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"REASSEMBLING SOCIOLOGY": THE DIGITAL TURN AND THE SEARCH FOR NEW THEORETICAL OPTICS

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Abstract. *With the growing methodological possibilities of research in sociology using digital data, there is a need for theoretical models corresponding to digital research tools. The article shows the construction of a possible theoretical optics of sociology in order to use the analytical potential of digital methods and data to the fullest extent possible. An attempt is made to outline the contours of a theoretical model corresponding to digital research tools. Based on the thesis that theories depend on the methodological tools of the researcher, the idea of making digital footprints a standalone subject of social research is developed. The concept of replications proposed by D. Boullier, the French sociologist, and traced back to the sociology of G. Tarde is considered as a promising theoretical framework for conceptualizing digital footprints. The theoretical optics of digital footprints as replications is interpreted as a basis for rethinking the problem of micro- and macro-level connections in sociology.*

Key words: *digital data • digital footprints • sociological theory • structure • replications • actor network theory • G. Tarde • B. Latour*

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Introduction. Digitalization has made significant changes in the repertoire of social science methods. In the context of working with digital data (sometimes in excess), researchers face a situation of lack of conceptual schemes capable to adequately explain the identified patterns [Achim et al., 2020; Ledford, 2020]. Uncertainty arises as to what theories the new data can fit into. The relationships revealed in empirical studies often do not receive satisfactory theoretical interpretations. It can be stated that the development of the technical means of scientific knowledge overtakes the development of the conceptual instrument of the social sciences. It becomes unclear what to do with the vast possibilities of collecting and analyzing digital data, which do not fit well into existing sociological theories. Despite some works, particularly by Russian authors [Bail, 2014; Ignatow, 2016; Marres, 2017; McFarland et al., 2016; Guba, 2018; Devyatko, 2016; Dudina, Yudina, 2017], there is hardly any satisfactory solution to the problem.

In his time, B. Latour set the task of "reassembling the social" [Latour, 2014]. With the active digitalization of the research process in the social sciences, this task takes on a new

meaning. We can talk about “reassembling” sociology itself, because the development of digital methods and the proliferation of digital data stimulate the search for new conceptualizations of social reality and the development of description languages corresponding to modern methodological possibilities. The purpose of this article is to try to construct theoretical optics of sociology that best corresponds to the analytical potential of digital methods and data. We try to outline the shapes of a theoretical model corresponding to digital research tools, taking into account that the digital society is not simply an addition of digital technologies to social relations, but a fundamentally different way of organizing sociality, other research methods, and a different epistemology. Let’s take a look at the concept of D. Boullier, the French sociologist, who identified three stages in the development of sociological methodology, and consider his model of third-generation social sciences built around the phenomenon of digital footprints as replications. Next, we shall explore the classical foundations of replication research laid out in the sociology of G. Tarde, and discuss the possibilities that digital methods create for using the theoretical optics of replication. We conclude with a discussion of the digital foundations of the transition from hierarchical conceptualizations of social reality to same-level models that allow us to abandon the reduction of social actions to structural properties.

Three stages in the development of sociological methodology. D. Boullier, the French sociologist, colleague and co-author of B. Latour, analyzing the impact of changes in the data available to sociologists on the development of sociological knowledge, suggested that research methods form specific ideas about social reality, thereby influencing the construction of social science objects [Boullier, 2016]. Boullier’s upheld thesis about the dependence of theoretical models on methodological tools is counterintuitive, because it overturns the classical ideas about the primary nature of scientific theory and the secondary nature of methods developed to test hypotheses derived from theory. At the same time, Boullier’s position formed largely under the influence of science and technology studies (STS), seems productive for understanding the impact of technological innovation on the development of scientific knowledge. One should keep in mind that in this case we are not talking about rigid determinism, but only about the conditionality of conceptualizations by methodological tools. On the one hand, no theory can be verified if there is no technical means of collecting empirical evidence; on the other hand, obtaining new data using new technical means gives impetus to the development of new theoretical models and hypotheses.

Considering the process of quantification of sociological knowledge, Boullier distinguished three stages in the development of sociological methods, each characterized by a specific conceptualization of the social. In the first stage, statistical methods and large-scale census surveys made possible the very idea of society as a calculable and measurable object of research. Statistics offered a kind of equivalent of “society,” and quantification became a tool for explaining the “whole”. At this stage, a certain convention emerged between the producers of data from the public administration and the social sciences. Together they produced “society,” an object that was explained scientifically and could be tracked by the state for management purposes. Thus the methods gained scientific and operational value, becoming tools of scientific evidence and managerial practice [ibid.: 7].

