Mapping the field of sequence analysis

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To those who make history, writing it may seem to be unnecessary. When it comes to science, some who make it believe they are to advance knowledge, not contemplate the story of how they are able to do so. However, this communication is taking the opposite stance. As other cases of history of science show, scholars at a given time are prone to see their field as an ideal, global college of individual minds, interacting freely and efficiently, and their field's story as a linear upward curve. This view bears the risk of forgetting about multiple factors, some structural, some contingent, heteronomous to intellectual life, that influence research: the endogenous sociological logic of research communities; personal affinities with topics and tools; journals' editorial lines; existing paradigm wars along which one has to align oneself; the agenda of funding organisations; the availability of data and software; and the inertia of individual and collective agendas, even if logical reasons would push to innovation. Naturally, researchers constantly update their knowledge and assessment of other works in the field, contributing to a Darwinian-like selection of best ideas. But this selection takes place in settings that are constrained technically, economically, sociologically, institutionally, politically or ideologically. These settings have the capacity to make scholars forget how multicausal, and sometimes arbitrary, the directions they take can be. There is no reason to imagine, as gentle the community of sequence analysts may be, that it would escape these contingencies.

Looking back at the progress made collectively since the introduction of sequence analysis (SA) in the social sciences enables, not only to feel good about the achievements, but also to: 1. Detect trends and turning points; 2. Spot the factors of methodological change, both internal or external to the intellectual sphere; 3. Understand why some paths have been taken, and others sealed off; and 4. Encourage alternative options. This communication aims to observe SA as a research programme (Lakatos and Musgrave 1970), taking the view of an outsider to the community of sequence analysts, yet using an insider's knowledge to decipher it. To this purpose, it finds inspiration in pioneer theories of how scientific innovation sometimes happens, and sometimes not: K. Popper's (1934) assertion of the falsificationist internal logic of scientific discovery; T. Kuhn's (1962) more sociological and historical view on the contingent factors that trigger scientific revolutions; I. Lakatos and A. Musgrave's (1970) position, centred on "research programmes", intermediate between all-logical and all-contingent theories; and J.-M. Berthelot's (1996) demonstration of the irreducible but fruitful pluralism of social scientific demonstrations.

Here SA is defined as a set of concepts and tools designed (or redesigned from other disciplines) for the study of series of social events, or states along social trajectories. This method, or approach, has been specific in several respects: the nodal role of

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A. Abbott, the most cited author in the field, although he played the role of an intermediary with other scientific fields as much as the one of a creator (Gauthier, Buhlmann and Blanchard 2014); the importation and adaptation of core tools from computer science and genetics; the dependence on the availability of adequate sequential data, computing power and software developments; the diversity of geographic, institutional and disciplinary loci of development; the laborious, still challenging competition with established longitudinal statistical methods (time series, duration models, Markov models, timed regression models); and, consequence of the latter, the fact that core elements of the method have been and are still disputed, in a constructive manner, although sometimes radically (Abbott and Tsay 2000; Robette, Bry and Lelièvre 2015). These conditions of development came to be met and articulated with each other only in the 2000s. This, besides strictly internal (intellectual) factors, explains the near-exponential rise of publications from this period onward, after a more stagnant time, marked nonetheless by the works of A. Abbott and his colleagues.

Following a short track of previous literature reviews (Aisenbrey and Fasang 2010; Blanchard 2011; Cornwell 2015; Lesnard 2006), this communication will be based on an extensive review of publications making use of SA in the social sciences, including: empirical applications; methodological and software developments; literature reviews; introductions and textbooks; comparisons with other approaches to longitudinal data; as well as critics and alternative propositions. Taking a mapping approach to the history and sociology of science (Blanchard, Rihoux and Alamos-Concha 2016), I will apply multivariate data analysis and network analysis to this corpus in order to reveal trends and events, convergences and divergences, imitations and distinctions, and other aspects of the historical dynamic of innovation in the field. This will enable to: contrast distinct visions of SA; contrast mainstream case studies and more marginal ones; trace the evolution of competing data and methods over time; spot converging and diverging methodological options, schools and authors.

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