure 5. Comparison among articles on the basis of the prestige of the journal in a given year and by disciplinary sector (no. =553). Distribution in percent between articles in the first SCImago quartile (68%) compared to the others (32%).



The articles classified as not assessable, due to fleeting references to the concept of typology or to poor clarity of argumentation, are mainly found among those published in journals of lesser prestige. Excluding these from the calculation, the proportion of errors is higher when the prestige of the journal is lower (51% against 44% in the prestigious journals).

In table 4 we illustrate some examples of the typical errors we encountered in the analysis of 686 articles, with comments. The examples are taken from articles published in journals belonging to all the quartiles indistinctly. The errors are presented in ordinal sequence, i.e. from those considered less serious (such as semantic confusion) to those considered more serious, since they commit errors of category and cause confusion in their treatment of the relation between the sphere of thought, the sphere of reality and the sphere of language.

Table 4. Semantic and gnoseological errors: examples.

Citation	**Bibliographical reference**	**Comment**
This article presents a critical reading of Albert O. Hirschman's typology of exit, voice and loyalty as a heuristic for understanding the changing meanings of exile in the 20th and early 21st centuries.	Heinz, V. M. (2020). Can the refugee speak? Albert Hirschman and the changing meanings of exile. *Thesis Eleven, 158*(1), 42-57.	Confusion between typology and classification
A typology of contemporary immigrants is presented [*omissis*] First, depending on their socioeconomic status, we focus on three salient types of immigrants: professionals, entrepreneurs, and manual laborers. Second, depending on their legal-political status, we distinguish among three basic types: regular immigrants [*omissis*], undocumented immigrants [*omissis*], and refugees.	Rumbaut, R. (1994). Origins and Destinies: Immigration to the United States Since World War II. *Sociological Forum, 9*(4), 583-621.	Confusion between typology and taxonomy
It is also possible to move ahead when you theorise with the help of a typology. Phenomena that are of the same kind, but still different, are often bunched together in everyday words; and one way to disentangle things is to use a typology. Love, for example, comes in many different forms; and so does, say, money and capitalism.	Swedberg, R. (2016). Before theory comes theorising or how to make social science more interesting. *British Journal of Sociology, 67,* 5-22.	Reduction of any other kind of conceptual structure to typology
Four typologies are outlined: exclusive, semi-exclusive, semi-inclusive and inclusive.	Wellman, J. K. (1999). Introduction: The Debate over Homosexual Ordination: Subcultural Identity Theory in American Religious Organisations. *Review of Religious Research, 41*(2), 184-206.	Confusion between typology and type or category
Typologies, for example, such as "sporty boy" or "conforming boy," define the content of the category	Swain, J. (2006). Reflections on Patterns of Masculinity in School Settings. *Men and Masculinities*, *8*(3), 331-349.	Confusion between typology and type or category

The typology or category that an inmate is assigned to is important	Silverstein, M. (2001). The Ties that Bind: Family Surveillance of Canadian Parolees, *The Sociological Quarterly*, *42*(3), 395-420.	Confusion between typology and type or category
Three typologies of gender relations are developed that should capture the essential features of gender relations in different countries. These typologies are the egalitarian regime of gender relations the ecclesiastical regime of gender relations and the liberal regime of gender relations.	Mósesdóttir, L. (1995). The State and the Egalitarian, Ecclesiastical and Liberal Regimes of Gender Relations. *The British Journal of Sociology*, *46*(4), 623-642.	Confusion between typology and type or category
I propose a new typological category [*omissis*] I propose a new taxonomic class.	Reed, L. (2022). Sign networks: Nucleated network sign languages and rural homesign in Papua New Guinea. *Language in Society*, *51*(4), 627-661.	Confusion between type, class, taxon
Applying a theoretical typology that identifies distinct forms of rule breaking in bureaucratic organisations.	Hibel, J., & Penn, D. M. (2020). Bad Apples or Bad Orchards? An Organizational Analysis of Educator Cheating on Standardized Accountability Tests. *Sociology of Education*, *93*(4), 331-352.	Redundant and "neo-positivist": the authors of the article underline the theoretical nature of the typology as if to reinforce the importance of the theory in advance of empirical research (cf. Marradi, 1989)
An empirical typology is developed with which to test the relevance of various models.	Safi, M. (2008). The immigrant integration process in France: inequalities and segmentation. *Rev Fr Sociol, 49*(5), 3-44.	Category error (a character is attributed to typology which it cannot have)
Medical anthropology has often tended to employ dichotomous typologies. [*omissis*] In dualistic typologies [*omissis*]	Sujatha, V. (2007). Pluralism in Indian medicine: Medical lore as a genre of medical knowledge. *Contributions to Indian Sociology*, *41*(2), 169-202.	Category error and confusion between typology and dichotomy
The present paper argues that these four adopter categories can be created either with respect to the entire social system, or with respect to an individual's personal network. This dual typology [*omissis*]	Valente, T. W. (1996). Social Network Thresholds in the Diffusion of Innovations. *Social Networks, 18*(1), 69-89.	Category error and confusion between typology and *fundamenta divisionis*
Since there is sometimes overlap between the themes it should be considered as a fuzzy typology.	Xin, S., Tribe, J., & Chambers, D. (2013). Conceptual research in tourism, *Annals of Tourism Research*, *41*, 66-88.	Category error and confusion between the conceptual tool and its use in relation to reality
We introduce a modified religious traditions (RELTRAD) typology to measure religious affiliation	Dougherty, K. D., Byron, R. J., & Polson, E. C. (2007). Recovering the Lost: Remeasuring U.S. Religious Affiliation. *Journal for the Scientific Study of Religion, 46*(4), 483-499.	Typology as a tool of measurement
As a measurement instrument we use Otte's (2004) lifestyle typology	Otte, G., & Baur, N. (2008). Urbanism as a way of life? Spatial variations in lifestyles in Germany. *Zeitschrift für Soziologie*, *37*, 93-116.	Typology as a tool of measurement