The second stage in the development of sociological methods in Boullier’s scheme is associated with the widespread use of mass media and mass survey techniques. The phenomenon of “public opinion” becomes the main phenomenon around which the empirical research industry of society is built in this period. If at the first, “statistical” stage the society was conceptualized as a set of statistical indicators and factors, at the next stage it was conceptualized as a set of opinions that formed a particular commonality. Sociology provided society with methods by which it could analyze and represent itself in a new form – in the form of opinions. Although the mass media themselves contributed to the production of a unified public in the national territory, it only became possible to speak of public opinion in its proper sense with the advent of methods of measuring it. The “whole,” revealed by public opinion polls, in fact, represents the public formed by the mass media [ibid: 11]. From this point of view, society is

reduced to the mass media audience, and the latter, in its turn, to the public opinion measured by mass surveys.

The understanding of the science of "society" described statistically, or of "opinion" revealed by surveys, emerged in a specific historical, political and institutional context, with the help of the research techniques available in each period. With the advent of digital data analysis capabilities, the field of sociological observation is being transformed. These transformations lead to the emergence of a new subject of research. "Digital footprints" – imprints of human activity in digital space – are claiming the status of an object. At present, "digital footprints" have not constituted their own object of research, different from society described by statistics, or public opinion revealed by surveys. The transformation of digital footprints into an independent object of research is possible only if both the methods of their study and the ways of their use for practical purposes are stabilized. How can "digital footprints" become sustainable objects of the social sciences?

In order to strengthen the foundations of the third generation of social sciences, digital footprints must be given a scientific status. According to Boullier, the pairs "statistical data/quantitative research" (register/survey) and "audience/opinion poll" should be supplemented with the pair "digital footprints/X", where X is the way digital footprints are used [ibid.: 27]. Is it possible to "reassemble" social science so that it would include not only statistical data and public opinion, but also digital footprints, fitting them into appropriate theoretical models? Boullier proposes to consider the phenomenon of "replications" as such a "new" phenomenon, different both from statistically described society and from public opinion produced by survey, understanding it as the material dimension of digital footprints distributed through networks [ibid.: 12]. Replication is a process of repetition, copying, reproduction, circulation, allowing for certain variations/mutations/novations [Boullier, 2019: 28]. Actions, ideas, practices, things are replicated. At the same time, replication processes can be traced through digital technologies, reproducing both the digital footprints themselves and the methods of studying them. Digital platforms can be viewed as a kind of "replication machines", allowing the spread of digital footprints and making them available for research. To what extent can replications be considered as a new object of social sciences? Is it not the case that digital technologies simply make visible and examinable an aspect of social reality that existed long before the digital revolution? Can we find the foundations of such a model in the works of any of the classics of sociology? To answer these questions, let's refer to the works of G. Tarde.

The classical foundations of the study of digital footprints as replications: "Back to Tarde?" The credit for the revival of interest in Tarde's sociology goes largely to B. Latour, who called Tarde the "ancestor" of actor network theory [Latour, 2002; Latour, 2010; Latour, 2012]. Latour's slogan "Back to Tarde!" implies a return at a new level to the concept of social reality, which was set by Tarde's works and did not spread due to the difficulty of quantifying the imitation processes he described. Tarde's concept is a case where conceptual constructions overtake the methods necessary to test the hypotheses proposed by the theoretical model. This situation is typical of sociology. DiMaggio and his colleagues, discussing the possibilities that new methods offer for testing sociological theories, point out that sociology's theoretical richness has long been matched by method poverty: sociologists have developed many theoretical ideas and concepts that promise deep understanding of cultural change, but they have often lacked the means to operationalize their theories [DiMaggio et al., 2013: 571]. The expansion of digital technologies and digital methods makes the processes described by Tarde accessible to study:

"The Internet seems to be the most 'Tardian' technology to me: it makes it possible to make any rumor, any news, any unit of information available for tracking" [Latour, 2019: 230]. Latour's reading of Tarde suggests that in order to explain an event it is not necessary to go beyond it and allow for the existence of such social factors as society, class, ethnicity, etc., there is no need to refer to analytical categories; it is enough to find appropriate correlations. We can agree with the idea that Latour in this case projects onto Tarde his own idea that ANT (actor-network theory) is not a theory, but a way to make categories "flat" and to replace

theory with method [Bowker, 2014: 1796]. Nevertheless, it makes sense to look more closely at Tarde's sociology in search of the classical foundations of sociology's theoretical optics. Let us focus on a few of Tarde's ideas that are significant for the topic of this article. The key idea of Tarde's sociology is that both social and physical phenomena consist of acts of repetition. Tarde refuses to distinguish sociologists' favorite categories denoting a priori wholes (nature/society, individual/society, micro/macro level), and suggests that social and physical associations emerge through the mechanism of repetition of the process underlying both reality itself and ways of understanding it. Tarde attributes vibration in the physical world, heredity in the organic world, and imitation in the social world to the most typical forms of universal repetition [Tarde, 2011]. He sees the formation of social communities as a special case of the processes of repetition and association. In Tarde's concept, the division of social reality into micro and macro levels is nothing more than an abstraction due to the peculiarities of methods that do not allow obtaining full information about the properties and trajectories of each individual object. This view is based on the idea of the superior complexity of each individual element compared to the association of elements and the interpretation of the structure as one of repetitive elements, simplified and habituated [Latour, 2019: 226].

Sociology has always been concerned with the typical and the repetitive. Tarde did not discover anything new here. It is the typical and repetitive ideas, motives, behavioral patterns that interest sociologists. The question is how to approach the typical. The prevailing approach in sociology is to explain the typical by similar structural conditions: people behave similarly because they have similar interests, motives, values, conditioned by similarity of their individual characteristics or environmental features. Since this scheme can be easily translated into measurement tools, explanations of similar conditions prevail in sociology. These explanations fail when deviations are suddenly discovered, for example, when it turns out that the behavior of a certain group of people cannot be predicted on the basis of the similarity of their characteristics or commonality of conditions. This is where another option comes into play – explanation with the use of imitation: people behave similarly because they imitate each other. Typical actions are spread by transmission from one person to another through contact, not simply because people have similar characteristics or are placed in similar conditions. This is precisely the kind of explanation Tarde offers. The Tardian measurement of sociality does not attach itself to a priori structural properties, but instead focuses on flows of similar actions. The empirical implementation of such an approach in sociology is rather difficult, since it requires either numerous observations or experiments, which are not always possible in sociology. At the same time, imitation processes, where many people are "infected" with a certain thought, idea or practice, become visible in the digital environment. Thanks to the traceability created by digital platforms, the global phenomenon of replication (imitation, repetition, copying or contagion) has become observable in real time. In addition to these kinds of observations of replication processes, the Internet provides opportunities for online experiments that are significantly less costly than traditional "real-world" social experiments [Zhang, Centola, 2019; Centola, 2018; Centola, 2010]. By making replications visible, the digital environment sets the stage for a new language of description, which requires a revision of some fundamental sociological categories, such as the categories of structure and action, which involve distinguishing between micro and macro levels of social reality.

From a hierarchical to a one-level model of social reality. The distinction of two levels of social reality (micro/macro, action/structure) is not a reflection of the existence of two areas of reality, but a consequence of a certain stage in the development of data processing methods [Latour et al., 2012]. When sociological data collection was slow and costly, it was reasonable to assign some data to the whole level and others to the part level, since traditional social science methods did not allow a quick "switch" between these levels. The concept of the "whole" comes to the forefront when it is not possible to trace all the singular interconnections. The reason for "jumping" from the micro to the macro level is the lack of tools for empirical tracing of the process by which multiple social actors follow similar trajectories. It

does not matter whether the reasoning begins at the micro level, with individuals adapting to each other, generating certain rules, or with the "whole," which a priori sets the rules and assigns roles and functions to individuals. Both of these standpoints rely on classical methods of working with data.

When working with digital data, separating micro and macro phenomena is unnecessary. Researchers can much more easily "switch" between "levels" by tracing the connections where an individual actor is included. When social reality is routinely logged on digital media, there is no need to rely on simplistic models of the social actor placed *inside* the structure. There is a transition from a hierarchical, two-level model of social reality to a one-level, "flat" model. The "actor-interaction-structure" model, which treats "interaction" as a random collision of individual actors, is a consequence of limited information about individuals [ibid: 598]. From the point of view of the "one level" model, it makes no sense to deduce the whole from a set of parts or to regard it as a precondition if it already exists in its entirety on the same level. In other words, association is not something that is formed as a result of the unification of individual actors with certain properties, but something that defines them from the very beginning.