The purpose of this attitudinal scale was to measure the tourist role typology	Jiang, J., Havitz M E., & O'Brien, R. M. (2000). Validating the international tourist role scale, *Annals of Tourism Research*, *27*(4), 964-981.	Typology as an object of measurement
Data from [*omissis*] surveys are used to examine the effect of a typology of student employment [*omissis*] on several occupational outcomes 4-5 years after graduation	Passaretta, G., & Triventi, M. (2015). Work experience during higher education and post-graduation occupational outcomes: A comparative study on four European countries. *International Journal of Comparative Sociology*, *56*(3-4), 232-253.	Confusion between sphere of thought and sphere of reality; it is assumed that a researcher's conceptual structure can have an impact on the reality studied

5. Conclusions

During time, numerous authors have drawn attention to the advantages the use of typology can offer in regard to parsimony, or ability to reduce the complexity of research (Faggiano, 2012), including the capacity to consider the effects of interaction between the various dimensions (Stinchcombe, 1968), to make comparisons (Capano & Engeli, 2022) or to suggest new hypotheses, when full empirical confirmation is lacking in relation to cases attributed to types (Bailey, 1992; Borgatta & Montgomery, 2000). For these reasons, typology remains a central conceptual structure for the social sciences, as indeed has been underlined by numerous scholars even of a more behaviourist orientation (Collier et al., 2012). Sociology still remains a "low consensus" discipline (Schwemmer & Wieczorek, 2020) or, to use an expression of Kuhn (1962), a science which has not attained the status of a "normal science" because a wide variety of schools of thought and of scientific and methodological practices coexist. All this in spite of the general tendency towards quantification (Sorokin, 1956) and the arrival of new and more up-to-date tendencies leading it in the direction of a behaviorist-style orientation towards standardisation and quantification (Simonella, 2020), an obsession with measurement and experimentation which shows an "inferiority complex" with regard to the so-called "hard sciences" (Marradi, 2016).

The analysis has in fact shown how typology is increasingly the result of use of the standard research technique which permits the development of a bi- or multidimensional structure with less clearly-defined boundaries between the classes and with a variety of types generated. This result also appears, implicitly, to stem from the necessity of wishing to modify the tool, sometimes regarded as too rigid to "describe reality", as argued by certain critics (e.g. Swain, 2006). In any case, typology is a conceptual tool which belongs to the sphere of thought and as such cannot be confused with reality itself since there is no photographic correspondence between scientific models and the reality being

investigated (Marradi, 1994). Lastly, the analysis shows that blind faith in the so-called "impact measurements" in determining the prestige of a journal can lead to the drawing of conclusions which are not always accurate in relation to the quality of the science produced. Indeed, while it is true that the journals considered the most prestigious according to SCImago contain articles with fewer errors in absolute terms and that this could be considered an indicator of greater control on the part of proof-readers for those journals and/or of a greater propensity on the part of more highly qualified researchers to publish in those journals, it is also true that the differences in the averages are not so marked and that these journals are likewise not immune from errors: in fact a significant number of articles containing serious gnoseological or semantic errors are encountered.