Here again we refer to Tarde's sociology. Refusing to distinguish a priori categories, he reduces both social and non-social reality to a set of primary elements – monads. Borrowing the concept of monads from Leibniz, Tarde, unlike his predecessor, does not introduce into his concept the idea of some coordinating center, the role of which in Leibniz works was played by God figure. In Tarde's works monads themselves establish connections with each other due to their own openness and activity. Instead of the usual philosophical category of "being", Tarde introduces the category of "possession", which explains the interaction of monads in the absence of such a coordinating center as a divine force, social structure or social law. "Mutual possession" is regarded by Tarde as the basic process of social organization, ensuring the connection of the elements in the absence of a central coordinator. The degree of mutuality of monads "may vary, and each of them seeks to expand and consolidate its possessions: hence their gradual concentration. Besides, monads can mutually belong to each other in many different ways, and each of them seeks new opportunities of mastering their own kind: hence their transformations" [Tarde, 2016: 68].

Latour and colleagues offer their own interpretation of the concept of "monad", treating it not as a part of the whole, but as *a point of view* of all other entities taken separately [Latour et al., 2012: 598]. When applied to digital research, what it may involve is a specific perspective on the objects contained in the database. A kind of operational definition of this concept is the navigation through digital profiles, when gradually more and more features are added to the profile. A special feature of this navigation is that it gradually specifies an object by developing its attributes. The more features are highlighted, the more accurate the representation of the object becomes. The main characteristic of this tracing process in this case is its reversibility: each attribute used to define some object modifies itself, becoming an attribute of this object [ibid: 599]. If, for example, belonging to an organization is seen as an attribute of a particular person, the very notion of that organization is also modified by our knowledge of the people who belong to the organization. Digital techniques, such as those offered by network analysis, make it possible to trace and visualize social phenomena and to explain social order through such navigation between intersecting objects, rather than switching between levels of the general and the singular [ibid: 591–592]. A monad is a point of view or a way of tracing (navigating) that defines one object through other objects and thus specifies them. In this case the notion of monad not only changes the distribution of roles between agents and interactions, but also replaces the notion of structure.

The general is, in fact, intersection. Digital visualization tools help to operationalize the notion of intersection and identify common properties. When it is possible to look at data from different angles and to build different pictures, the general will be what is preserved under different modifications, and the size of this general will be smaller than the "whole" in the two-level model: instead of being a structure more complex than its components, the general

becomes a simpler set of separable properties with an ever-changing internal composition. The whole becomes less than the sum of its parts; to be part of the whole no longer means to be "part of something of a higher level" or "subject" to a central dispatcher (a collective body, a *sui generis* society, or an emergent structure), but for each object it means to "lend" part of itself to other objects without any of them losing their identities [ibid.: 607]. In the two-level model, the researcher begins with simple atoms interacting according to simple rules, resulting in a stable complex structure. In the one-level model, on the contrary, everything begins with complex networks, which do not "interact" but rather partially intersect. It is these intersections where common properties can be found.

In a one-level model, institutions are not macrostructures, but trajectories within data that may begin at different points. The whole represents a way of connecting and intersecting the data. It is this type of navigation that Tarde, in Latour's opinion, called "imitation". Latour interprets Tarde's laws of imitation not as a psychological phenomenon, but as a process where interacting or coexisting actors share certain properties. The result is a new list of the same properties repeated with certain modifications (replications). For example, the university "consists" of professors, buildings and students, but at the same time the professors, buildings and students also "contain" the university as their own attribute. Thus, there is no essential difference between individuals, objects, groups, or institutions. The only peculiarity of what we call institutions is that one characteristic is repeated more often in the data; this determination is purely empirical and depends entirely on the quality of the data [ibid.: 609]. Thus, that thing that was viewed as a whole in the two-level model (organization, structure, institution), in the one-level model appears as a characteristic distributed in a set of separate actors, while being no more complex than each of them. For example, all residents of a city differ in the characteristics of gender, age, income, etc., but such a characteristic as living in a certain city is inherent to them all – so the city can be considered as a "whole" in relation to the city residents. In a one-level model (let's recall Latour's requirement to keep the social "flat"), the researcher does not find out how actions are conditioned by characteristics of interacting or by features of structures, because actions, characteristics, and structures are located on the same level and constitute elements of one network traceable through digital means of navigation.

This "alignment of the landscape" shifts researchers' attention from the two-level model of the "actor placed in context" to the one-level model of social reality as an aggregate of replications. For example, if we are studying the features of social interaction between a teacher and students in a university classroom, then in terms of a two-level explanation we would consider the features of the higher education system or the organizational culture of the institution as a context of action or as a factor influencing the participants in the process under study. From the perspective of view of the one-level model, the system of education or organizational culture is not considered as an *a priori* condition of actions, but is embodied in repeated actions, becomes their internal characteristics. Thus, structure appears as a set of similar actions regularly repeated and reproduced by many actors, i.e., as a set of replications. Macrostructures, instead of being treated as "receptacles" or the top level of the hierarchy, can be seen as star-like forms with a center surrounded by many radial lines with branches.

"Macro" is neither "above" nor "below" the interactions, but is *added* to them as another connection, nourished by them and nourishing them [Latour, 2014: 248]. In network analysis, the "macro" would be a node with more connections than other nodes.

The description of social processes in terms of the concept of replications forces us to rethink the notion of two levels of social reality. Individual meanings and singular actions, being infinitely replicated in social networks, produce the appearance of structural properties. The analytical notion of structure is redefined when there is an overabundance of data. Structure can be conceptualized not as an *a priori* system of coordinates, but as a set of particularly ordered replications (repeated events or similar trajectories), which can be empirically traced. One example of the implementation of such an approach in modern research practice is the research of "social contagion" [Centola, 2018; Zhang, Centola, 2019]. This phenomenon of

contagion consists in the fact that ideas, information, beliefs can spread in society like infectious diseases and, under certain conditions, direct contact is sufficient for the transmission of certain social patterns to occur. The interest in the research of social contagion is currently experiencing a renaissance as digital technologies provide new and broader opportunities to study this phenomenon, the topic of "contact spread of information and beliefs

<...> in the last two decades literally got a "second wind" due to the fact that the Internet is a unique source of large-scale, temporally and often geographically marked non-reactive data that allows testing very complex models of spread of influence and information transmission without having to refer to micro-level data based on individual self-reports of behavior or on the included observation of multiple interactions" [Devyatko, 2016: 27–28].

Conclusion. From the point of view of traditional sociological models, digital data has a number of drawbacks: when a researcher follows digital footprints, he cannot clarify why the user went in this or that direction, but can only try to find regularities in the chains of footprints and draw some conclusions on this basis. At the same time, digital data represents a completely new product of combining micro and macro levels, when at a change of scale a researcher can relatively easily move from information about individual actions to structural characteristics. The "one level" model described in the article does not presuppose the initial separation of individual objects and aggregated characteristics. Individual objects are disclosed through their characteristics, and each characteristic, in turn, appears as a list of objects that possess it. Navigating through digital data implies that the movement from an object to its characteristics is not a movement from particulars to generals, but a movement from one special to another special. In this case, the notion of structure, as well as that of the individual actor, is redefined. Hierarchical representation of social reality, which implies a priori separation of micro and macro levels, gives way to heterarchical (network) structuring [Crumley, 2015], which implies absence of fixed ranking of elements or ranking in potentially different ways. At the same time, the individual actor as such does not disappear, but its analytical representation changes, which is constituted not by a priori static characteristics, but by a set of digital trajectories. Such an approach allows sociologists to work on the surface of digital footprints without directly referring to the personal characteristics of the users who have left these traces. At the same time, digital footprints are not considered as equivalent to public opinion, or as part of a statistically described "society", but gain value in their own right. Working on the surface of digital footprints, in isolation from personal data, reduces the ethical contradictions that previous social science models (models of society and public opinion) might face when dealing with digital data sources [Boullier, 2016: 35]. As there are concerns that the expansion of personal information protection policies threatens to limit many research possibilities, the analysis of digital footprints on the surface of social networks without connection to socio-demographic data could potentially provide a sound base for digital sociological research.