This paper aimed to highlight a trend in sociology in relation to the use and abuse of a classic conceptual tool, the typology, and, at the same time, to promote its right adoption in order to avoid confusion and a general weakening of it, which still remains a relevant tool in social sciences. From the sociology of science perspective, our reflections raise questions about what 'prestige' means in relation to scientific journals, in comparison to other types of publication too, such as books (e.g. Clemens et al., 1995), and what is the relationship between the current peer review system and the quality of the science produced (e.g., Baccini, 2010).

This paper does display certain methodological limitations. The first is the language issue, since only articles in English were considered, thus excluding all of the Italian sociological tradition which Marradi to some extent influenced through his methodological investigations. Secondly, the system of codification we adopted is characterised by a certain arbitrariness, particularly in relation to the attribution of code (4). It cannot be excluded that a less compromising or less attentive researcher could have similarly assigned this code to articles where the definition of ideal types is not explicit but is dependent on the identification of a number of *fundamenta divisionis* to be reconstructed *ex post facto* through the operation of substruction.

Regarding the prospects of future research, the work could be further developed both from a gnoseological point of view and as a study in the sociology of science. In relation to the former aspect, the use of the many adjectives associated with the term 'typology' (biological, categorial, dynamical, dual, empirical, fuzzy, hierarchical, static, theoretical, etc.), could be investigated in order to reach a more exhaustive analysis of their meaning and use. Greater understanding could be gained with regard to criticisms of the conceptual tool as well as its uses in terms of standard / non-standard research techniques used in its development. Lastly, the scope could be extended to cover the other social sciences.

From a sociology of science perspective, an investigation could be conducted into the schools of thought identified with by those authors most frequently adopting it, the journals they publish in, other authors they quote, the universities they belong to and their geographical areas, with a view to gaining a better understanding of the relations between core and peripheral areas of the scientific community and the advancement of scientific knowledge. The analysis could also be extended to the use of the term 'typology' outside the scientific community, with the purpose of investigating journalistic usage and its uses in everyday discourse. This might lead to identifying divergences from scientific language and new tendencies.

Lastly, the same method adopted here could be used in the study of other conceptual structures and components of methodological discourse.

References

Baccini, A. (2010). *Valutare la ricerca scientifica. Uso e abuso degli indicatori bibliometrici*. Bologna: Il Mulino.

Bailey, K. D. (1992). Typologies. In E. F. Borgatta, & M. L. Borgatta (Eds.), *Encyclopedia of Sociology* (pp. 2188-2194). New York: Macmillan.

Bloch, M. (1939). *La société féodale*. Paris: Éditions Albin Michel.

Borgatta, E. F., & Montgomery, R. J. V. (2000). *Encyclopedia of Sociology* (2nd ed.). New York: Macmillan.

Braun, N. (2008). Theorie in der Soziologie. *Soziale Welt*, 59, S, 371-395.

Capano, G., & Engeli, I. (2022). Using Instrument Typologies in Comparative Research: Conceptual and Methodological Trade-Offs. *Journal of Comparative Policy Analysis: Research and Practice, 24*(2), 99-116. https://doi.org/10.1080/13876988.2020.1871297

Cattarinussi, B. (Ed.). (2010). *La sociologia attraverso le tipologie*. Milano: FrancoAngeli.

Clemens, E. S., Powell, W. W., McIlwaine, K., & Okamoto, D. (1995). Careers in Print: Books, Journals, and Scholarly Reputations. *American Journal of Sociology, 101*(2), 433-494.

Collier, D., LaPorte, J., & Seawright, J. (2012). Putting Typologies to Work: Concept Formation, Measurement, and Analytic Rigor. *Political Research Quarterly*, *65*(1), 217-232.

Collins, R. (1975). *Conflict Sociology: Toward an Explanatory Science*. New York: Academic Press.

Elias, N. (1984). *Über die Zeit. Arbeiten zur Wissenssoziologie II*. Frankfurt/Main: Suhrkamp.

Faggiano, M. P. (2012). *Gli usi della tipologia nella ricerca sociale empirica*. Milano: FrancoAngeli.

Golder, S. A., & Macy, M. W. (2014). Digital Footprints: Opportunities and Challenges for Online Social Research. *Annual Review of Sociology*, *40*(1), 129-152.