REFERENCES

- Achim E., Wolff T., Montagne D., Bail C. (2020) Computational Social Science and Sociology. *Annual Review of Sociology*. No. 46: 61–81. DOI: 10.1146/annurev-soc-121919054621.
- Bail C. (2014) The Cultural Environment: Measuring Culture with Big Data. *Theory and Society*. Vol. 43. No. 3–4: 465–482. DOI: 10.1007/s11186-014-9216-5.
- Boullier D. (2016) Big Data Challenges for the Social Sciences: From Society and Opinion to Replications. *arXiv.org*. July 18. URL: <https://arxiv.org/abs/1607.05034> (accessed 30.08.21).
- Boullier D. (2019) Replications in Quantitative and Qualitative Methods: a New Era for Commensurable Digital Social Sciences. *arXiv.org*. February 15. URL: <https://arxiv.org/abs/1902.05984v1> (accessed 30.08.21).
- Bowker G.C. (2014) The Theory/Data Thing Commentary. *International Journal of Communication*. Vol. 8. Article no. 2043: 1795–1799.
- Centola D. (2010) The Spread of Behavior in an Online Social Network Experiment. *Science*. Vol. 329. No. 5996: 1194–1197. DOI: 10.1126/science.1185231.
- Centola D. (2018) *How Behavior Spreads: The Science of Complex Contagions*. Princeton: Princeton Univ. Press.
- Crumley C.L. (2015) Heterarchy. In: Scott R.A., Buchmann M.C. (eds) *Emerging Trends in the*

- Social and Behavioral Sciences: An Interdisciplinary, Searchable, and Linkable Resource*. Hoboken, NJ: Wiley: 1–14.
- Deviatko I.F. (2016) From “Virtual Lab” to “Social Telescope”: Metaphors of Theoretical and Methodological Innovations in Online Research. In: Shashkin A.V., Deviatko I.F., Davydov S.G. (eds) *Online-research in Russia: Trends and Prospects*. Moscow: Tipografiya: 19–33. (In Russ.)
- DiMaggio P., Nag M., Blei D. (2013) Exploiting Affinities between Topic Modeling and the Sociological Perspective on Culture: Application to Newspaper Coverage of U.S. Government Arts Funding. *Poetics*. Vol. 41. No. 6: 570–606. DOI: 10.1016/j.poetic.2013.08.004.
- Dudina V.I., Iudina D.I. (2017) Mining Opinions on the Internet: Can Text Analysis Methods Replace Public Opinion Polls? *Monitoring obshchestvennogo mneniya: ekonomicheskiye i sotsialnye peremeny* [Monitoring of Public Opinion: Economic and Social Change]. No. 5: 63–78. (In Russ.) DOI: 10.14515/monitoring.2017.5.05.
- Guba K. (2018) Big Data in Sociology: New Data, New Sociology? *Sotsiologicheskoe obozreniye* [Russian Sociological Review]. No. 1: 213–236. (In Russ.)
- Ignatow G. (2016) Theoretical Foundations for Digital Text Analysis. *Journal for the Theory of Social Behaviour*. Vol. 46. No. 1: 104–120. DOI: 10.1111/jtsb.12086.
- Latour B. (2002) Gabriel Tarde and the End of the Social. In: Joyce P. (ed.) *The Social in Question: New Bearings in the History and the Social Sciences*. London: Routledge.
- Latour B. (2010) Tarde’s Idea of Quantification. In: Candea M. (ed.) *The Social after Gabriel Tarde: Debates and Assessments (Culture, Economy and the Social)*. Abingdon: Routledge: 145–163.
- Latour B. (2014) *Reassembling the Social. An Introduction to Actor-Network-Theory*. Moscow: NIU VShE. (In Russ.)
- Latour B., Jensen P., Venturini T., Grauwin S., Boullier D. (2012) ‘The Whole is Always Smaller than Its Parts’: A Digital Test of Gabriel Tarde’s Monads. *The British Journal of Sociology*. Vol. 63. No. 4: 591–615. DOI: 10.1111/j.1468-4446.2012.01428.x.
- Ledford H. (2020). How Facebook, Twitter and Other Data Troves are Revolutionizing Social Science. *Nature*. No. 7812: 328–330. DOI: 10.1038/d41586020017471.
- Marres N. (2017) *Digital Sociology: The Reinvention of Social Research*. Cambridge: Polity Press.
- McFarland D., Lewis K., Goldberg A. (2016) Sociology in the Era of Big Data: The Ascent of Forensic Social Science. *The American Sociologist*. Vol. 47. No. 1: 12–35. DOI: 10.1007/s12108-015-9291-8.
- Tarde G. (2011) *Laws of Imitation*. Moscow: Akademicheskii proekt. (In Russ.)
- Tarde G. (2016) *Monadology and Sociology*. Perm: Gile Press. (In Russ.)
- Zhang J., Centola D. (2019) Social Networks and Health: New Developments in Diffusion, Online and Offline. *Annual Review of Sociology*. Vol. 45: 91–109. DOI: 10.1146/annurev-soc-073117041421.