González-Pereira, B., Guerrero-Bote, V. P., & Moya-Anegón, F. (2010). A new approach to the metric of journals scientific prestige: The SJR indicator. *Journal of Informetrics*, *4*(3), 379-391. https://doi.org/10.1016/j.joi.2010.03.002

Hartog, F. (2003). *Régimes d'historicité. Présentisme et expériences du temps*. Paris: Seuil.

King, G., Keohane, R., & Verba, S. (1994). *Designing Social Inquiry. Scientific Inference in Qualitative research*. New Jersey: Princeton University Press.

Kuhn, T. (1962). *The Structure of Scientific Revolutions*. Chicago: Chicago University Press.

Lazarsfeld, P. (1937). Some Remarks on the Typological Procedures in Social Research. *Zeitschrift für Sozialforschung*, *6*(1), 119-139.

Lazer, D., Pentland, A., Adamic, L., Aral, S., Barabási, A. L., Brewer, D., Christakis, N., Contractor, N., Fowler, J., Gutmann, M., Jebara, T., King, G., Macy, M., Roy, D., & Van Alstyne, M. (2009). Social science: Computational social science. *Science*, *323*(5915), 721-723. https://doi.org/10.1126/science.1167742

Marradi, A. (2023). *La Conoscenza: Gli Strumenti*. Milano: FrancoAngeli.

Marradi, A. (2022). *La Conoscenza: I Problemi*. Milano: FrancoAngeli.

Marradi, A. (a cura di, 2016). *Oltre il complesso d'inferiorità. Un'epistemologia delle scienze sociali*. Milano: FrancoAngeli.

Marradi, A. (2000). La tipologia da Aristotele alle scienze umane moderne. In AA. VV., *Una facoltà nel Mediterraneo* (pp. 183-201). Milano: Giuffré.

Marradi, A. (1994). Referenti, pensiero e linguaggio: una questione rilevante per gli indicatori. *Sociologia e ricerca sociale, 43*(15), 137-207.

Marradi, A. (1990). Classification, Typology, Taxonomy. *Quality and Quantity*, *24*(2), 129-157.

Marradi, A. (1989). Naive Epistemological Realism and the Superiority of Propositional over Non-propositional Knowledge. *International Classification, 16*, 1, 41-42.

Mayer-Schönberger, V., & Cukier, K. (2013). *Big Data: A Revolution that will Transform how we Live, Work, and Think*. New York: Houghton Mufflin.

Molina, M., & Garip, F. (2019). Machine Learning for Sociology. *Annual Review of Sociology*, *45*(1), 27-45. https://doi.org/10.1146/annurev-soc-073117-041106

Schwemmer, C., & Wieczorek, O. (2020). The Methodological Divide of Sociology: Evidence from Two Decades of Journal Publications. *Sociology*, *54*(1), 3-21. https://doi.org/10.1177/0038038519853146

SCImago (n.d.). SJR — SCImago Journal & Country Rank [Portal]. Retrieved November 2023, from http://www.scimagojr.com

Simonella, Z. (2020). *Cent'anni di behaviorismo nelle scienze sociali*. Milano: FrancoAngeli.

Singh, V. K., Singh, P., Karmakar, M., Leta, J., & Mayr, P. (2021). The journal coverage of Web of Science, Scopus and Dimensions: A comparative analysis. *Scientometrics*, *126*, 5113–5142.

Sorokin, P. (1956). *Fad and Foibles in Modern Sociology and Related Sciences*. Chicago: Regnery.

Stapley, E., O'Keeffe, S., & Midgley, N. (2022). Developing Typologies in Qualitative Research: The Use of Ideal-type Analysis. *International Journal of Qualitative Methods*, *21*. https://doi.org/10.1177/16094069221100633

Stinchcombe, A. L. (1968). *Constructing Social Theories*. New York: Harcourt, Brace & World.

Swain, J. (2006). Reflections on Patterns of Masculinity in School Settings. *Men and Masculinities*, *8*(3), 331-349. http://dx.doi.org/10.1177/1097184X05282203

Tiryakian, E. A. (1968). Typologies. In AA.VV., *International Encyclopedia of the Social Sciences* (Vol. 46, pp. 177-185).

Weber, M. (1904). Die "Objektivität" sozialwissenschaftlicher und sozialpolitischer Erkenntnis. *Archiv für Sozialwissenschaft und Sozialpolitik*, *19*, 22-87.